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CONTENTS

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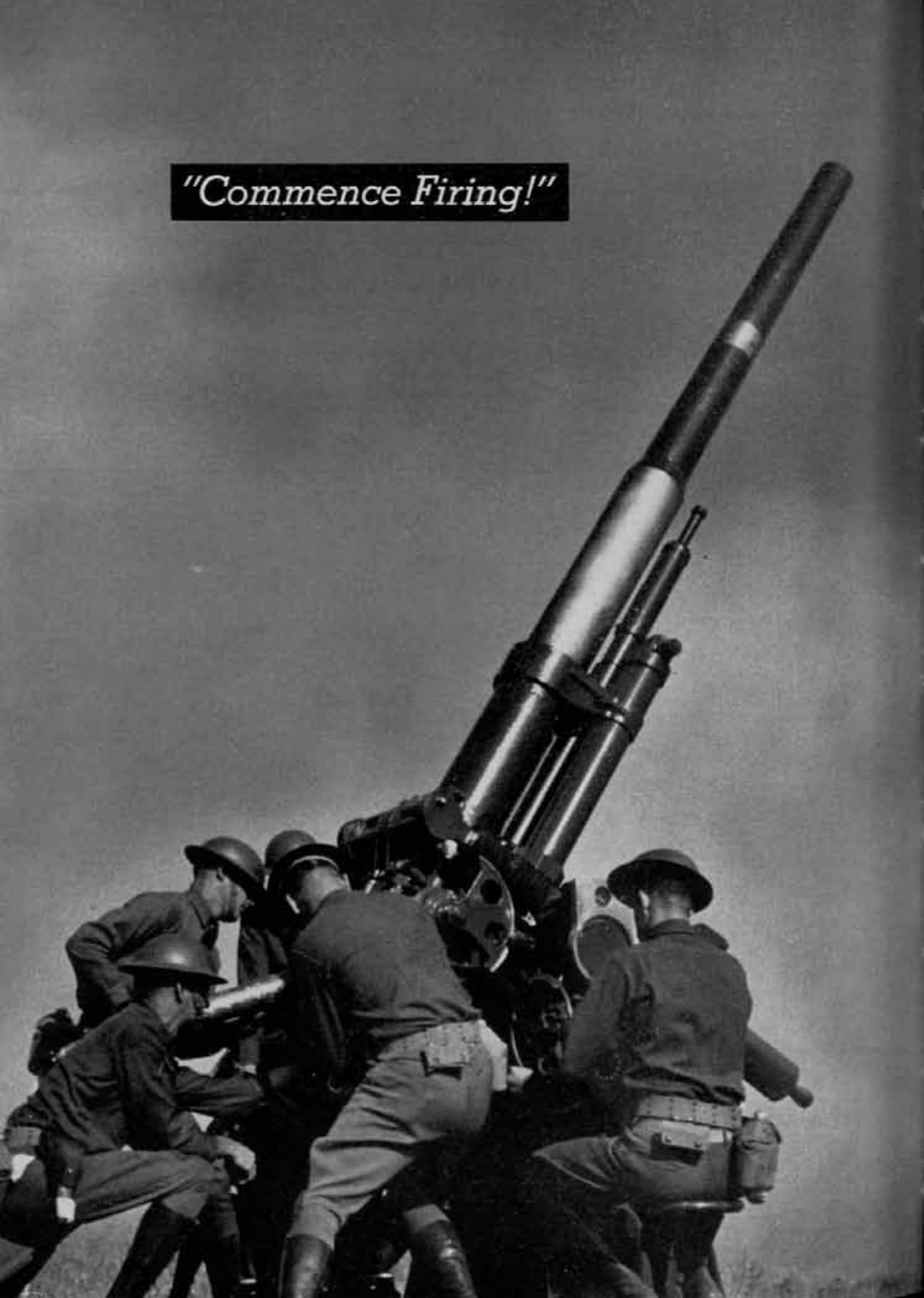

"Commence Firing!"

THE NEW FACE OF WAR

By Major Thomas R. Phillips

COAST ARTILLERY CORPS

In London, Paris, Berlin, and Rome, men and women live fearing to be awakened any night by the roar of exploding bombs. They are digging mole cities far beneath the surface. They are renting apartments with underground bombproofs before the buildings are even finished. They are fitting their children with gas masks. Their fears turn ever toward the skies.

Terrorism from the air stands in popular belief as the principal feature of tomorrow's war. Actually, the probability of air attack on cities is steadily decreasing. It has not been effective in Spain and China. A prepared populace is immune to terror. The threat of retaliation gives pause to staffs that contemplate unlimited aerial war. Attack from the air on populous centers no longer offers hope of surprise. Five years ago it might have been tried successfully, but today antiaircraft defenses and other preparations have ended the honeymoon of aerial terrorism and war. The theory of warfare which it represents is passing into the military attic along with the French "headlong offensive" of 1914 and the "mechanized armies" of the recent past.

The Versailles Treaty army of Germany, under General von Seeckt, making a virtue of necessity, proclaimed the superiority of a small, highly trained force, largely mechanized. Von Seeckt pictured attacks with thousands of tanks breaking over the borders and disrupting all communications while a thousand airplanes paralyzed the hostile capital. The French answer to thousands of tanks

Tomorrow's war will start as the World War ended . . . . and end as the World War started

and sudden attack was the Maginot Line. They established a continuous front before war could begin. But twenty years finds the cycle of military thought, after rising into the clouds with airplanes and wandering down the highways with mechanized armies, returning to the trenches and strong-points of the World War.

A scornful critic of generals as a class has written that the war they prepare for is not the next war but the last. Major General J. F. C. Fuller claims it is the war *before* the last. The present model for tactics and strategy in many armies is to be found in the opening three months of the World War, when divisions, corps, and armies maneuvered into battle. In these same armies it is insisted that the continuous front was a product of the special conditions of 1914, and that these are not likely to recur. The concentration of armies some distance behind the theater of operations, their slow advance on foot toward contact, protected and screened by large units of cavalry —this is the model. To 1914 divisions a few modern weapons are added, and a little motor transport, and then battles, model 1914, are refought. Alone, in the middle of a continent, divisions, brigades, and even regiments, are maneuvered—on paper, at least—with both flanks open.

The validity of these theories is open to question. In an almost war occurring not so long ago in Europe, the two armies faced each other across their fortified border. The continuous front was formed before war started, and this may well have supplied one reason for its suppression. Had the two armies clashed, there would have been no room for maneuver. Maneuver room could only have been gained by battle. Along the Manchukuoan border, Russian and Japanese forces face each other on a fortified and occupied line. The Maginot Line is paralleled by a fortified German line. Boundaries between Russia, Poland, and Finland are fortified and manned. On every boundary in the world where war might break soldiers face each other. Continuous fronts are already formed. Contact is already established. Tomorrow's war will start as the World War ended—with a continuous front—and end as the World War started—with maneuver.

Soldiers' efforts to avoid the pitfalls of the last war are represented by the Douhet theory and the dream of a mechanized, high-speed army. Both resulted from efforts to avoid stabilized fronts and wars of attrition in which even the winner loses. To Douhet, the power of the defensive had become so great that fronts could not be broken. He visualized the ground armies as on the defensive along their national borders. The air armies, alone capable of passing over the trenches, were to win the war. They would attack lines of communication, manufacturing establishments, governmental headquarters, and even the civil population, and destroy the ability and will of the enemy to fight. The logic of Douhet, granted his premises, is irreproachable. But his premises were based on an exaggerated idea of the powers of air attack, and an underestimate of the offensive power of ground armies and the moral resistance of civil populations.

In theory, the mechanized army could prevent the formation of stabilized fronts by sudden attack at the outset. It was expected to disrupt the mobilization of the enemy and win the war by capturing key political and communications centers. But the fronts to prevent such an interruption are already in being. The hard-headed French established a checkmate. Von Seeckt's dream ship foundered on the Maginot Line.

Were the military theorists wrong when they assumed that stabilization for three years in France was a result of special conditions? No; for the formation of fronts in modern war is a product of new agencies of warfare. Stabilization on the Western Front resulted from relatively short lines, a shortage of ammunition, and an approximately equal combat power of two great armies. And now, the very threat of envelopment by motorized and mechanized troops forces the continuous front. The foot soldier of 1914 could be blocked when he attempted to move at a rate of ten or twelve miles a day toward the rear of his enemy. The mechanized force of today can move two hundred miles to the flank and rear in twenty-four hours. Fronts must be extended to prevent such envelopment; barriers established in time of peace to block the sudden attack. A nation can have no flanks; an army can have no flanks. An open flank is but an invitation to a mechanized force to march around and to the rear, and render the position of the army untenable. And so, lines are extended in peace to international boundaries, to the sea, to great mountain ranges—to impassable barriers. In this day of total war, each nation becomes a vast fortress ringed by barriers, artificial and natural. And this protection gains time to assemble the citizen armies.

The continuous front is not a condition peculiar to a European war. A continuous, or perhaps discontinuous, front more than a thousand miles long was formed in Spain almost at once. Franco's line of communication guards, from Toledo to Don Benito, found themselves the occupants of a front. Everywhere, from the Pyrenees to the Mediterranean, isolated bodies joined to establish the continuous line. It was unforeseen, but inevitable. A road or valley without its protecting barrier was a free highway for troops in motors to turn the whole battle line. The demands of the barrier took precedence over the massing of an offensive maneuvering force by either contender. They still do.

Though but a quarter as many men are fighting on each side, they are maintaining, in Spain, a continuous front more than twice as long as that of the World War in France. The war started without preparation, without thought of forming fronts. The objectives of the opposing forces were the great cities. If the continuous front was inescapable in Spain, it is inevitable in any war.

A continuous front is not, however, synonymous with stabilization. Certain military writers, reasoning from the stabilization of 1915 and 1916 on the Western Front, have assumed that stabilization is inevitable. But the front in Spain is not stabilized and never has been. The front in France was not stabilized during 1918. A stabi-

lized front results when forces of approximately equal power face each other along a continuous front. The initial deadlock on the French front was the result of ammunition shortage. Only blasting could dislodge the burrowing soldiers, but both France and Germany had exhausted their blasting materials. Had either foreseen the unprecedented expenditure of ammunition and supplied greater stockages or possessed a higher manufacturing capacity, there would have been no stabilization. Either could thus have won the war.

Sequacious military thinkers, pointing to the period of stabilization in France, proclaim that all stabilization is the result of the power of defensive weapons and organization. The World War proves precisely the opposite. Offensives were successful when means were available and the technique of their use was understood. The defensive is never impregnable. Ample and appropriate means and suitable technique can break it. Artillery blasted through the most powerful lines in 1918. Since then, the tank and airplane have been developed to aid artillery and infantry. Motors make possible the surprise concentration of the necessary mass, and supply it continuously with men, ammunition, and food.

Defensive power, moreover, aids the attacker just as much as it does the defender. No army is strong enough to attack everywhere at once. The attacker must defend nine-tenths of his line. Defensive organization permits him to do this with limited numbers. Thus is he able to concentrate enormous masses against a single sector and overwhelm it. The greatest art in modern war is to make the power of the defensive work for the attack. Given a definite superiority, an attacker can, by threats at many points, force the dispersion of hostile reserves while he concentrates his masses.

It is also true that combat power is more than ever dependent upon matériel. If the World War used entirely unforeseen quantities of ammunition, the requirements of tomorrow's war are equally unrealized. All weapons fire faster. To an ammunition usage of almost unimaginable vastness must be added tank and airplane replacement. The average battle life of an airplane in the World War was less than twenty hours; the average actual life at the front, about thirty days. What nation is now prepared to replace its air fleets at such a rate? The destruction of half the tanks used in a single engagement may be a commonplace. What nation can build new tanks at such a pace? It is quite possible that a future war will see stabilization again, purely for lack of factories and stockages to replace the usury of battle.

Other things being equal, the nation with the greatest stocks of war material, or, in their stead, a war industry ready to turn out ammunition, aircraft, and tanks as fast as they are used, will win. Germany's greatest strength for war does not lie in its army of a million men, but in an industry rapidly expanding to equip an army suddenly increased from one hundred thousand to a full million with more than a million reserves.

Industrial mobilization is a magic word on the lips of all general staffs. But only the nation definitely preparing for offensive war at a foreseen time will develop its industry or stockages to the degree that tomorrow's war will require. The democracy with defensive strategy, unable to foresee the time of hostilities, cannot afford to stock, or be prepared to manufacture, war materials on the scale needed. If it did, its stockages and equipment might become obsolete, its plants and plans useless. Indeed, the waste of peacetime preparation now approaches the waste of war. Democratic peoples live in the present, and the facts of tomorrow are always unexpected. The nature of democratic government and the pacific inclination of democratic peoples make industrial counter-preparation for a war on tomorrow's scale a practical impossibility. The industrial requirements of modern war favor the aggressor naton.

Thus, the two inescapable features on the new face of war are the continuous front and the unimaginable devouring of matériel. No longer, in the face of mechanized war, can a nation have an unfortified frontier. No longer will it suffice to have an air force in being, a tank force in being, a three-month stockage of ammunition. Behind these must be a plant in being, ready to replace unprecedented consumption. Neither plant plans nor paper plans of industrial mobilization can go into action fast enough to replace losses of matériel in the early stages of war. The nation that breaks the continuous front will be the nation that can supply ammunition and replace airplanes and tanks a month earlier than its opponent. The industrial front is as important as the fighting front. It is total war that may be expected.

Even the United States does not escape these servitudes. Our most potent allies are two great oceans. In recorded history, no great nation has ever been so favored. But oceans are highways. Our frontiers are sea frontiers. Our continuous front is occupied by the navy, backed by the air force and coast defenses. Behind those barriers we alone among the great nations may have time to organize our army and prepare its industrial support.

Soldiers teach the practice of war by extracting little parts from the whole of war, classifying the parts as to type of operation. Then they set up situations in problems and maneuvers so that the classical solutions are applicable. Envelopment, penetration, delaying action, etc. are illustrated. The situation is made to fit the solution. Years of thus thinking about war in samples obscures the whole, and by then the pieces cannot be made to fit into a whole even if it were perfectly seen.

To gain a true picture, the outset of war must be visualized. When there is tension between adjacent nations, the newspapers inform us that large-scale maneuvers are taking place in the frontier areas. Both sides deny that this has any significance. But border forces are reinforced. If war then breaks, the two armies are in contact in small force, facing each other on the frontier. The opposing armies flow to the battle areas behind the border barriers.

Concentration takes place on the battlefield and not in the interior.

What will the air forces, the only forces at this time capable of passing the barrier, be doing? Will they be out knocking over buildings? Hardly! They will be busy where they can serve their country most effectively. At the outset, it seems probable, their greatest service will be to delay and disorganize the movement of enemy troops to the border. Not then are cities and industries the vital targets. Most important of all tasks will be the effort to prevent the strengthening of the continuous front. It must be kept weak to ease the problem of breaking it. Hence, air forces will be used against troop movements. Every marching column will be swept with bombs and machine guns. Every railroad track will get its quota of bombs.

At the same time, the air forces will have to protect their own troop movements from the hostile aviation. This may become so important that attack on hostile aviation in the air and on its airdromes will become the vital task. This decision will be difficult, and one that cannot be made in advance.

In important areas activity in the air will be almost continuous. Soldiers may have to give up the immemorial march to battle, for long columns on roads are the dream targets of the aviator. Marching at night gives a partial protection. Movements by rail may be so delayed and interrupted as to be impracticable. Only the motor remains. Its roads are many, difficult to destroy, and easy to repair. A wrecked train blocks the tracks for a day. A wrecked truck is shoved into the ditch and traffic continues. These conditions will probably force the use of trucks for all troop movements to the front. And trucks will not be safe in long columns. Just as soldiers must disperse and move forward in small groups when they come into the zone of fire in battle, so in the future will they have to filter through the beaten zone of air attack by movement in single trucks. This zone is not of unlimited depth; perhaps thirty miles, perhaps fifty miles, perhaps seventy-five. But whatever its depth, within it there can be no masses, no perfect targets for the hostile aviation.

It is at the outset of a war that surprise is most easily obtained, and speed is a main element of surprise. Superior peacetime preparation is a surprise. The strength of the German armies in 1914, reinforced by their reserve corps, was a surprise to the French. The direction of the German attack was a surprise. The speed of mobilization was a surprise. The rapid reduction of Belgian fortresses by artillery heavier than any ever used in the field before, was a surprise. The Germans were in turn surprised by the speed of Russian mobilization. New surprises are likewise being prepared for tomorow's war. Unquestionably, mobilization will take place with greater speed, and some of the former steps in the process will doubtless be eliminated.

Getting the "mostest men thar fustest" is more important at the outset of war than at any time during it. But it is a mistake to assume that surprises will repeat patterns of the past. The surprise of tomorrow may be the neutralization of air forces by ground weapons; it may even be the unexpected success of enormous masses of tanks in a break-through obtained by superior speed in the opening phases of war. No greater mistake can be made than to visualize war as if it were a fixed form.

In no field of war has uninformed imagination strayed so wildly as in the popular conception of aerial war. Soldiers and staffs who become infected with these public enthusiasms will have their surprises. Air forces are thought of as darkening the skies in numbers and performing prodigiously. The air forces of the World War are thought of as negligible in comparison with those of tomorrow's war.

Germany, England, and France each manufactured about fifty thousand airplanes during the World War. Germany surrendered eighteen thousand at the Armistice. Such numbers will probably never be produced in an equal period again. The airplanes of 1918 were small, inexpensive, and relatively simple to construct. The bombers of today cost from one hundred thousand to half a million dollars, and the cost is still mounting. Construction takes from six months to a year and a half; they cannot be replaced without long delay. Will such costly craft, fragile as a flying insect, and practically irreplaceable, be used on every trifling mission? Obviously not. They will be reserved for work suitable to their cost and importance. Just as a navy is unwilling to risk its fleet without hope of compensating results, so will the air forces decline to operate their irreplaceable squadrons against trifling objectives. They will be saved until the tasks at hand are important enough to warrant the chances they may have to take.

The effectiveness of antiaircraft defense may also be a surprise. If the results obtained by German matériel in Spain can be used as a standard, it appears that localities well defended by antiaircraft artillery are immune from bombardment. Not because bombers cannot get through the antiaircraft defense, but because the losses are too great to justify the results obtained. The time is approaching when antiaircraft defense, like coast defense, will accomplish its mission of holding off the enemy by its mere presence, with never the opportunity of firing a shot. But antiaircraft matériel will always be limited in amount. There will be enough to protect certain vital localities, but it will never be available in quantities sufficient to limit air operations seriously.

The failure of air forces to perform the prodigies expected of them will be a surprise because everyone looks for some explanation, hidden as yet, to account for the small results in Spain and China. In theory, a ton of gas can kill 45,000 men; in the World War it took a ton to kill one man. A single rifle bullet can kill half a dozen men; in the World War, 28,000 were fired for each man killed. A single bomb can destroy a bridge—in theory; perhaps two hundred will have to be dropped to accomplish the destruction, and perhaps, too, the bridge can be

repaired in a day. In a year of steady bombardment, the Japanese air force, unopposed, has failed to interrupt the Canton-Hankow railway for more than a few hours at a time. In Spain, two railway lines from France supplying the Loyalist forces, have continued to operate under almost daily attacks from Franco's bombers. The single-rail line from Barcelona to Valencia continued to run for almost two years until it was cut by Franco's advance to the sea. Franco's four hundred modern bombers are not a weak force if weighed against the limited communications they have been attacking. In a major war the air forces would be larger, but so would their tasks be more numerous. Recognition of their real limitations will lead to their use in concentrations great enough, and on objectives important enough, not to dissipate their unique capabilities and unexampled power.

But though many soldiers do not exaggerate the capabilities of fighting aviation, they have unlimited faith in the powers of observation aviation. A squadron of thirteen observation planes is allotted to each division. These are each given, in maneuvers and problems, one or two missions a day. Methodically they make their scheduled flights up and down all roads in the hostile rear, and photograph great areas of territory. How simple; what quantities of information they bring in! The general makes his daily flights to observe the course of the battle. Artillery fire is adjusted from the air. The whole thing is as unreal as popular belief in a five-minute destruction of Manhattan Island.

When battle is intense, pursuit aviation will operate constantly over the lines. The single observation plane fortunate enough to escape small-caliber antiaircraft cannon will be the prey of pursuit patrols. Observation, in battle, will have to be fought for. Three observation ships will need the protection of a pursuit squadron. Fishing expeditions for information will only result in the loss of plane, pilot, and observer. Specific, vital information will warrant an expenditure of the air power required to obtain it. But the G-2 practices of using observation aviation current in many armies have no basis in the reality of war. When the thirteen observation planes of each of the divisions have once been reduced to two or three before the first week of battle is over, then will they be concentrated in the larger units and sent out with proper protection on limited and specific assignments. Information worth the loss of a half-dozen airplanes and crews can only be information of the greatest importance.

The nature of tomorrow's battles depends upon the whole silhouette of tomorrow's war. The tactics of small, independent maneuvering forces have no application to the reality of the continuous front and of support by tank masses and combat aviation. Instead, tactics will be power tactics. It is not the maneuver of men that must be learned, it is the maneuver of power, of which men are but a part. What must be learned is the concentration, application, and continuity of application, of all the powers of armies. Not men alone, nor aviation alone, not tanks alone, nor artillery alone, but all of these coördinating their action toward a uniform objective, reinforced by endless rivers of ammunition and replacements, are the tools of power tactics.

The preliminary steps of the offensive battle will be efforts to get the enemy off balance. His reserves will be dispersed in answer to feints. Secondary offensives will force him to counter-attack, thus reversing the offensive-defensive balance. When the main attack takes place, it will be a surprise and initial success should follow. It may be made on a broad front to allow the massive entrance of men and material to flow through and spread out on each flank, or it may be in the form of two penetrations converging toward a point and pinching out a pocket—"pocket tactics." The break can be accomplished only with the help of all the available means of war. In 1918 it was men and artillery; now it must be men and tanks supported by artillery and combat aviation.

The first reaction of the defender will be to concentrate his air power to delay the flood pouring through the gap in his defensive dikes. Closely following will come his tanks and troops in motors to form new dams. The attacker's air force will operate with his troops to make the break-through. As soon as the break is made, the air force will delay the movement of enemy reserves, and will also protect its own troops from the defender's frantic air attacks. Will air forces be wasted at bombing cities and rail lines at a time like this? The break-through may mean total destruction for the defender and a victorious end of the war for the attacker. For both, the vital need for air force help is on the field of battle where the main decision is being resolved. Every other air force objective is secondary.

Great battles require periods of re-supply and recuperation between them. It is during these periods that air forces will be most effective in attacking the movement of ammunition toward the front and the military manufacturing establishments in the rear. Offensives may thus be delayed or disrupted. One searches in vain for justification of independent air operations against objectives not related to the objectives of the ground armies. Whatever the future may show, the gain of tomorrow's war depends upon the success of the ground armies. Air forces will make their principal contribution in support, both close and distant, of ground operations.

If the war turns into stabilization and a war of attrition, there may be some logical (but no humane) justification for the aerial attack of political and economic objectives. A people, weary and worn with years of fruitless war, may succumb to discouragement if the hostile air force constantly harasses. Who can tell? Perhaps it may be tried.

No picture of tomorrow's war is complete without the black warriors of propaganda, subversion, and sabotage in the shadows. Propaganda exalts the virtues, strength, and nobility of its sponsors. Underground organizations spread dissension and corrupt the faith of the opponent in his leadership and cause. Sabotage makes the best-laid

plans go awry. In many nations in the world the black war is being fought today, the preliminary of the blood war. It is real war, a war of lies and corruption, of spies and destruction. In certain nations two- and three-year courses are given in universities of subversion. Our own nationals attend and come back to undermine our institutions. We are not prepared for war until we are prepared to fight subversion.

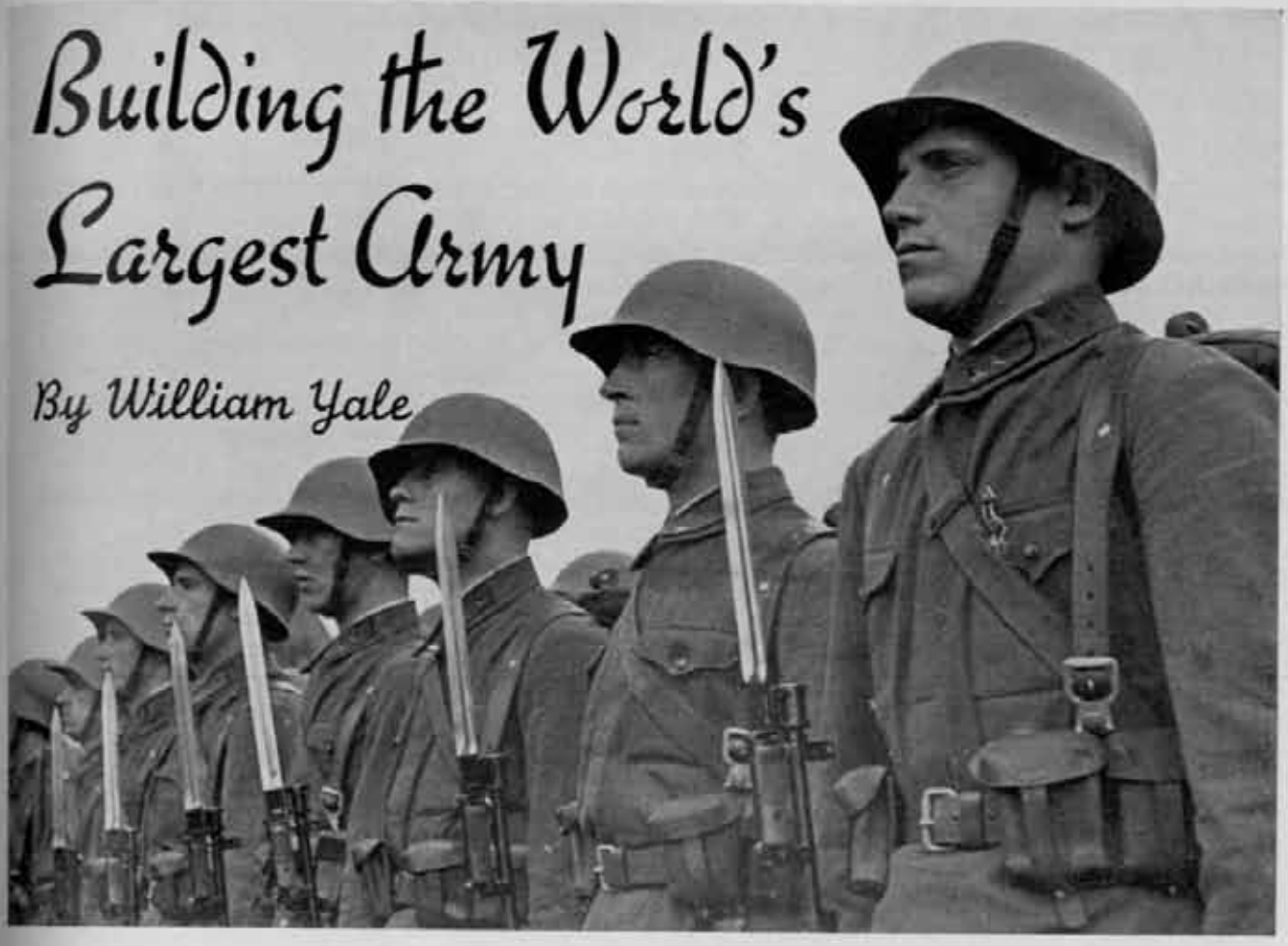
Among all the combat agencies of war, the infantry remains the center of gravity of battle. Only the infantryman can *hold* ground and protect himself. But no longer can the infantry alone *win* ground. The tragic Queen of Battles, without her servitors, is no longer queen. She remains at the center of military power, but is powerless without her staunch supporters.

The silhouette of tomorrow's war shows it starting with a continuous front. The front will be broken by the application of power tactics on a new scale. All the elements of military power will be coördinated to help attain the objectives of the ground army. The war may be won or lost, or it may be stabilized, as a result of the battle on the industrial front. In the lines and in the factories, the forces of subversion will fight. This war, pounding against the will of the soldiers and nations, may be decisive, if it, too, is not prepared for and met. The sphere of war expands. A new view of the whole is needed, and a new resolution of war into its components. The classical pieces of war with which soldiers, fascinated, play, and lose all sense of the world's growth and change are still, and ever will be, yesterday's and not tomorrow's war.

Italian gunners man a new type dual-purpose (antiaircraft and antitank) gun during maneuvers. The picture shows the gun in use as an antitank weapon.

Building the World's Largest Army

By William Yale



THE headlines screech: Trials, Executions, Sabotage, Espionage, Dictatorship run amuck, Soviet Russia on verge of collapse. It is all very confusing and misleading to the average reader. What does the news from Russia mean? What is back of the headlines? It is important to know, if one is to understand what is taking place in Europe and in Asia. Why has Japan taken this precise moment to risk war with China? Is this action connected with the present situation in Russia? How does the situation in Russia affect the Franco-Russian alliance? What bearing has the news from Russia on the Spanish situation? How is Trotsky in Mexico tied up with the news from Russia? Such are the questions that an ordinary mortal attempting to keep abreast of the world-situation wants answered. Perhaps there are no answers available. However, a brief survey of some items of recent Russian history do throw some light on these matters.

Go back to 1918-1922. Here one finds a Russia torn by revolution, counter-revolution, and foreign intervention, on the verge of economic collapse; production almost at a standstill. War Communism had made it possible for the Soviet Government to cope with domestic and foreign enemies. Peace reigned in a Russia in ruins. Something had to be done. The Soviet Government introduced the New Economic Policy and began to prepare for a planned economy. The western states hailed its introduction as the first step in a return to Capitalism; it proved to be a beginning of a more complete socialization — the socialization of a Planned Economic Order, first inaugurated in 1928, and developed under the first and second five-year plans.

In less than ten years' time Soviet Russia has so increased industrial production as to be ranked among the foremost industrial countries of the world. The Soviet rulers were of the opinion that socialism and eventual communism could not flourish for long under a "want" economy and set about to create a "plenty" economy. They thought that in a condition of want, competition would continue to be the driving economic force. They were convinced that people would only come to think in terms of socialization if production and distribution were actually socialized and if socialized production and distribution produced an increasing plenty. Without machinery, without trained technicians, without skilled workers, without experienced executives, how could the Soviet Government increase enormously the productive forces in Russia? The only answer was to buy the necessary machinery and to hire the necessary trained engineers, technicians, experts, execu-

Despite divergent ideas, the Soviets turned to Germany for aid

tives, and skilled workers in other lands to come to Russia until a sufficient number of Russians were trained.

It is no secret that in every branch of industry and agriculture, in mining, forestry, transportation, and engineering, foreign experts were hired from the most advanced industrial countries of Europe and America. Without these men, Soviet Russia could not have built the great dams and hydro-electric plants, developed great industrial centers, availed herself of her vast natural resources in minerals and coal, in petroleum and water-power, improved her railroads, rebuilt her old cities and constructed new ones. The stupendous increase in production within such a short space of time was made possible by the trained men whom the Soviet Government hired.

Much publicity has been given to the work of these foreigners who helped the Russians to create a great industrial society. Nothing much, however, has been said of another group of experts who went to Russia after 1920. In fact, a veil of secrecy has cloaked their activities, although the results of their work have received careful attention by military men.

For Soviet Russia not only suddenly became one of the leading industrial states of the world, but it as rapidly became one of the greatest military powers. It created the largest army in the world, equipped with all the most modern machinery of war: tanks, artillery, aircraft. Foreign observers watched with increasing interest and trepidation the armies and armaments of Russia. The international aspects of this new military machine were carefully analyzed in the various foreign offices of the world, and foreign policies were adapted to the changed situation. Other aspects of this development escaped the notice of most commentators on Russia and international affairs.

The modern machinery of war is highly specialized. There is nothing static in the field of military equipment and arms. To carry on experiments, to invent, to create, and produce such intricate machinery, demands a high degree of technical knowledge and skill. The arms and munitions of a modern army are the products of the latest knowledge and skill. Furthermore, the use of this new equipment demands highly specialized knowledge and training. Those who are to use soldiers and machines effectively have to be experts. Finally, every part of the modern military machine is dependent upon every phase of the productive system. Particularly in a Planned Economic Order must the industrial machine be coördinated with the military machine. In both, experts are essential.

From where did the Soviet Government, between 1922 and 1932, get the experts who could help to build up a great military machine, who could assist the Russians in manufacturing the armament and in teaching the Russians how to use their men and machines?

The foreign military experts who helped the Soviet Government to build its powerful military machine came from Germany. Considering only the present extreme antagonism between the Government of Nazi Germany, and that of Soviet Russia, this statement is startling. To many it will at first appear fantastic. In order to understand how and why German officers went to Russia to train the Soviet armies, one must turn back the pages of history to 1919, 1920 and consider the situation in Germany from those years until the rise to power of Hitler in 1933.

In the winter of 1919, the German Republic came into existence under the Weimar Constitution. Its successive governments during the next thirteen years were made up of coalition cabinets, for the most part, under the control of men and parties whose policy was that of reconciliation with their former enemies, a policy of fulfillment of obligations assumed under the Versailles Treaty. Although the monarchy had been replaced by a Republic, and autocracy supplanted by political democracy, the old military caste had not been deprived of its power. On the contrary, its leaders were given control of the Reichswehr (the National Army). The armed forces of Germany were reduced to a shadow of the former Imperial Army. Germany was denied the right to use certain types of armament, the manufacture of armament was limited. Allied Commissions were sent to Germany to see that these terms of the Versailles Treaty were enforced. Without equipment, without large bodies of troops to train and maneuver, how were German officers to be trained? How were German officers to experiment with new equipment? Certainly not in France, nor in Great Britain. Why not in Russia?

The Junkers, militarists, and Nationalists bitterly resented the Versailles Treaty; they opposed the Government's policy of reconciliation with Great Britain and France. By the Paris Peace Conference, Germany had been placed in the position of an "outlaw" state. Soviet Russia was looked upon much in the same way, but without restrictions of any sort.

The government of Soviet Russia needed peace and security in order to carry out its policy of economic rehabilitation along socialized lines. It was convinced that it needed a powerful army equipped with modern implements of war to defend itself. The problem arose as to how the Soviet Union could train and equip such an armed force. There were some officers of the old Czarist army still in Russia, who, to earn a living and to continue their professional work, joined the Red Army. These officers were for the most part from the former ruling classes whose loyalty to the Soviet Government was not entirely reliable. There were not enough officers among this group to meet the needs of the Soviet Government. Nor were these officers as highly skilled as foreign officers. For once the needs of Soviet Russia and those of the German Republic dovetailed.

In consequence, the Soviet Government turned to the government of Germany, despite their divergent ideas and ultimate aims. Russian military leaders turned to German military leaders; both had much in common. The German military men were members of a caste; many of the Russian officers were former members of a similar caste. The professional interests of both were identical. Political events in western Europe between 1920 and 1922 forced the governments of these two states into close economic

and political relationship which culminated in a treaty in 1922 and again in 1927. The militarists availed themselves of this economic and political "rapprochement" to carry out their plans. German officers were sent to Russia over a period of ten to twelve years. During that period there came into being the great Soviet Army which astonished foreign military experts.

As a by-product of this strange liaison, German officers, who were opposed to the political democracy of the German Republic and more bitterly opposed to the social and economic democracy of the Soviet state, were brought into intimate professional and personal relationship with Russian officers—many of whom were not in sympathy with the Soviet government. But German experts were not only closely associated with the Soviet army, they were also hired by the Soviet Government in the varied departments of industry and transportation.

A modern army depends upon industry. The armament, ammunition and supply needs of the Red Army brought military leaders into close relationship with the experts and executives of most industries. As a result, there grew up in Soviet Russia a more or less closely-knit association of Russian officers, German officers, and German industrial experts. The German Staff were providing their officers with the training they needed at a time when it was impossible to obtain it in Germany. The Soviet Government thus succeeded in getting a well-equipped highly-trained army of officers and men.

After the Nazis secured control of Germany and broke the shackles of the Versailles Treaty, it was no longer necessary to send officers to Russia. The Hitler Government was profoundly anti-Bolshevik and soon initiated a violent propaganda campaign against the Soviet state. Nazi Germany and Soviet Russia became antagonists. The Soviet Government allied itself with France, who was delighted to associate with a state having the largest army in Europe that was at odds with Germany.

However, the Soviet Government had paid a high price for its new army, many of whose leading officers were on intimate relations with German officers, and in sympathy with their political ideas. A nexus had been created between the Nazi Government and ranking officers in the Red Army. Also, Soviet Russia's strongest potential enemy was thoroughly familiar with many aspects of the Russian military machine.

Then this potential enemy, Nazi Germany, entered into an agreement with Fascist Italy and Japan—an agreement aimed at Soviet Russia.

Dictator Hitler, Dr. Rosenberg and Herr Goebbels soon launched a violent propaganda campaign against the Soviet Union. If Russia could be provoked to declare war against Germany or Japan, in the inner circles of Nazi Germany, it was expected that their friends in the Red Army would be able to overthrow the Soviet regime and establish a fascist state in Russia. Then the Fascist states of Germany, Italy, Japan and Russia would become the masters of the world.

It would be naïve to suppose that the Soviet Government was completely unaware of this situation. It undoubtedly knew the dangerous game it had been playing and the more dangerous game some of its military leaders were engaged in. Suddenly, when it felt that the right moment had come, the military leaders were arrested, brought to trial and executed. That the Hitler Government understood perfectly the significance of these arrests and executions, is clear from the change in policy of Berlin. Hitler and his followers, despite the critical situation in Spain, *ceased* abruptly the vituperations which had characterized their public statements about Soviet Russia. With the liquidation of their friends in the Soviet army, the Nazis realized that to provoke the Soviet Government had become far more dangerous than hitherto. In the meantime France began to wonder whether her alliance with Soviet Russia had lost its value because of conditions in Russia. And now Japan, after testing the Soviet's temper on the Amur, selects this time for further expansion in northern China.

Trotsky's place in this picture is somewhat uncertain. His break with Stalin was over World Revolution, the Trotsky theory being that Communism in Russia could not be realized until a World Revolution had brought about socialization in the great states of the west. This thesis ran counter to that of Stalin, who insisted that Communism was not an article for export. He said Communism in Russia was possible and he further stated to Mr. Howard, of Scripps-Howard, that Revolution could not be forced upon other countries, and that it was not the policy of the Soviet Government to attempt to impose Communism on other peoples. Trotsky's philosophy has changed but little since 1914-1917, although his tactics have. Trotsky has consistently maintained that a world war would result in a World Revolution. Although it failed to materialize as a result of the first World War, he expects it to result from the next World War. He has created a world-wide revolutionary body called the Fourth International to prepare for *der Tag*.

Possibly, Trotsky sees in a conflict between Germany and France the beginning of the next world war and ultimate World Revolution. It has been suggested that Trotsky and the former pro-German officers of the Soviet Army were closely affiliated. This is a possibility. Trotsky, perhaps, thought that he could kill two birds with one stone: the Stalin regime in Russia and Nazi control in Germany. Trotsky has been accused by the Soviet Government of intriguing with Nazi Germany and of close relationship with the Gestapo. Again, it may be possible that there existed some affiliations between the Trotskyites—either directly with the Nazi (which seems doubtful) or indirectly with them through the pro-German army clique.

To many readers this may appear a far-fetched imaginative "Oppenheim thriller." There are, however, many supporting facts and many indications of close alliance between German military leaders and former Soviet army officers which warrant this interpretation.

OUR *One Battle* WAR

By Lieutenant Colonel
A. C. M. AZOY
COAST ARTILLERY
CORPS RESERVE

Illustrated
by
Gordon Grant

The plan is important because it is so different from what actually occurred

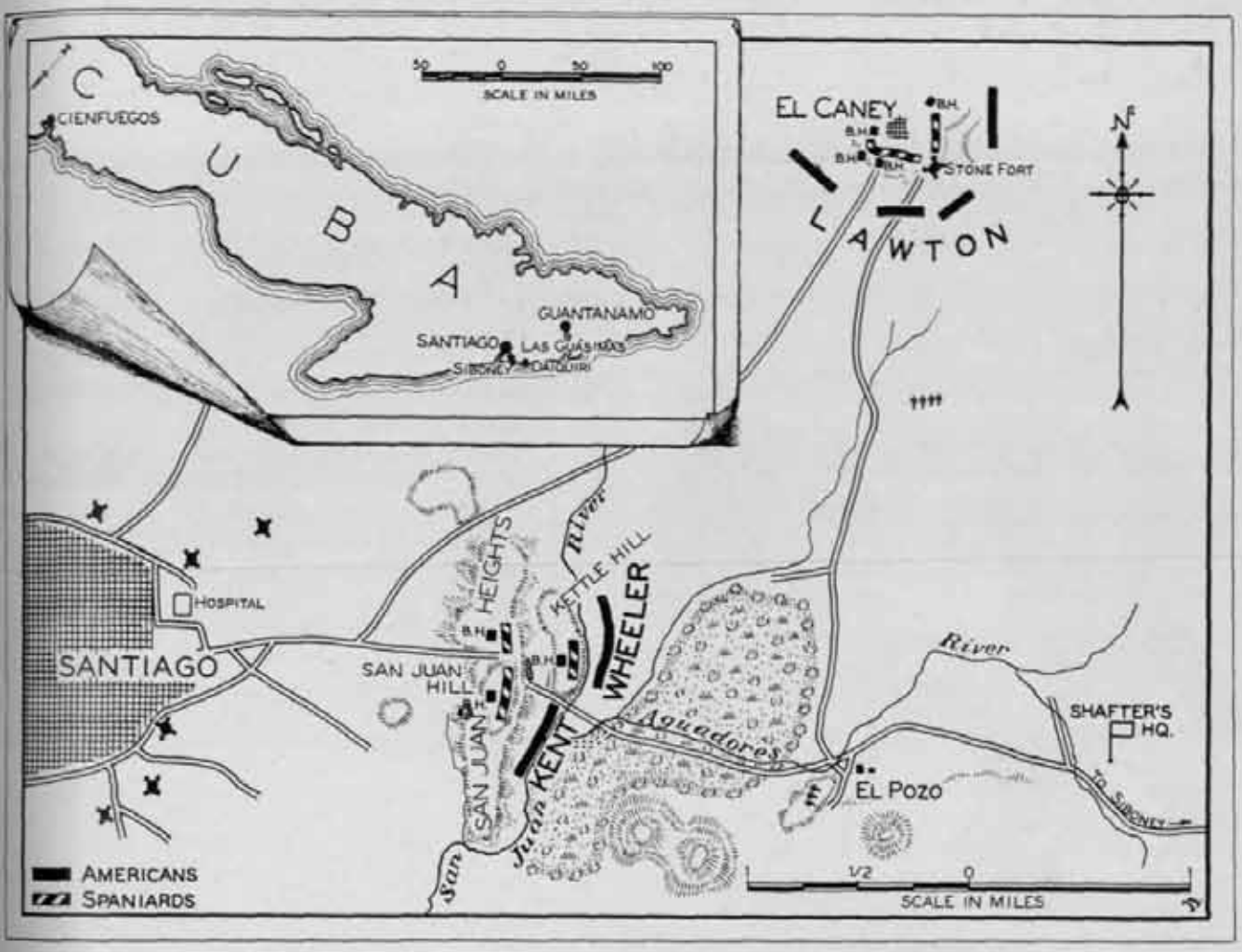
On the first of July, forty years ago, the United States Army fought the most unusual battle in which it has ever engaged. In comparison with Gettysburg, on the thirty-fifth anniversary of which it occurred, it was no more than a skirmish, and World War veterans would hardly rate it higher than a trench raid; but its repercussions were far-reaching. Historically, it still holds a record as the only engagement in our history marking the simultaneous start and finish of our participation in a war on foreign soil. Politically, it put a future president of the United States on the road to the White House. From a more æsthetic viewpoint, it furnished Buffalo Bill with the inspiration for a spectacular finale to his Wild West Show and taught thousands of Americans the pronunciation of the Spanish "j." The War Department calls it the Battle of San Juan; the soldiers who were in it called it the whole damn Spanish-American War, and they were just about right.

When we severed diplomatic relations with Spain on April 22, 1898, the Washington strategists estimated the situation as one of particular concern to the Navy, since the theater of operations was, of necessity, located among Spain's island possessions, especially Cuba. One Spanish fleet lay at Manila, but that was promptly and properly attended to by Dewey on May 1. Our chief worry was the location of Admiral Cervera and his squadron of Spain's choicest fighting ships. It was understood to be headed for Cuba from its homeland, but it might turn up anywhere along our eastern seaboard. This mysterious armada was continuously rumored as about to attack Bar Harbor, approach Asbury Park, or steam in haughty grandeur past Fortress Monroe.

Meanwhile, a mobilization camp for the Army was established at Tampa, Florida, and Major General W. R. Shafter was selected to command the troops and prepare them for occupational duty in Cuba when the time was propitious; no active hostilities for our land forces were at that time contemplated. Admiral Sampson was sent with his battle fleet to blockade Cuba, and then all hands sat back and waited for further orders, speculating the while on just where the elusive Cervera was going to show up.

They found out on May 29. Sampson discovered the Spanish vessels safe and snug in the harbor of Santiago. Orders soon went to Shafter to "go with your entire force to capture the garrison at Santiago and assist in capturing the harbor and fleet." The Army's spirit was willing enough, but owing to the pitifully inadequate facilities at Tampa for accomplishing a troop movement of such scope on such short notice, the embarkation proceeded with distressing slowness. The first troops did not begin to board their transports until June 7.

This was also the day that Sampson picked for a preliminary bombardment of the Santiago land defenses, cabling Washington, "If ten thousand men were here, city and fleet would be ours within forty-eight hours. If delayed, city will be defended more strongly by guns taken from fleet." Thirty minutes after that message reached the banks of the Potomac, General Shafter, in far-away Tampa, was summoned to the local telegraph office by President McKinley at the other end of a direct wire from the White House. The ensuing conversation, tapped out over the keys, was short and to the point. Said the President, "You will sail immediately as you are needed at destination." To which the general replied, "I will sail tomorrow morning. Steam cannot be gotten up earlier. I will try and get on the rest of the cavalry and another division of Regular infantry by morning. Will



The Battle

sail then with whatever I have on board." That was what he valiantly strove to do. But next day, just as he was about to board the headquarters ship and give the signal to sail, he received a message from Secretary of War Alger, "Wait until you get further orders before you sail"! Cervera was missing once more.

For five additional and sweltering days the transports swung at anchor under the broiling sun until the alarm was proved false and the "further orders" arrived on June 12 for the expedition to get under way immediately. By this time most of the ships needed fresh water. It was also discovered that the medical stores still lay forgotten on shore. Another forty-eight hours passed in getting everything reorganized, and it was June 14 before the flotilla of thirty-two transports and five auxiliary and supply vessels finally steamed off unhindered into the tropical twilight.

There were approximately 17,000 men in the expedition, plus horses and mules and a collection of artillery that numbered four light field batteries, a Hotchkiss revolving cannon, four Gatling guns, four howitzers, eight field mortars, and the new Borrowe pneumatic dynamite gun. These troops, forming the V Army Corps, were divided into two infantry divisions of three brigades each, and one cavalry division of two brigades. The infantry divisions were commanded by Brigadier Generals Kent and Lawton, with Brigadier Generals Chaffee and Hawkins, and Colonels Wikoff, Pearson, Van Horne, and Miles in charge of the brigades. The cavalry division chief was Major General Joseph Wheeler who, clad in Confederate gray and known as "Fighting Joe," had last taken the field thirty-five years ago against the same Yankee blue he was now wearing. His brigadiers were Sumner and Young.

Military observers from France, Germany, England, Austria, Russia, Japan, Norway and Sweden helped swell the passenger list, and no less than eighty-nine newspaper representatives were also of the party. These included such stellar writers as Richard Harding Davis, Stephen Crane, Ralph Paine, Caspar Whitney, Stephen Bonsal, Edward Marshall—soon to be crippled with a Mauser bullet in his spine—James Creelman and Sylvester Scovil. To attend to the pictorial record of the campaign, the press had sent along an equally imposing array of artists headed by Frederick Remington, Howard Chandler Christy, and Rufus Zogbaum, and that first of the great news photographers, Jimmy Hare. Room was even found for Dwight Elmendorf, whose travel lectures and stereopticon pictures were a feature of every metropolitan social season in the 'nineties.

At four o'clock the units started forward

For six days the ships wallowed through the swells of a fortunately calm sea. Civilian captains, jealous of owners' interests, refused to push their engines and were smugly indifferent to convoy orders, with the result that the transports were at times scattered over forty miles of open ocean. Luckily, they ran afoul of no Spanish raiders. All vessels arrived safely at their rendezvous with Sampson's fleet and Shafter ordered debarkation of the Army on Cuban soil for June 22.

The general scheme of procedure was for the Army to attack Santiago from the land and either capture it or isolate it from the rest of Cuba. This would force Cervera to leave the harbor and do battle with Sampson in an attempt to keep the sea lanes open for needed supplies and reinforcements from Spain. To effect this, 10,000 of our troops were to land at Daiquiri on the southern coast of Cuba, some twenty-three overland miles southeast of Santiago, and then move against the city from the rear and both flanks simultaneously. As we had been able to secure only the sketchiest of information on the Cuban topography and the roads and trails around Santiago, there were those who looked upon the proposed maneuver as somewhat precipitate. But Shafter was never one to brook arguments. The plan proceeded as scheduled.

A little after nine on the morning of the 22d, the battleships bombarded Daiquiri for forty-five minutes, while a feint at landing operations was being made eight miles up the coast off Siboney. When no answering shots came from the shore, General Lawton's brigade was ordered to the boats and our invasion of Cuba was begun. The so-called harbor of Daiquiri was actually not a harbor at all but an open roadstead, with a heavy ground swell from the sea surging on a strip of sandy beach and against a rickety pier that extended some forty feet from shore—the only docking facilities. At first, attempts were made to land the troops at this pier. This required a flying leap from boat to pier whenever a wave lifted the boats high enough. After two soldiers were drowned, the idea was abandoned and the boats were then run through the breakers directly to the beach. Though the men were weighed down with heavy blue uniforms, blanket rolls, ponchos, shelter tents, canteens, three days' rations, rifles and 100 rounds of ammunition each, there were no further casualties. The live stock was not so lucky. Horses and mules were debarked by the simple expedient of opening

the lower ports in the ships' sides and pushing the animals off into the water in the hope that their instinct for self-preservation would get them to shore. Most of them made it, but a number of mules with characteristic perversity headed out to sea and were seen no more.

Back of Daiquiri the country rose in densely wooded hills to attain an elevation of 1,000 to 1,500 feet. Along the southern crest of this ridge extended the wagon road —hardly more than a rough trail—that the Army was to follow west and north toward Santiago. Lawton and his men moved forward at once to Siboney and there bivouacked for the night, waiting for the rest of the force to join them the next morning.

It had been Shafter's plan for Lawton's division to lead the way toward Santiago. But Shafter remained on board his transport. Hence, when General Wheeler got to Daiquiri his rank automatically placed him in command of the shore forces. It was not in this peppery little ex-Confederate's rules of war for foot soldiers ever to scout ahead of his beloved cavalry, and before Lawton got going the following day, Wheeler's dismounted troopers had hiked past the infantry on a parallel trail that rejoined the main road at Las Guásimas, four miles north of Siboney.

Here the Americans ran into their first hostile resistance. The rear guard of the Spanish force that had just evacuated Siboney was entrenched at Las Guásimas overlooking a little valley, and as Wheeler's leading elements started down into the valley, a heavy fusillade crashed out at them from the tangled jungle. Fortunately, the head of Wheeler's column had been spread out in skirmish formation in expectation of just such an occurrence, but the regiment next in rear caught a raking fire before it could properly deploy, and lost several men. After a few minutes of furious firing from both sides, the enemy began to withdraw, naïvely reporting to their headquarters that "the Americans were beaten but persisted in fighting, and we [the Spanish troops] were obliged to fall back."

When Lawton's men came running up an hour and a quarter later, the fight was over. Actually, it was not much of a fight, but it marked a milestone from which a lot of Army history was to be measured. Surgeon Bob Church won a Medal of Honor there. Colonel Leonard Wood, commanding the 1st Volunteer Cavalry, or "Rough Riders," as they prefered to be called, was cited for bravery in action, and so was his second in command, a young New York politician named Theodore Roosevelt.

Fired by their success in this rear-guard action, all were hopeful that they could go on and finish the job at once by taking Santiago. Instead, orders arrived to go into camp. The advance was halted while Shafter got additional supplies and reinforcements ashore at Siboney.

For the whole of the next week the troops lay idle along the road from Las Guásimas in a position that daily became more precarious. There was plenty of fresh water, but medical stores, ammunition, and rations ran short. Fresh shipments were delayed, lost in transit or, for inexplicable reasons, never landed from the transports. On June 29 Shafter finally appeared on the scene to make a personal reconnaissance.

Riding along the Santiago road he came to a little group of farm buildings called El Pozo, where an excellent view could be obtained of the surrounding country. Almost at his feet the Santiago road dropped into a valley, first crossing the Aguadores River and then farther on, the San Juan River (see map). On the other side of the San Juan River the road came out into open country and ascended the San Juan Heights beyond. Over the crest of these heights Shafter could see Santiago itself, with the Red Cross flags waving over a field hospital. And directly to the north the hill town and forts of El Caney shimmered white against the green foliage three miles distant. Only the lines of brown earth that marked the trenches being built on the San Juan hills marred the peace of this tropic landscape, and indicated that the defenders were preparing to make strenuous efforts to hold *los Americanos* at bay. Returning to his field headquarters, Shafter summoned his division commanders and presented his plan of action.

This called for General Lawton and his division to move up to El Pozo on June 30 and take the branch trail that led therefrom to El Caney. That night he was to bivouac as near as practicable to El Caney and begin the assault on the town at daybreak. A battery of artillery at El Pozo would help matters along by bombarding El Caney at the same time. It was estimated that El Caney would fall in about an hour. When that happened Lawton was to swing back towards the base of the San Juan hills. The rest of the army would also move forward on the San Juan road on June 30, and bivouac for the night in the vicinity of El Pozo, continuing next day its advance to the hills. By the time it could reach an attacking position Lawton would presumably have finished the job of El Caney and rejoined the main command, whereupon all hands would move against and over the San Juan Heights, and on into Santiago. As one newspaper correspondent remarked, it is important to remember this plan if only because it is so different from what actually occurred.

Early in the afternoon of June 30 all units got their orders to start forward to their new positions at four o'clock, and all of them obeyed the order on the dot. What happened then was just what might be expected when 10,000 men are all walking at the same time through a rough jungle trail ten feet wide, with high sides and slippery footing. Almost instantly the trail became a snarl of traffic, foot, horse, and caisson, as far as the eye could reach, and when a halt was called for the night's camp conditions were not materially bettered. Organized messing and tenting was out of the question. The troops had to eat whatever they had in their packs and find such sleep as they could on the dank, fever-laden ground.

Lawton, with Chaffee's help, was able to untangle his command and get it away for El Caney almost on schedule, and early the next morning the echoes of firing from the north showed that he had arrived and was heavily engaged. Instantly his supporting battery at El Pozo went

into action, and that was the start of the Battle of San Juan. As soon as the first gun let fly from the El Pozo hill, marking its position by the cloud of white smoke from the black powder we were then still using, a battery on San Juan replied. The first Spanish shell went wide, but the second exploded in the yard of a farmhouse near the battery, killing and wounding several American and Cuban troopers. As the Spanish artillery used smokeless powder, it was impossible to locate the hostile gun. So our battery withdrew and added itself to the procession that had again begun to stumble slowly along the choked trail.

And as if the staff didn't have troubles enough, word came from headquarters that Fighting Joe Wheeler had found one enemy he couldn't lick and was laid low with tropical fever, and that Shafter was confined to his cot with gout. A hurried readjustment of command gave General Sumner the cavalry division with Colonel Wood taking his place in command of the 1st Cavalry Brigade; Lieutenant Colonel Roosevelt succeeded Wood at the head of the Rough Riders. By this time the troops were fording the Aguadores River and the head of the column was coming into plain sight of the Spaniards on the hills in front. With every foot of the trail accurately plotted for range, the Spaniards needed no further invitation and an unceasing leaden hail began to whip down on the long dark blue snake that stretched back to El Pozo. There was no shelter anywhere, and the men could only push forward, cursing impotently at an enemy they could feel but couldn't see. Spanish sharpshooters, camouflaged in green uniforms, hid in the trees on both flanks of the distressed column and poured in a relentless fire at almost pointblank range, reserving their attention particularly for the mounted officers. Captain Mills was shot out of his saddle as he was giving an order, Captain Bucky O'Neill as he encouraged his Rough Riders with the shout, "No

Spanish bullet can hurt me." Stretcher bearers were picked off as they struggled to carry the wounded to the rear. The wounded themselves, lying on the ground, were also helpless targets for an even heavier fire. At length Shafter's orderly struggled to the front of the column and reported to General Sumner with orders to halt his division at the edge of the woods, where the ground began to rise toward the San Juan Heights.

"Very good," said General Sumner. "And what do I do then?"

"You will wait for further instructions," said the orderly, and departed.

That was, as far as anyone knows, the first and last order given or received from corps headquarters that bore directly on the battle. It is of historic value solely because nobody paid the slightest attention to it.

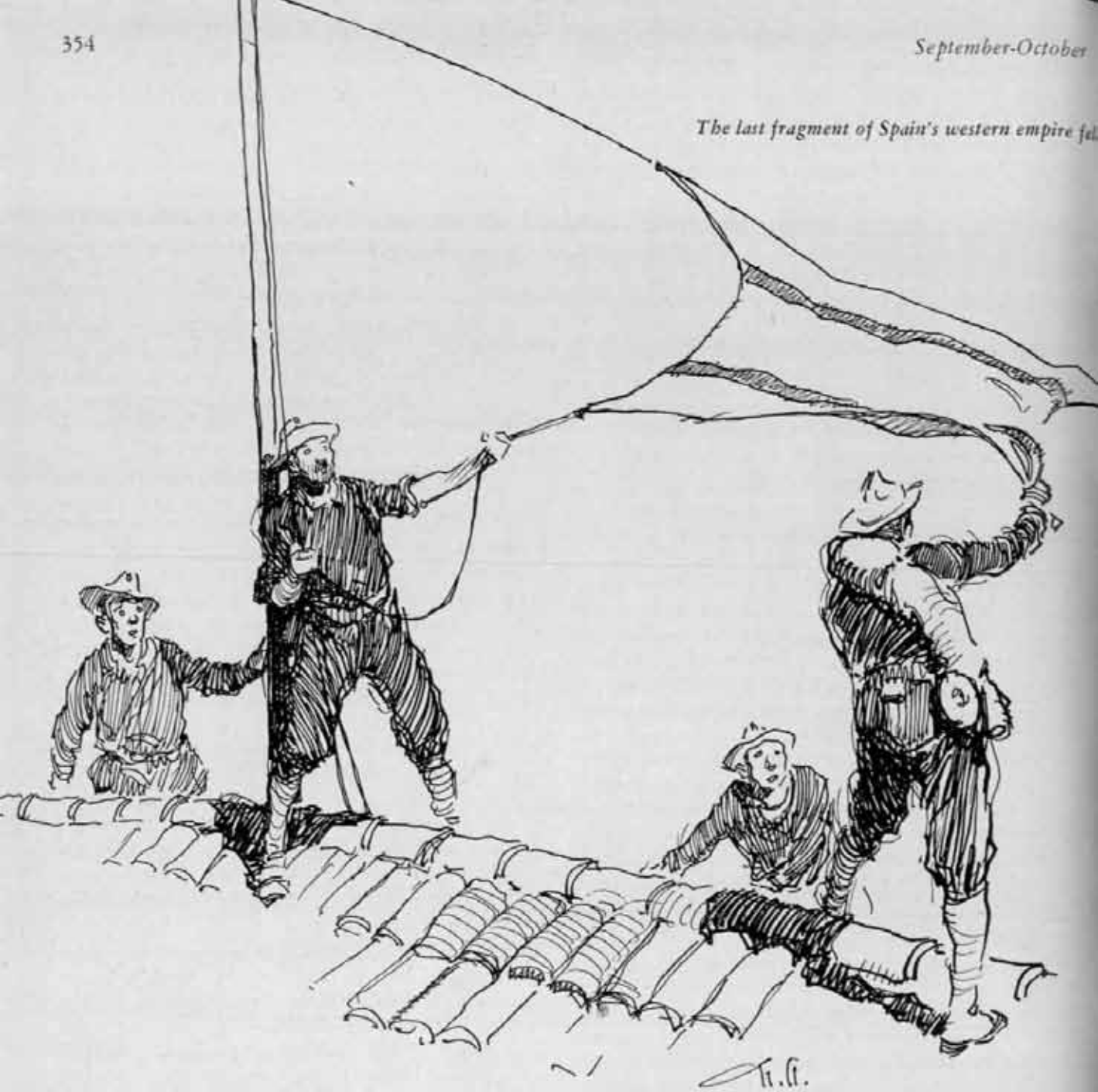
General Sumner and his subordinate commanders huddled on the bank of the Aguadores and took a hurried account of stock. Lawton had not yet appeared from El Caney, and in view of the galling fire the troops were receiving in their exposed position on the trail, it was obvious that they could no longer stick there. Directly facing the end of the trail on the far side of the San Juan River was the steep hill known as San Juan Fort, with a pagoda-like blockhouse crowning its summit. There was a smaller hill about a quarter of a mile to the north and two hundred yards nearer our army. (A great iron sugar kettle later found on its crest gave it the army nickname, Kettle Hill.) Because the main Spanish garrison was plainly defending San Juan Fort, it was decided that our two infantry divisions should deploy to the left of the trail and, after fording the San Juan River, be prepared to attack the fort. The cavalry division would deploy to the right of the trail, ready for action against Kettle Hill.

During this conference the Spanish fire had not slacked for a moment, and suddenly doubled in ferocity when an observation balloon was dragged forward and sent up not more than fifty feet over the head of the American column. This naturally and instantly drew the fire of every rifle and gun in the Spanish lines. To the intense relief of the troops jammed in the trail below, a shrapnel burst soon tore it open and it fell to earth. As the observer clambered out of the wreck he saluted General Sumner and reported, "There are men up on those hills firing at our troops!" The General's reply is, unfortunately, lost to history. In any event, there was no time for argument, for General Kent's division was now drawing near from El Pozo. Just then a side trail was opportunely discovered leading to the left from the main road and crossing the Aguadores River four or five hundred yards downstream. As the other troops began to move into their attack positions, General Kent turned his men into this detour with the 71st New York Volunteer Infantry leading the way. And here occurred one of the most distressing incidents in the campaign. As the 71st started off the main trail a shrapnel shell burst at the head of the regiment, wiping out a few squads and throwing the rest of the 1st Battalion into confusion. The volunteers broke ranks, throwing themselves flat on the ground or seeking cover in the bushes that lined their path. But General Kent and his divisional staff officers formed a human cordon across the trail in rear of the disorganized battalion and got it back into some sort of formation. To save further delay the 9th, 13th, and 24th Regulars were routed around the 71st, and at length the 71st Regiment took its proper part in the battle.

The American forces were now all in position. At the right of the main Santiago road were the 1st, 3d, 6th, 9th, and 10th Regular Cavalry and the 1st Volunteer Cavalry; on the left were the 2d, 6th, 9th, 10th, 13th, 16th, 21st, and 24th Regular Infantry and the 71st Volunteers. No communication was possible between the units, nor was there much of anything for them to communicate. There they were, and there was the enemy shooting them to pieces from the hills in front. And what they were going to do about it in the absence of orders from headquarters became largely a matter of personal initiative on the part of the regimental officers. The change of alignment brought no surcease from the Mauser bullets; Colonel Wikoff was killed personally supervising the disposition of his brigade, and within ten minutes his two succeeding commanders had fallen severely wounded, the brigade command finally devolving upon Lieutenant Colonel Ewers of the 9th Infantry. It was impossible to escape the Spanish fire by withdrawing. The present location of our troops was rapidly becoming untenable and the obvious solution was to go forward. Moved by a common impulse, the sorely tried lines began to emerge from the woods into the open ground at the foot of the hills and climb to their objectives as the Spanish earthworks flashed and roared with renewed vigor.

Here the picture becomes a kaleidoscopic medley of fire and smoke and heat, of blue figures in small groups or alone, sliding and falling in the slippery grass as they run crouching up the sloping hillsides or stand erect to fire and reload. Roosevelt, who alone of his command is mounted, finding his way blocked by the troopers of the 9th, shouts, "Please let my men pass!" and the Negro troopers rise with a yell to join the Rough Riders. A bugler standing by Wood asks, "Shall I blow the charge, sir?" and, receiving no answer, blows it anyhow. A regular falls over the grass-hidden form of a malingerer who yells, "Where the hell are you going?" The Regular replies, "To the front. Where the hell are you going?" and runs on. An officer, asked by a correspondent to take a picture of the engagement, finds himself waving the camera instead of his saber. To make sure that his infantrymen do their job completely, General Hawkins sets the pace for them, his snow-white hair an inspiring oriflamme thirty feet ahead of the leading files. The Gatling guns add their sharp clamor to the din, but the dynamite gun is rendered impotent when the first shell jams in the breach. The cavalry reaches the summit of Kettle Hill and Roosevelt tries to lead his troopers down and across the San Juan Fort to

The last fragment of Spain's western empire fe



reinforce the attack there; his men do not hear his orders and he suddenly finds himself charging solo. Running back, he assembles his command and joins the rest of the force in time for the final rush that drives the Spaniards from their hill and back towards Santiago. Men of the 13th Infantry, scrambling up the adobe walls of the blockhouse, pull down the Spanish flag and tear it apart into individual souvenirs. General Wheeler, tossing on his cot beyond El Pozo hears the noise of conflict and, disregarding the orders of the doctors, makes his way to the front.

But the battle and the war are over. Months afterwards an inquiring reporter asks a company commander, "Did you have much trouble making your men follow you at San Juan?" And the captain replies, "No, but we had considerable difficulty in keeping up with them!"

The total number of U. S. troops actively engaged in the fight was 7,758—Lawton's capture of El Caney took seven hours instead of one, and he never did get his men into the San Juan fracas—and the casualty list was just over 1,100; 147 officers and men killed and 989 were wounded and missing.

For the next two days the survivors clung to the dearly won hills under a heavy fire from Santiago, and on July 3 Cervera dashed out on his expected sortie from the harbor. In forty-five minutes Sampson had made a shambles of the proud Spanish fleet. The final capitulation of the city was then only a matter of negotiating the terms of surrender. The papers were signed July 15, and at noon on the 17th the red-and-yellow flag of Spain was lowered for the last time over the Governor's Palace, and the Stars and Stripes took its place. The last fragment of Spain's western empire that had existed since the days of Columbus fell away.

CZECH ARMY

This is Czechoslovak infantry on the march during maneuvers. The canister slung under the left side of the pack contains the gas-mask.

Here is a mortar squad making use of hasty camouflage during recent field exercises. Note the entrenching tool slung on the left side of the soldier in the foreground.

Above. *The Bren is a full automatic weapon (.30 caliber) normally used as a platoon light machine gun on a bipod mount. In this instance the weapon is on a pedestal mount for use as an AA gun. The British Army recently placed large orders for this product of Czechoslovakia's large munitions industry.* Left. *The Czechoslovakian Army maintains armored railroad trains. The picture shows a camouflaged piece of rolling stock operating near the frontier during maneuvers.*

This light tank unit of the Czechoslovak Army was recently assembled at Prague to demonstrate the nation's preparedness.

A Czech artillery section manhandles a field piece into position across a country road.

Above. *Prague citizens get a graphic demonstration during air protection maneuvers. The sign marks the place where a "bomb" landed; two "casualties" lie in the street; a gas decontamination squad is at work.*

Below. *A machine-gun section moves toward the "front" during recent field exercises.*

Czech Artillery

Recent issues of the *Revue d'Artillerie* and *Artilleristische Rundschau* contain interesting discussions of the organization of the Czechoslovakian artillery and descriptions of their matériel, extracts from which follow. Czechoslovakian artillery includes:

* * *

Heavy artillery: six regiments, two of which are in process of being formed.

Antiaircraft artillery: five regiments, one of which is in process of being formed.

* * *

The heavy artillery regiment consists of two groups, each of two or three batteries of two or three pieces, and one cadre battery. These regiments are generally motorized. Each has a transport battery with motorcycles, five baggage vehicles, ten heavy trucks and numerous tractors.

The antiaircraft artillery regiment consists of three groups of two batteries of motorized cannons and one battery of searchlights. All AA gun matériel is provided with modern firing devices. The searchlight battery consists of two squads of 120 to 150-cm. searchlights. The regiment includes an observation group, a sound ranging group and a balloon group.

Czechoslovakia possesses 1,668 pieces of artillery of which 216 are heavy artillery and 120 are antiaircraft artillery. The characteristics of these weapons are as follows:

HEAVY ARTILLERY

Caliber and Model	*Limits of Elevation*	*Maximum Range (Meters)*
15-cm. M. 15	15-70°	12,000
15-cm. M. 15/16	0-70°	22,500
21-cm. M. 18/19 (Mortar)	35-70°	13,800
24-cm. M. 16	0-65°	36,600
30.5-cm. M. 16 (Mortar)	40-70°	12,600

The 15-cm. howitzer Model 15 has been partially replaced by the 15-cm. howitzer Model 35; and the place of the 21-cm. mortar Model 18 will no doubt soon be taken by the 22-cm. mortar Model 34. But the 24-cm. gun Model 16 and the 30.5-cm. mortar Model 16 are still deserving of attention and description. These two weapons are manufactured by Skoda.

24-cm. Gun, Model 16, in firing position, maximum elevation.

THE 24-CM. GUN MODEL 16

This is a very heavy, highly mobile, flat-trajectory gun in a sunken traversing carriage.

The gun has a tube forty calibers long (9,600-mm.) with a weight of 20,300 kg. The sixty grooves of the uniform right twist have a pitch of twenty-five calibers. The jacketed tube has two lateral ribs for transmitting the turning moment of the twist. The breech with cam actuating screw has a recocking firing mechanism. The brake and recuperator mechanism of the carriage are combined to form the so-called navy brake recuperator; that is, the two brake cylinders constitute at the same time the displacement cylinders of the recuperator.

The weight of the carriage together with the toothed arcs of the elevating mechanism amounts to 8,000 kg. The limits of elevation are from ten to forty-two degrees. The length of recoil is variable, averaging about 1,150-mm.

The carriage weighs 7,400 kg. and rests on the traversing elements of the platform. In this way the gun can be traversed through an angle of 360 degrees. The carriage is provided with two bearings for the trunnions, conformably to its employment for two tubes. Since the tube of the gun has the greater length of tilt, the forward bearing (without easing) serves for the gun tube. The howitzer needs larger elevations (plus 40 to plus 75 degrees), and so the rearward, friction-eased bearing is intended for the howitzer tube. Each of the tubes is brought into operation, of course, with a cradle of its own, since the force of recoil for the different projectiles is highly divergent. The howitzer tube is only 400 kg. heavier than that of the gun.

The platform is made up of two units (22,200 and 21,200 kg.). On the composite platform lies the ball bearing of the traverser, which likewise is divided. The firing weight of the gun amounts to 79,100 kg., and the firing height is 1,850-mm. The loading is effected with the aid of a swinging shot tray and with a tube elevation of six degrees. With a 215-kg. shell and a muzzle velocity of 750 m/s, the gun attains a minimum range of 15,000 meters and a maximum range of 30,400 meters. The rounds can be fired at intervals of six minutes.

For transportation purpose the gun is split up into four units (tube, cradle and the two halves of the platform) and loaded upon four chassis (tube unit, 38,000 kg.; carriage unit, 30,800 kg.; platform units, 37,600 and 36,600 kg.) and transported in four trains (benzine-electrical, or, for short, called C-trains). The loading is

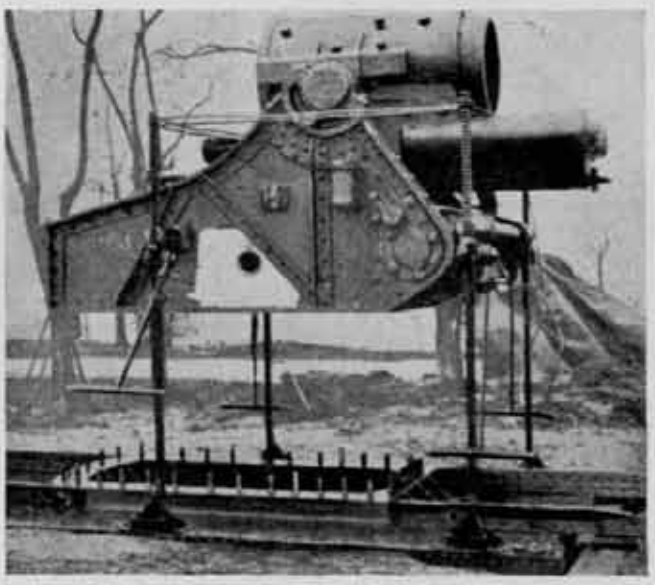
effected without a crane, and only by means of winches. Each C-train consists of a "generator car" and a chassis.

The generator car makes use of the 6-cylinder, 100-hp. Daimler engine, whose compression and number of revolutions were increased to attain 150-hp. Directly coupled to the engine by way of the crankshaft is a dynamo (90 kilowatts, 300 volts, 300 amperes): a direct current dynamo with separate excitation (that is, the current must be produced in the coils of the dynamo by its own machine). The dynamo current is then conducted, in part, into the rear axle for driving the generator car itself, and in part into the eight wheels of the chassis to their driving pinions. The generator car is rubber-tired (single in front, double in rear), and behind is a rail wheel with flange into which the pinion of the electromotor engages by means of a gearing. The rail wheel serves at the same time as a brake pulley. Double brakes, either hand brakes or a continuous automatic vacuum brake (Hardy system), which is actuated by the driver of the generator car, are present.

The chassis which carries the units of the gun consists of four single-axle trucks, whereby a low axle pressure is attained. The chassis are iron-tired and are likewise provided with rail wheels. The generator car is connected with the chassis by way of a cable (current conduction), by way of a guide shaft (not a pulling device) and by way of a vacuum tube. The road speed amounts to ten kilometers per hour. All grades up to 30 per cent are overcome. The peculiar steering permits also of taking the narrowest curves. The last wheel of the chassis diverges from the first wheel of the generator car by a maximum of plus or minus 10 cm. The smallest mean steering radius amounts to 7 meters; the width of track on the road, 2,060 mm.

Travel by rail is possible in two ways: either by power supplied with the gun (forty kilometers an hour) or by means of locomotive traction. First the road wheels (weighing 300 kg.) must be taken off and the steering connection thrown out of operation. The most favorable place for the transition to railway travel is at a crossroads level with the rails. If locomotive traction is contemplated, blank pinions must also be installed and the chassis provided with 700-kg. buffer blocks. Since in that case the vacuum brake of the generator car does not work, freight cars with brake blocks must be distributed between the units. The conversion from road to rail travel, or the reverse, requires up to twelve hours, and more than two units can hardly ever be handled simultaneously.

The gun needs a platform excavation of 6.6 by 5.3 by 1.4 meters, that is, 49 cubic meters of earth removal. The preparation of the gun position takes on an average six hours, or in case of hard ground correspondingly longer, and the installation of the gun a like amount of time. After the platform excavation has been made ready, the two halves of the platform are brought up close beside the excavation and set down onto the ground with winches. After the empty trucks have been driven away, the two halves of the platform are pushed and screwed together



30.5-cm. Mortar, Model 16. The carriage prior to being set down on the platform.

and shoved over the excavation on gauged beams, and then let down into the excavation by means of winches. Next the carriage unit is driven over the platform, taken off the chassis by means of winches, and the chassis taken away. The carriage is then let down onto the platform and screwed fast. Thereupon the tube car is shoved longitudinally onto the carriage and the tube drawn from the chassis into the carriage by means of a set of pulleys. After about 200 rounds the tube has to be changed. The ammunition is supplied by means of a field railway.

The transport equipment of the one-piece 24-cm. battery comprises four generator cars, four chassis, one reserve generator car and one reserve chassis, one rope winch vehicle with strong lifting gear for a traction of 6,000 kg. with a 1,000-meter wire rope and an equally long extra rope, two tractors for 500-kg. net weight, to each of which two iron trailers for 5,000 kg. ammunition are attached, eight motor trucks for conveyance of the battery equipment, the accessories, the telephone apparatus, the food supply and 100 meters of field railway, one mobile field workshop with trailer, two passenger cars and a few motorcycles. The battery consists of 8 officers and 230 men, 19 light and heavy motor vehicles, one 24-cm. gun Model 16, and 2 heavy machine guns for antiaircraft defense.

The 30.5-cm. Mortar Model 16

The individual round of this mortar is very effective.

The tube is twelve calibers (3,669-mm.) long and weighs 7,200 kg. It has uniform right-hand twist and sixty-eight grooves. This gun also is equipped with the so-called navy brake and a horizontal breech with cam actuating screw. The range of elevation lies between 40 and 75 degrees. The elevation for loading is 10 degrees, and the loading is effected by means of a loading crane and loading tray. The firing weight amounts to 23,000 kg. The box-shaped platform permits of all-around traverse. The traversing is effected by means of a slewing

30.5-cm. Mortar, Model 16, in loading position.

gear whose pinion engages in the toothed arc of the undercarriage. The height of line of fire amounts to only 1,700 mm., hence is very small. Three projectiles are employed: heavy shell, light shell and shrapnel. The projectile weights range between 287 and 380 kg., the initial velocities between 380 and 450 m/s, the corresponding ranges between 3,500 and 12,300 meters. For the choice of position the minimum range in the case of the mortar is, as we know, exceedingly important. Each round requires some three to four minutes.

For transportation, the mortar is split up into three units: platform, carriage, tube. These units are loaded onto the vehicle by means of winches, hence without a crane. The chassis are mutually interchangeable and have a gauge of 1,675 mm. Ordinarily all three loads are transported together; in mountain country, however, because of the turns, separately.

The battery arrives in a 90-axle railway train. Unloading takes about six hours. The wagon lines needed first take up the march at once. The piece needs a platform excavation of 4.00 by 3.80 by 0.35 meters. The installation of the piece takes four hours. After the platform excavation has been made ready, the platform is shoved over the excavation upon gauged beams and let down by means of winches. Then the vehicle carrying the carriage is driven over the platform, the carriage is raised and the vehicle removed. The carriage is then let down and screwed fast with the platform. Then the vehicle carrying the tube is driven up parallel with the carriage, and the tube is drawn into the carriage with the aid of a set of pulleys. The ammunition is brought to the gun on a caisson and shoved onto the loading tray.

A mortar battery (of two pieces) has at its disposal one passenger car for the battery commander, five motor trucks (observation apparatus, telephone apparatus, tools), six mortar tractors with six chassis, one rope winch vehicle with three trailers, one work shop together with trailer, two motor trucks with provisions and kitchen. The tractors employed for the units are no longer the antiquated tractor trucks Model 12, but 80-hp. Skoda tractors Model 17 or even newer models of the last few years.

The battery is so equipped that it can be employed in two spatially separated semi-batteries of one piece each. The piece is intended for the destruction of armored and concrete constructions, but is also adapted to combatting personnel (troops). Accordingly, as already mentioned, there is a shell (with or without delay action), a light shell and a shrapnel shell. The piece is provided with four charges and one extra charge, enclosed in a bronze cartridge case. The extra charge is intended only for the light shell and for the shrapnel shell. Otherwise tube bursts occur.

It should be noted in the methods of transporting the 24-cm. gun is similar to the methods employed by the German Army in transporting some of its heavier guns especially those publicized so much lately in our press.

Antiaircraft Artillery

Caliber and Model	*Type of Mount*	*Maximum Range (Meters)* Horizontal	Vertical
9-cm. M. 12/30	Fixed	12,000	18,000
8.35 cm. M. 22/24	Fixed	12,000	16,000
7.65-cm. M. 33		11,000	14,000
6.6- cm. M. 35/36	(Under test)		18,000

The 8-cm. Skoda M. 30 light artillery gun is also suitable for antiaircraft use; its vertical range reaches 10,000 meter, its rate of fire twenty-two shots a minute; the initial velocity is 535 m/sec.

The *Revue d'Artillerie* and the *Artilleristische Rundschau* emphasize the amount and quality of Czechoslovakian artillery. They also point out that the Czech armaments industry is quite large. For example, there are six large centers of manufacture for guns and machine guns, twelve for infantry and artillery munitions, five for powders and explosives, eight for automobiles, five for armored vehicles, seven for tractors, eight for small arms and machine guns, eight for airplanes, five for airplane engines, six for gas production, and seven for gas masks.

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The Challenge of Leadership

By BRIGADIER GENERAL WALTER K. WILSON

The subject of leadership is usually presented by selecting some outstanding soldier such as Napoleon, Alexander, or Caesar, and then discussing the characteristics which have made him a great leader. Sometimes, the subject is presented by discussing the characteristics necessary for leadership without application to any individual. Since few, if any, of us can ever hope to be Napoleons, Alexanders or Caesars, I approach the subject from a new angle, one which I believe will bring it down to a closer application.

It is natural that man should be interested in leadership for all around him there is evidence of leadership in animal life. If you have watched ants at work and have seen them proceeding on a direct course from their hole in the ground to some source of food and returning with food to be stored for future use, undoubtedly you have been impressed with the fact that the ants were apparently working under a definite plan and under direct leadership. The bees at work also give the same impression.

When you have stood on a dock and watched a school of fish pass by, undoubtedly you have noticed that the school moves according to the movements of the leading fish. When he turns right, the school follows. When he increases his speed, the school does likewise; when a larger fish comes close at hand and makes an attack upon the school, there is a scattering of fish in all directions but as soon as the danger has passed, the school gathers again and once more follows the leader.

The wild birds that fly south in the fall and north in the spring fly together in groups and follow definite leaders. It is no accident that many wild animals travel in herds. If each animal acted on his own initiative, the herds would soon be broken up and scattered. The only answer is that there must be leadership.

If there is so much evidence of leadership in animal life, it is no wonder that man, the most intelligent of all animals, should *control* and *be controlled* through leadership. In every situation which arises, a man participating must be a leader or a follower and in most cases while leading certain other men, he follows the directions of some leader above him. All leadership is not good. Sometimes the power of leadership is used to exert the wrong influence and cause the wrong action on part of the followers.

The terms "officer" and "leader" should be synonymous. The *only* reason you are given a commission is for your leadership qualifications. Any duties which you perform not connected with leadership probably could be performed by other individuals at considerable less expense to the government. In other words, the government is paying you to be a leader and in order to give value received, you cannot afford to treat lightly the important subject of leadership.

Perhaps you have heard it said that leaders are born and not made. This is true to a limited extent. However, every man is born with certain leadership characteristics; and I have seen men, with apparently very few natural leadership qualifications develop into real leaders. It is incumbent upon every officer to study himself and to take every opportunity to improve his leadership characteristics from lessons learned not only through his own experiences but through the experiences of others.

The principal tool with which an officer must work is the enlisted man, and he must remember that the enlisted man is not a machine, but that he is an individual who lives and thinks, even as you and I. The ideal example of true leadership is one where the officer has developed every man in his organization to the point where the subordinate is producing the maximum result possible.

Generally speaking there are two types of control exercised in handling enlisted men. One is the driving method which will accomplish results up to a certain point. Under this method, there is very little loyalty on the part of the enlisted men, and their actions are controlled more through fear than desire. I have never seen this system succeed in the final test. The other system, which is based on leadership, produces loyalty and instills in the man's mind the keen desire to do the right thing, not because he is afraid of you or because he is seeking reward but simply because you want him to do it. With such a spirit existing in an organization, there is no limit to which the efficiency of that organization may extend.

In handling enlisted men, it is well to bear in mind that since they are individuals, you cannot use exactly the same treatment with all of them to secure the best results. Some men respond to one treatment, some to another. To illustrate I shall cite two cases among many with which I have had personal experience. In the last

"Is my organization better than when I joined it? If not, why not?"

battery which I commanded as a captain I had one private soldier who served three or four days in the guardhouse after each payday on account of being drunk or absent without leave. This man was about twenty-one years of age. About the middle of one month I sent for him and told him that I had been watching and studying him; that I saw in him a far better man than he displayed to the outside world; that I believed him capable of being an asset instead of a liability to the battery; that I was having him promoted to the grade of corporal but that he knew that under the policy in the battery, no noncommissioned officer could get drunk and still remain a noncommissioned officer. Having come into the office expecting to be censured for his shortcomings, he was very much surprised. He straightened up, stuck up his head, saluted and said "Yes sir." That man became one of my best corporals and later one of the best sergeants in the battery. In his case it was necessary to appeal to his pride.

When commanding a post in Honolulu a sergeant with twenty-eight years' service reported for duty, having just arrived from the United States. He was under the influence of liquor when he arrived. I waited until he had sobered up, sent for him and told him that I did not know under what conditions he had served but that I had looked over his discharges and found them all excellent; that he had but two years more to serve before retirement and that the grade which he could expect upon retirement would depend upon himself; that the rule on this post was that no noncommissioned officer could be drunk and remain a noncommissioned officer. He assured me that he understood. The next payday he was so drunk and boisterous in barracks that it was necessary to confine him in the guardhouse. He was tried by special court-martial, was reduced to the grade of private and sentenced to serve six months in the guardhouse. After he had served about ten days of his confinement, I sent for him and asked him what I had told him on his arrival. He repeated the conversation but stated that he had been told the same thing by other officers and that he had not believed I had really meant it. I told him that I had no desire to ruin the fine record which he had made in the service and that on that day I was releasing him from the guardhouse and that he would still have an opportunity to earn a higher grade for retirement. Within three months, his battery commander recommended he be promoted to the grade of corporal and before I left Honolulu he had reached the grade of sergeant and was doing excellent work. In the first case, the private needed to have his pride stimulated, in the second, the sergeant needed a jolt to enable him to render efficient service to the government. In both cases, the individuals as well as the service were benefited.

All men being human are pleased when praised, and you should be just as quick to give praise, when due, as you are to give censure when a man does not come up to the standards which you require. A word from you will encourage the man who has done exceptionally well at drill, at inspection, or at any other duty. The man who gets off with a poor start but who is showing steady improvement needs special encouragement.

Some critics of military training have argued that military training turns a man into a machine and causes him to cease to think. Those of us in the military service know how wrong that is, for whether you have a squad engaged in close order infantry drill or a plotting room section engaged in producing data on which a battery is fired, it is essential for every individual to think and to keep on thinking. It is quite important to impress upon a man what his position in the squad or in the plotting room section means. He should understand that his failure may mean the failure of his unit to fulfill its mission. In other words, the man must know not only the requirements for himself individually but he must understand the part which he is expected to play in the team. In talking to your men, it is well, frequently, to refer to the necessity for team work and illustrate it by such well-known sports as football and baseball in which practically all men are interested.

You should make a practice of talking to your organization from time to time telling them something of your plans and what you wish to accomplish. You will find that men will take much more interest in their work if they know something of your reasons for a certain line of work. When a fatigue detail is sent out to dig a ditch the work becomes uninteresting manual labor unless you let your men know that the reason for digging the ditch is to lay conduits which will result in improved lights in their barracks or for the purpose of laying a pipe line which will give them a greater water pressure or for some other useful purpose. When a mosquito detail is sent out every man on the detail should be made to understand that he is being given an opportunity to render real service to the command by eliminating the breeding places of insects which are not only an annoyance but are a real menace to the health of the command. When you are making a talk to your organization it is better to have the men seated and comfortable. It is very difficult to keep men who are standing at attention, or even standing at ease, interested in what you are saying if you talk for more than two or three minutes. Another advantage in talking to your men from time to time is that it gives you an opportunity to impress your personality upon the men.

In handling discipline, all the enlisted man desires is fair treatment. When he has committed an offense deliberately, he expects to be punished. When he has made an honest mistake, there is created an entirely different situation. It is essential that any officer administering discipline must analyze each case and must vary his action according to the circumstances. In correcting a subordinate, great care must be taken not to injure his self respect. When I hear an officer yelling at some man in order to get him to do what he wants, I am forced to the conclusion that that officer has lost control. If he commands the proper respect it should never be necessary to speak to subordinates in any other than a normal voice. Serious censure should never be given in the presence of others unless absolutely necessary.

It is not always necessary to give direct punishment for all offenses. To illustrate, while in command of a one company post I was very proud of the gate at the entrance to the reservation. The gate consisted of two concrete posts about eight feet high upon which rested two large cannon balls such as were used prior to the Civil War. These balls were painted black and rested in depressions on the tops of the two posts. Some of the men in the battery, mischievously inclined, took great pleasure in pushing these balls off the posts. Several times they were replaced by a fatigue detail with great labor and effort. One morning when I was marching the battery through the gate, I noticed that the balls had been pushed off during the preceding night. I lined up the battery, called the first sergeant and said in a tone loud enough for all the members of the battery to hear that I did not intend to detail any more fatigue parties to put the balls back in place. But, that whenever the balls were not in place he need not bring me any pass list to approve. When the organization was dismissed, with one accord the men ran to the gate, put the balls back in place, and they were never removed after that date.

I knew one commanding officer who had experienced great difficulty in preventing his men from throwing cigarette butts on the walk in front of the barracks. He had tried various methods of stopping it without success. One day when he discovered a man throwing a cigarette butt out on the sidewalk, he called him and told him to get a G.I. bucket and then told him that he was on duty in front of barracks and would be required to pick up all cigarette butts until he discovered some other man throwing one on the walk. The bucket was then passed to the next man. The plan worked successfully and finally one man held the job so long that he was relieved and the practice broken up.

One of our most distinguished general officers, while commanding a brigade during the early stages of the World War, went out at midnight to see how the guard was handling the situation. One sentry's post was parallel to a long line of tents occupied by draftees recently arrived. When the general approached, the sentinel came to port arms and called "Halt, who's there?" He was expecting the answer to be "The Sergeant of the Guard" or "The Corporal of the Guard." When the answer came back "The Commanding General," he became quite confused and remained silent. The general called to him and said, "Well, what are you going to say?" and he said nothing. Then the general said, "What am I supposed to do?" A voice from one of the tents called out in a loud tone, "Go on home and go to bed you grey-haired old blankety-blank-blank and let the rest of us go to sleep." When the general was telling me of this incident, I asked him what he did and he replied that he went home and went to bed. Now I have seen some general officers and some second lieutenants who would have routed out all those men in the middle of the night and kept them out for an hour or two trying to find out the name of the culprit. The result of the general's action was increased loyalty and respect.

Every captain and every lieutenant assigned to a battery should know every enlisted man belonging to that organization. He should study the man's characteristics and his possibilities and he should help that man to develop himself so that when he leaves the service he will be a better man than when he entered it. If you fail on this duty you are not fulfilling your mission as a leader for which the government is paying you. You must show your men that you are interested in them individually as well as collectively. You should encourage them to seek your advice on individual problems and you should take an interest in them not only during drills and work but also during recreation hours. This includes a keen interest in their living conditions, their mess, their sports and other recreation. You have an opportunity to demonstrate your initiative by interesting your men in wholesome activities outside of those already in existence. To fulfill your mission fully you must be willing and happy to give your time and your energy without restriction as to hours. If your battery is represented in any sport by a team from your organization, your duty requires you to show real interest, not assumed interest, in the activities and the success of the team.

We are proud of the service and very jealous of its good reputation. We must be ready for action at any time, not just during the working hours. Therefore, we as officers must keep ourselves in good physical, mental, and moral condition to meet any emergency and we must induce our men to do likewise.

It is natural for every officer to want to succeed in his profession. If he does not have that desire there is something radically wrong with him. The only trouble is that too many officers feel that they can safely delay the time when they really start working for success in the service. Let me emphasize strongly that this is not the case. Your future in the Army does not depend upon how you compare with those much senior and much junior to you but does depend upon how you compare with those of your same grade. No lieutenant should be satisfied with just getting by, but should honestly and conscientiously attempt to be a little bit better than the other lieutenants The same principle applies to all grades. I do not recommend this course of action based upon selfishness but purely upon a justifiable ambition and pride in yourself and in the service. If an officer will make it a rule to do every day a little more than is required of him, it will not be long before he is known as an outstanding officer. He will find that sooner or later his efficiency will be recognized and that he will be the one selected for some important mission that cannot be trusted to the average officer.

Enthusiasm tanks high in the priority of characteristics necessary for success. If you are not enthusiastic in your work you cannot inspire enthusiasm in your subordinates. Enthusiasm should start at the top and should be encouraged all the way down the line. Encourage your su-

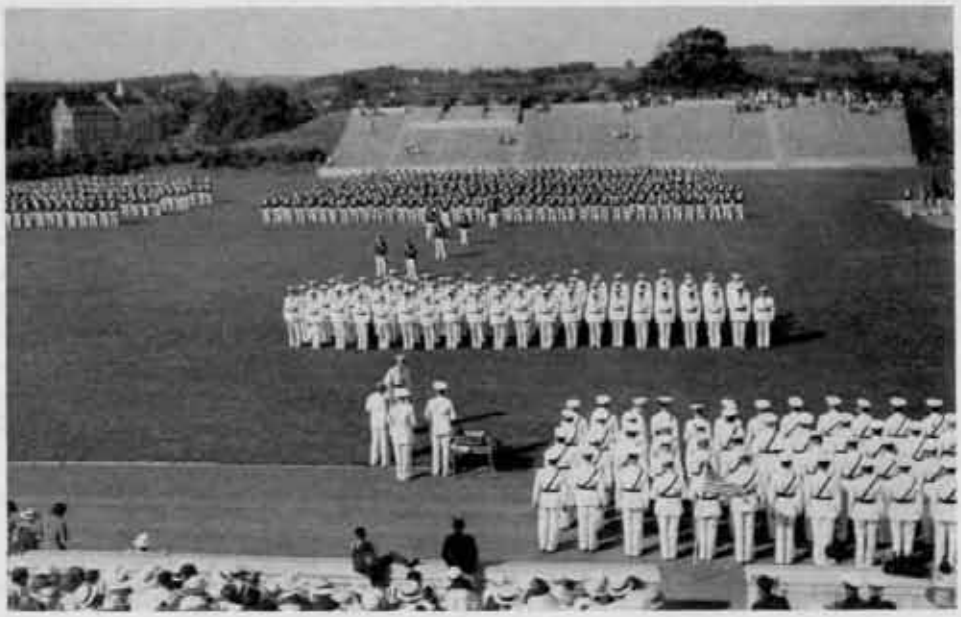
bordinates to develop their initiative and to think. If an enlisted man or a young officer comes to you with a suggestion for improvement along some line, do not treat him as if he has committed an offense by thinking. Even though his first idea may be no good, perhaps his second or third will be worth while. If you squelch him too hard the first time, there probably will be no second time. Some of the best ideas resulting in real progress in fire control and in other service problems have come from junior officers and enlisted men.

I would like to have you prepared to answer the following question at any time: "What have you done to improve the morale and efficiency of your organization?" Do not wait for me to ask the question but ask yourself that one and one more: "Is my organization better than when I joined it? If not, why not?"

Major General Herbert J. Brees, gave a lecture on February 18, 1938 before the Command and General Staff School, at Fort Leavenworth, Kansas, on the subject: "Essentials of Leadership." In this lecture he discussed forty-one characteristics desirable for a military leader. I recommend that you study this lecture and that you use his able discussion of each of the characteristics as a yardstick with which to measure yourself.

There is no doubt that leadership qualities can be developed. Let me therefore urge you to make every effort to improve your own leadership qualities. If you are a staff officer, whether a member of a regular staff department, or a line officer on staff duty, do not be satisfied with a "satisfactory" performance of the activities under your charge. It is a laudable ambition for you to try to make your work outstanding and you should inspire your assistants with the necessary enthusiasm to succeed in that ambition.

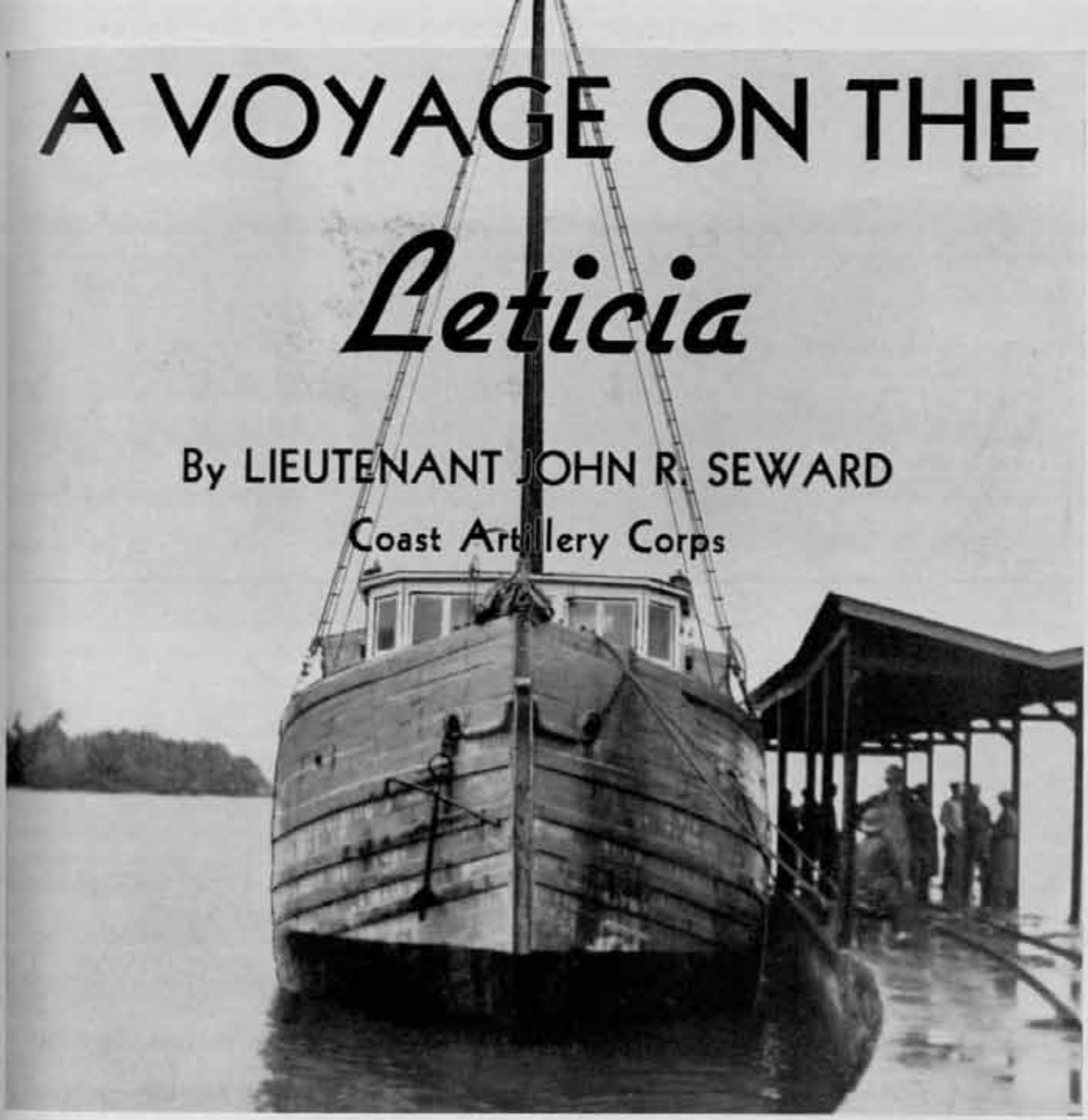
If you command a regiment, a battalion, a group command, a mine command, a battery, or a platoon, try to make your unit the best of its kind in the service. You may say that your organization hasn't as good equipment as some other organization, that your officers and men are changing much more rapidly than at many other stations, that your organization is suffering under this handicap or that. A handicap is but a challenge to a leader. The true leader always makes the best out of what he has to work with. Remember that some unit similar to yours will be the best in the service. I ask you, as man to man, "Is there any good reason why that unit should not be yours?"



The graduating class at Virginia Polytechnic Institute, Blacksburg, Virginia, receives its commissions.

A VOYAGE ON THE *Leticia*

By LIEUTENANT JOHN R. SEWARD
Coast Artillery Corps



This is the tale of a hundred Coast Artillerymen from Fort Sherman, Canal Zone, who, since April 30, 1938 have been classed among the mentally deficient by all of their friends. For on that date these men went on a short voyage on the good ship *Leticia*. The *Leticia* is a wooden vessel approximately seventy feet long with a beam of about twenty-four feet, a draft of three and a half feet forward and six feet aft. She might be classed as a double-ender as far as hull lines are concerned, and she has such a high freeboard that she looks extremely top heavy. As I stood on her deck and observed the generous beam I got the impression she was at least twice as wide as she was long. Locally she has the general classification "banana boat," the term indicating her main occupation, that of hauling bananas to the city of Colon from various small harbors along the Panamanian Coast. She belongs to the owner of a series of grocery stores in that city. According to information gleaned from her bare-footed skipper, who I think was a Jamaican, she was built in Peru, but he had no idea of her age. Judging from the condition of her planking and fittings, one man made a guess that she was built about 1890. If he was wrong, he probably was too conservative.

We boarded her in the Fort Sherman lagoon about 5:00 P.M., after loading a hundred folding cots and taking off again at least sixty of them, because there was no room to set them up. None of the passengers had ever been aboard before. As we waited for her to shove off we were subjected to a barrage of wise-cracks from those who came down to see us off. We did our best to return the fire but the weight was against us. And after seeing the *Leticia* some of our own group made comments such as, "Now I know how Noah felt." When an onlooker remarked on a big dent in the planking of the side rails, the retort was "That is

Ruins of the old Spanish forts at Porto Bello

where one of Morgan's cannon balls struck."

Finally her engine started, she shuddered violently, and rattled loudly, to the accompaniment of a hissing noise, which disclosed that the engine was started with the help of a blowtorch. Motors have always been of great interest to me, but never before had I heard of, much less seen, a Diesel started by the hot bulb method. For the benefit of the uninitiated, the hot bulb is a tapered metal projection at the top of each cylinder. Each bulb is faced by a blowtorch which heats it to a red glow to furnish the necessary ignition heat in the motor till it warms up. The engineer, a Swede, told me the engine was manufactured in his country eleven years ago, and had been installed in the *Leticia* about four years.

Lines were cast off about 5:15 P.M., and as we headed for the breakwater men climbed all over her looking for a comfortable place to ride. Most of them made soft seats of the kapok-filled life jackets which had been issued to each man from the boat supplies of the post quartermaster. There had been fairly high winds for the last few days, and the swells coming through the breakwater opening were quite heavy. As she entered the Caribbean Sea and began to pitch, someone noticed the roof over the aft deck swaying back and forth several inches under the weight of about twenty men who were on top. As she climbed the swells and dropped into the trough you'd hear shouts of merriment from numerous passengers. Unfortunately, as the weather got rougher, some of the shouts changed greatly in tone.

We hadn't been out an hour when it began to rain and everyone scurried for cover. But with the wind blowing as it was, very little effective cover could be found. After three more hours of this the skipper dropped anchor in the harbor at Porto Bello, explaining that he would stay there till about midnight because he didn't want to arrive at the San Blas Islands (our intended destination) before daylight. This group of islands, of which there are hundreds, are in shallow water full of reefs and shoals, through which it is practically impossible to navigate in the dark. They are inhabited by the San Blas Indians, a race of tiny people among whom a man as much as five feet tall is a rarity. The islands are a favorite spot for sightseers who have the opportunity to visit them. Their location can be seen on the sketch.

At midnight we weighed anchor (with a hand operated winch) and vibrated wildly out to sea. That vibration woke me up and kept me awake all the time the engine was running. Few, indeed, are those who can sleep on an electric exercise horse. We found that our short rest in quiet waters had just given the ocean time to get rougher and the rain a chance to come down faster than ever. After a couple hours two of us, who fortunately shared a cabin, decided to see what the skipper thought of the weather while our third cabin-mate slept on. He must have made the acquaintance of an exercise horse some previous time in his life. Those men who had no dry sheltered spot in which to lie down appeared to be having a bad time of it just trying to hold on. Inquiry showed a number of them to be seasick, and when I mentioned this fact to my companion, he replied, "I feel a little pale myself." The skipper volunteered the information that it was very rough, so we suggested that he try to get in behind Isla Grande, whose rotating light was the only thing visible in the heavy rain, though we were quite close to shore. We were still about six hours from the San Blas Islands. He wasn't sure he could make it, but he said he'd try. The reason he

wasn't sure was because there were several small rocky islands around the passages, and the only two navigable passages were none too wide. Somehow he made it, and again we dropped anchor in quiet waters, as those who knew the surrounding waters heaved a sigh of relief. Just before I climbed back in my bunk one man nearby remarked, "If the skipper doesn't know where he is any more than I do, then we're both lost."

Everyone turned in then for some much needed rest, though I had a little difficulty getting back in my bunk. It seems I had lost the combination. The cabin roof was about seven feet from the floor, but in that height three bunks had been built, and the bottom one was at least a foot from the floor. The side rails on those bunks further cut down the width of each opening, and I had the top bunk. In climbing up, my efforts to keep from stepping on the others' faces and to deposit the least amount of the water dripping from me on their bunks, resulted in my arriving in my bunk with my extremities reversed. I wanted to sleep with my head near the door, which by the way, had its hinges toward the stern. Besides, my bed was made up that way, and there was a shelf at the foot between the bunk and the ceiling about eighteen inches above. It must have taken me a couple minutes to get around in the resulting space. It might have helped had I been able to gain more maneuvering space by thrusting my head out the porthole, but it was the smallest I'd ever seen except on ship models. It couldn't have been more than six inches wide. But it did serve two purposes. It furnished some ventilation, and it woke me up a couple times when its projections stuck in my back. Another awakening was due to water leaking through the roof where the mast passed through and soaking my feet which were close to the mast.

Naturally we were all awake very early, and since the weather was still so miserable, we decided to visit a native village nearby, then drop in at Porto Bello for a longer visit, rather than go on to the San Blas Islands which were still about 38 miles away.

We spent about three hours in this village of Garrote, which was located in a beautiful harbor whose mouth was well protected by the rocky islands through which we had threaded our way the night before, or rather, early that morning. At least the harbor was beautiful the last time I had visited it. The sun was shining then. The dock at this village had been built by and was the property of the United Fruit Company. A narrow-gauge railway, on which two gasoline locomotives furnished the power, ran out on this dock to haul loads of bananas to vessels like ours. Cigarettes, a great luxury to the natives, were traded for bananas and avocados, the former being consumed at an alarming rate by the hungry voyagers. The mess sergeant produced a modern miracle by preparing a delicious breakfast, consisting of fresh fruit, bread and jam, scrambled eggs and coffee on a small wood burning stove. The draft was so poor you couldn't see him cooking for the smoke in that galley, and his face was red with tears when he finally emerged. About ten o'clock we cast off again for Porto Bello. By this time the sea had calmed down somewhat, and we were now running before the wind and waves. As we turned sharply to port around Verde Island on the north side of the harbor entrance, we encountered a strange sight. Three large turtles were floating on the surface, heads above water, and perched on the back of each one was a bird the size of a gull, though I could not identify its species. Unfortunately my camera had no telephoto lens, or I could prove this statement with a picture. We arrived in the harbor and

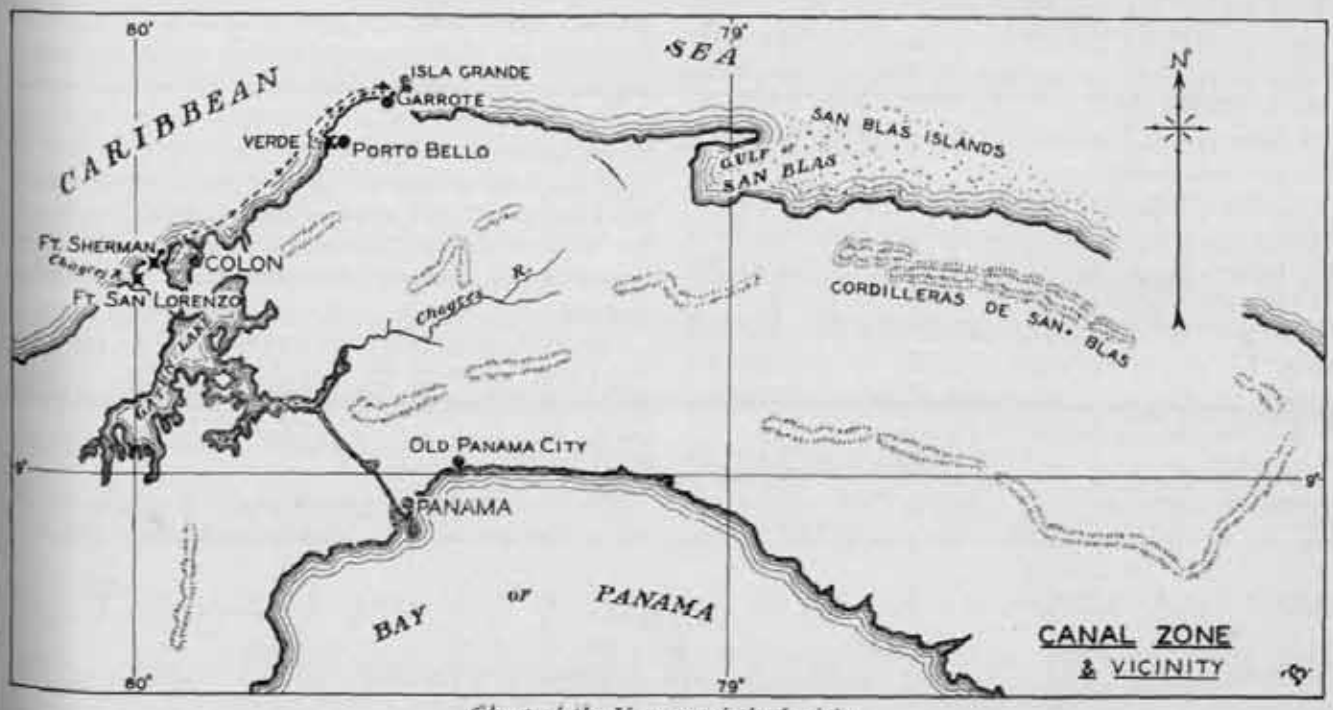
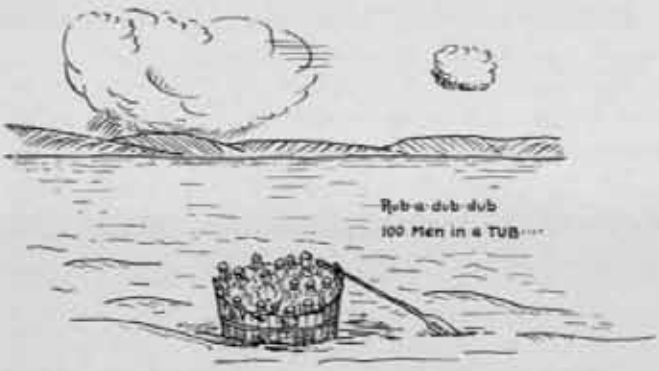


Chart of the Voyage of the Leticia



dropped anchor in less than half the time it had taken us to go the same distance the night before.

Perhaps a short historical sketch of Porto Bello would not be amiss here. The town was settled in 1519 by the Spaniards, and was the terminus for all traffic across the isthmus to Panama City, which had been founded the same year. Portions of the road constructed across the isthmus about that time are still visible in the jungles. At each end of the town are the ruins of the Spanish forts, San Geronimo and Triana. They are still in an excellent state of preservation, as can be seen by the accompanying photographs, and many of the original guns are still there. Other interesting ruins are the remains of what once was the administration building, and those of a little church built about 1539 and said to be the first Christian church built on the American continents. The church used at present, by far the largest structure in the town, is about two hundred years old, and houses one of the two Black Christs in the world. The most commonly accepted story of this religious figure is that when it arrived in Porto Bello on a ship, the vessel was wrecked. Then when they attempted to take it away on another ship, this ship also was wrecked. The occurrence was accepted as a message from heaven that the image was to remain in Porto Bello. I have been unable to ascertain the date of these events, but to this day the Feast of the Black Christ is observed the latter part of October, and is attended by peoples of all races and all religions.

Sir Henry Morgan's attack on the town took place in 1668, and was one of the bloodiest fights in the history of the western hemisphere. It lasted about four hours, but in that short time practically the entire populace was wiped out, including priests and nuns, women and children. No quarter was asked on either side and none was given. The raid was a great financial success to Morgan, netting him the equivalent of a quarter of a million dollars. His capture of Fort San Lorenzo (also well preserved) at the mouth of the Chargres River, and his subsequent march across the isthmus to capture Old Panama City took place early in 1671, and was even more successful financially.

But to return to the present. We anchored about 150 yards off shore as there was not more than three feet of water at the town's only dock, if it could be dignified by this title. To get ashore one had to swim, or pay a nickel for a one-way trip in a native cayuca. These cayucas are made by hollowing out sections of big trees, and resemble our canoes in general appearance. They look as though they could be as easily turned over as a canoe, but I've seen them out in all kinds of weather, even with sails, though no outriggers of any kind are used. About a dozen men swam ashore, but the town cop wouldn't allow them to walk through town clad only in trunks. The argument that native children up to six years of age ran around in their birthday suits was of no avail. Those who went ashore in cayucas, properly dressed, of course, were more fortunate. They took in all the sights and collected some souvenirs, such as hand carved model boats, full rigged and even a pair of so-called "bugle birds."

After a two hour visit we decided to weigh anchor again for the last time. A cayuca was dispatched to round up the last few sightseers. We finally spotted them pulling away from the dock. They heard our engine running and told the boys to paddle faster, one of them taking a paddle himself to help, but it turned out to be another case of "haste makes waste." The cayuca turned over about fifty yards from shore, dumping all passengers into the shallow water to the amusement of the spectators aboard the *Leticia*. Nor was this mishap the only one. Two other men fell out before reaching our ship, and had to be given help as they were now in deeper water and were fully clothed, one even having on his raincoat.

Finally, with all aboard we chugged out of the harbor and turned southwest toward home, where we arrived without further trouble a few hours later. But to this day when any of us suggest another boat trip, our friends suggest instead a strait-jacket.

The trip was arranged by a lieutenant in Battery H, 1st Coast Artillery, and collections were made on payday from the adventurous spirits who participated. Unfortunately, the man who arranged the trip couldn't go along, but in spite of the discomfort and bad weather, I still think the idea was a good one and worthy to be tried in other localities.

The men enjoy these trips and the cost per person is negligible. Moreover, they are given a welcome break in the routine of garrison life and have the opportunity to see strange places and things that do not ordinarily fall to the lot of the American on tour.

The value of the sight-seeing trip as a morale builder and recreational device can hardly be over-estimated.

The Assassination of Initiative

By COLONEL X

Illustrated by Lieutenant D. L. Dickson, U.S.M.C.R.

The leaders knew how to make war as well as elephants know how to climb ladders. The colonel? Good, at most, for the command of a company.

—FOCH.

On the empty battlefields of modern war every man has his mission, large or small, and must carry it out by himself. He fights no longer in a closed mass, carried away by the courage or panic of the herd. Not even the private soldier has anyone to lean on—no leader near to aid, suggest, or supervise. He is isolated, alone. Curious then in our army, that in time of peace while we train for war, trust in a subordinate is the exception and constant supervision the rule.

Thus do we confuse the objectives of peace and war. In war, the task is dominant; in peace, nothing. The individual is a tool in war; in peace, the material of which the tools are made. The tasks of peace are a means to an end, that end being the development of the agencies for war—the development of individuals with the initiative and responsibility, the discipline and morale, to carry out the missions of war in the danger, misery, and exhaustion of battle. Neither drill, nor parade, nor rifle practice, is the primary task of an army in peace—the task is the development of initiative, courage, fortitude, and the desire for responsibility of those who go about their peacetime duties.

THE SINS OF SUPERVISION

The confusion of objectives, the association of peacetime duties with the rigor of war missions, endows the tasks of peace with a fictitious and incredible importance. It leads to smothering supervision, and this supervision, although it insures excellent administrative results, has a completely diastrous effect on initiative and character. In his book, *The Psychology of Achievement,* Dr. Walter B. Pitkin observes:

> Society unintentionally thwarts most men of promise. For it overtrains the young in compliance and submission . . . it does not follow that complete obedience is the best training for one who has in him the makings of a great executive. If you wish to see how the rule fails where it is most sternly applied, look over the admirals and captains of any navy on earth; or, the generals and colonels of any army. . . . Not a spark of aggressiveness, not a flicker of initiative, not a gleam of understanding for new ideas or bold projects.

Dr. Pitkin overstates his case, but he has put his finger on a sore that exists in most peacetime armies. The captains of peace will be the colonels of war; the sergeants may become captains. The captain not allowed in peace to command his company and plan its training may command a regiment in war. With every hour of his day's activities prescribed by a program, every drill supervised by the colonel, the executive, the training officer, the battalion commander, what training for responsibility has he ever had? Ludendorff appreciated this when he wrote: "centralization deprived everybody of the feeling of joyful creation and self-responsibility, and the effects were correspondingly bad."

Centralization is the refuge of incompetence. A superior who lacks the moral courage to trust a subordinate proves himself, and not the subordinate, unfit for command. Helped constantly, corrected instantly, supervised minutely, subordinates are not allowed to fail; they are held up by their superiors. Their deficiencies are hidden, covered up. Initiative and ability are held to the common level. Originality cannot break through the screen of prescription and supervision.

No brief is here presented for slack performance of

...A parade ground planted to trees is more suitable than the flat green ovals inherited from the ancients

Virtue is demonstrated by a beautifully aligned camp.

duty. Inspection and criticism should follow the completion of the task. But a supported arm loses its strength; he who walks with crutches is shortly unable to walk alone.

The Civilian Conservation Corps gave the post-war army its first real test. Four of five sub-district commanders, in one large district, were relieved by the corps area commander; they were incapable of exercising the initiative to carry out their task. They were majors and lieutenant colonels of many years' service. Lieutenant Colonel X, established himself in a fine office, fifty miles from his nearest camp. He pored over regulations and trembled as he opened the mail from headquarters. Fear and caution were his most pronounced reactions to responsibility. He found manifold reasons in regulations why everything that had to be done could not be done. He was so obsessed with fear of what the mail might bring that he never left his office to visit his camps. Had he been left in command his four thousand conservationists would have found themselves still in tents in the middle of a northern winter.

Major Y arrived early in the organization period. He received an urgent telegram from corps area headquarters asking for a report on whether camp sites were ready. Every post in the corps area was crowded with conservation companies. They had to be moved to camps to make room for more. Camp sites had been selected before Major Y's arrival; the only thing necessary to make them ready was clearing a little brush; it could have been done in an hour by the companies themselves. But he vacillated. Could he call the camp sites actually ready? The telegram stayed in his pocket for three days. A second one, more peremptory, came. Then *he wrote a letter* explaining carefully all about the camp sites.

Neither of these officers had always been such moral cowards; nor are they typical of the entire army. They are extreme examples that show how peacetime training destroys the very qualities most needed in war. Conscientious, they had spent their careers fearing criticisms for unwitting mistakes; their initiative and courage were undermined by the conditioning the army gives its officers in time of peace. Only a spiritual rebirth can fit such men for war.

It was the same before the World War. Lieutenant General Hunter Liggett wrote, in *A.E.F.*:

> We had cases in the AEF . . . of once excellent officers of the higher ranks, who had gone to seed in the doldrums of peace and could not shake themselves loose from the cut-and-dried methods of the old army. . . . Such officers ceased to be able, after a time, to delegate authority. In France, in war, while they were attempting to do a sergeant major's, a lieutenant's, or an adjutant's job, they let their own task get away from them. The younger officers of this system, given no opportunity of exercising their initiative or of accustoming themselves to responsibility, became chronic buck passers as they grew older.

The captains of the Regular Army who commanded companies of the Civilian Conservation Corps had not been exposed to military "training" for as long as the field officers; consequently they had been affected in a lesser degree. But in one sub-district of fifteen companies, four of the fifteen Regular Army captains, all with sixteen or more years of service, failed completely. Until then they had been bolstered up. Put on their own, isolated from the aid and supervision of superior authority, away from the crutch of traditional discipline, they were incapable of leading a labor company. One was tried by court-martial, the three others are now out of the service. Must the army wait for a war or an emergency to discover officers like these?

The development of an army imbued with initiative and the taste for responsibility has a corollary: those who cannot develop these qualities must be eliminated. Given independence, to which every leader is entitled, the unfit would soon bring about their own elimination. Supervision alone keeps them from failure.

The finest peace-trained army that has ever taken the field was developed in Germany in the forty-four years between the War of 1870 and the World War. In 1895, Sir Douglas Haig reported upon German methods as follows:

> The officer commanding a Squadron or Company is alone responsible for everything connected with that Squadron or Company. The goal to be reached is clearly indicated, namely, *Efficiency for War*, but the methods by which that end is to be attained are left entirely to the *discretion* of Company and Squadron commanders. This initiative of the Squadron and Company Leader is only limited by the necessity imposed on them, that their men must, within certain specified times, attain certain degrees of efficiency.
>
> The Commanding Officer of a Regiment (and *à fortiori* of a Brigade or Division), *is not allowed to meddle* with the instruction of Squadrons [Note: German designation similar to our troop commanded by a captain] or to direct that the instruction of a Squadron shall be carried on in one way rather than in another. The duty of these superior officers is *to judge the results* of the instruction given. They do this at the several inspections, and if need be, comment upon any irregularity or omission which they have noticed in the body of troops being inspected. Moreover, the Senior Officers have each a specified time in which they instruct the unit intrusted to them to command.[1]

"Subordinate commanders," states U. S. Army Regulations, "should be given full authority within their respective spheres of responsibility and be held responsible for results."

But practice does not follow precept. Ancient habit is more powerful than advisory instructions dealing with poorly defined spheres of responsibility. Contrast these instructions with German regulations on the same subject:

> It is *forbidden*, whether with a view to obtaining a greater external uniformity or for any other reason, to complete these regulations by new prescriptions, written or verbal. The latitudes allowed by the regulations . . . will not be subjected to any restriction.

The Impulse Comes from the Top

The three wise men whom the colonel chooses to guide him to his star are Paint, Polish, and Order. The most important event of the year, to a post commander, is the presentation of an immaculate command to an inspector. In the field, the most apparent virtue the regimental commander can show to the general is usually a beautifully aligned camp—laid out with a transit. The colonel and all the majors squint down the tent pegs. The captains spend days devising an arrangement of equipment in tents. The most elaborate arrangement must then be adopted by the entire camp. The general comes, looks down a company street, and says, "Gentlemen, this is the finest camp I have ever seen." Thus they are rewarded. The success of the maneuver is assured. But two days that might have been used in tactical problems are wasted. Not improbably, the beautiful alignment of tents has placed not a few of them on low ground, and under two or three inches of water when rain comes.

The regimental or post commander can hardly be blamed for concentrating upon appearances, for he is judged by them. He may honestly consider them the least important part of soldiering, but he responds, as he must, to the impulse from the top. Shows are easy to inspect and uniformity supplies a specious substitute for excellence.

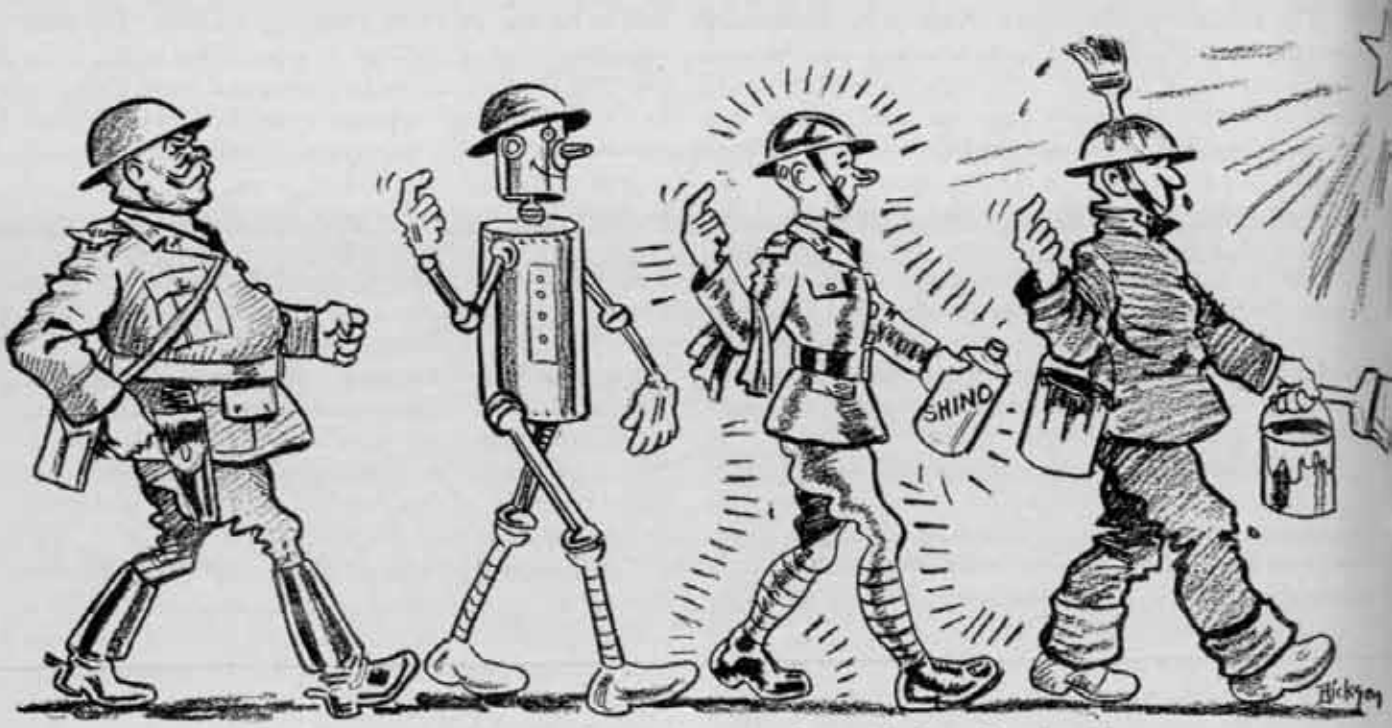
All housekeeping is a necessary incident to the maintenance of an army. But it is not war training and it should be left to those who have to do it. Without smothering supervision, surely captains can be trusted to carry on the military traditions of cleanliness, neatness, and good order. The particular concern of the major, the colonel, or the general is training for battle. What has housekeeping to do with this? An army does not fight with garbage cans or paint brushes.

The Outward Sign of Inward Grace

The ancient army could be judged on the drill field; the parade ground was a true representation of the field of battle. Men expert in the drill and evolution of their arms were expert soldiers. Horses with shining coats were horses in good condition. But the modern army is like an engine—external paint and polish indicate nothing of the functioning of the valves and pistons. The test of an engine is functional—it must be proved by the efficient performance of the work it was constructed to do. The same test should be applied to modern military organizations—a trial run under conditions similar to those under which they are to be used.

Tactical inspections are prescribed by the War Department to be made at least once a year by all superiors above the company commander. They are intended to be the functional test of the battle efficiency of officers and organizations. A division commander was making a tactical inspection of one of his brigades on the *parade ground*. He spoke of having seen a British regiment marching to the front. Trace chains were buffed, equipment shining, boots glistening. The regiment looked good and it was good. The division commander was standing, as he spoke, beside a headquarters battery whose appearance

[1] *Haig, by Duff Cooper.* (The italics are Haig's.)



Paint, Polish, and Order—the three wise men who guide the colonel to his star.

recalled the wartime picture. In that battery, the paint had been removed from the signal carts and the wood had been varnished and rubbed. Wheel spokes were polished to their natural wood instead of olive drab. Metal parts were buffed and shining. But in this same battery half of the telephones were out of order, and the field telephone wire was old and shorted. But the high commander believed in judging by the "outward and visible sign." His command gave him those signs and he was satisfied.

According to some, an army post can be judged by the conduct of the sentry at the main gate. These same officers would be surprised to know how fast reports of their peculiar indices of judgment travel, and how much effort is made to put exactly the right kind of sentry at the gate. Another believer in the external evidence of internal goodness, was scheduled to make an inspection of a foreign service department of the army. Long before he arrived, officers on duty there received letters from good friends in the States telling them just what and how to prepare. Photographs were taken and sent across the seas to show the pleasing arrangements that he liked. Machine-gun carts should be decorated in such a fashion. They must be lined up and dressed, with the shafts all pointing at the same angle. An entire department neglected its training for weeks to prepare these necessary visible signs. All, needless to add, were commended.

Still another high commander, inspecting a transportation show, stopped beside one truck in admiration. The men of the unit had contributed to hire a professional painter to gloss it with the finest enamel. The aluminum crankcase had been removed, and filed and buffed until is shone like silver; the iron cylinder castings had been rubbed with emery until they glistened; the push rods and exhaust pipes had been chromium plated. The regimental and company commanders were commended. Another regimental commander, foreseeing the loss of the show prize, suggested that it might be a good idea to find out if the truck would run. The inspecting commander withered him: "Of course the truck will run. Any truck that looks like that is bound to run."

The truck would not run. It had been towed to its place in the show. The engine had been taken down and put together so many times by polishers, instead of mechanics, that the spark-plug threads in the cylinder block were stripped, the valves were out of adjustment, and the carburetor would not function.

This commander attempted to judge trucks as he had learned to judge horses when he was a lieutenant. In his command the schedule of inspections, competitions, and shows had replaced the training schedule. As soon as one of these functions was over, preparations began for the next. He judged everything by the index of appearances. A clean guardhouse meant an excellent post; a polished motor vehicle, a superior unit; a clean barrack, a superior company. One post commander counted thirty-one official competitions, prescribed inspections, and shows in this command in as many days. For a year, 15,000 men devoted themselves to outward and visible signs. The impulse came from above.

Symbols of Virtue

Habit, custom and tradition have a weight in comparison with which the weight of intelligence is feeble. They have originated in all sorts of ways, many of them accidental. But once established they have a weight

independent of their origin. At critical times, widespread illusions remain steadfast and immovable in the face of realities.

In the army, the church, and the law, tradition is rooted in prehistoric times. Some military traditions are the foundation of armies. Pride, honor, duty, loyalty, discipline, courage, are the permanent realities on which armies are built. But other traditions, such as devotion to a set of drill maneuvers no longer practicable in battle, discipline based on the relation of the noble officer to the peasant soldier, the educated officer to the illiterate soldier, also remain, even though they undermine the institution they are believed to support. The weight of the very traditions themselves leads to a confusion of the form and substance. The form that was once a virtue becomes a symbol of the virtue, although the substance itself has become evil.

Every school child has scorned the stupid Braddock, who would not heed Washington's advice and adapt the formations of his troops to cope with the Indians. Warfare has again become an affair of stalking and stealth. That mysterious word, "Strategy," is defined in military texts as the method of the indirect approach. War is an affair of strategem, of trickery, of the attack from behind. Drill, if it is to bear any relation to war, should return to the fields and the woods. A parade ground planted to trees is more suitable than the spotless ovals inherited from the ancients.

Footballs furnishes an analogy to battle. But football teams do not practice for the game by executing squads right and left. They are drilled in the tactics they use. The formations they practice are those of attack and defense. Envelopment, penetration, flexible maneuver and protection are their tactics and technique. It would be insane to practice in any other way. Yet there is no real distinction between the training of the football team and a military team. It is incredible that soldiers should be trained principally in a mass drill without the slightest relation to the manner in which they will have to fight.

Close-order drill was not developed for parades and ceremonies. The formations of drill were once the formations of battle. "On the right into line" and "Right front into line" were Frederick the Great's methods of forming the line of battle. He drilled his soldiers to perform these evolutions under fire. But no soldier now believes that he will fight in masses; they all know something of the reality of war. But we do not train for it.

Mass drill develops mass psychosis. It was devised to develop the solidarity of the mass, the herd instinct. Overemphasis on it, now that warfare has changed, destroys the very qualities the soldier needs above all others. But still our army practices, more than any other form of training, this anachronism.

The herd instinct is no myth.

> On September 16 our troops reached Eydtkuhnen [Hindenburg wrote] firing in the back of the Russian hordes fleeing before them. Our artillery blew great gaps in the tightly packed masses, ***but the herding instinct filled them up again.***

Such was the effect of the "training" the Russians gave their soldiers—the same training we give ours. In contrast to Russian practice is the following statement by Hindenburg about German methods:

> Our new defensive system made heavy demands on the moral *resolution* and capacity of the troops because it abandoned the firm external rigidity of the serried lines of defense, and thereby made independent action, even of the smallest bodies of troops, the supreme consideration. Tactical coöperation was no longer obtained by defenses that were continuous to the eye, but consisted of the invisible moral bond between the men engaged in such tactical coöperation.

Although all soldiers know that mass drill has small relation to modern war, few in our own army seem to realize that too much of it destroys the qualities which are the supreme need of the soldier—that it substitutes dependence on the herd for individual initiative and responsibility.

In *The Science of War,* Colonel G. F. R. Henderson writes as follows:

> Uniformity is simple; it is easily taught, and it is eminently picturesque; it simplifies the task of inspecting officers; it is agreeable to the centralizing tendencies of human nature; and when it appears in the guise of well-ordered lines, advancing with mechanical precision, it has a spacious appearance of power and discipline. It is far less difficult to train men to work in the mass than independently. Thus, order, steadiness, and uniformity become a fetish; officers and men are drilled, not trained; and all individuality, even if encouraged by regulations, is quietly repressed in practice.

This article is no argument against the drill needed to mould a mass into an organization, nor against the drill necessary to instill into an organized group the elements of teamplay and obedience, nor against the drill required to develop group spirit. Hours of persuasion may be required to move a mob; five simple words suffice to collect a military organization and place it in directed motion. Neither is this article an argument against those symbols which still have value. Ceremonies, for example, exhibit in an impressive and thrilling parade, the hierarchy of command and indicate the dependence of each echelon on the next higher for control. But too much close-order drill and parade destroys their very value; it leaves only the symbol of one of the important virtues of a soldier—obedience. But it is only a symbol. It is the obedience of an automaton in a mass, not the obedience of a man alone, carrying out a mission order.

Every company commander knows the dissatisfaction of the soldier with the routine of garrison, even though duties are light. They can all tell of the gayety and good spirits of the same soldier in the field, even though he works eighteen hours a day. The American soldier is practical. The repetition of useless motion affects him just as moving rocks from one pile to another, and back again, deadens a convict.

The modern symbol of the soldier should be the squad moving by stealth around resistance to take it in rear, while the rest of the section keeps the enemy busy from the front. There may be no "smartness" in this. But it

is the symbol of success in battle and of self-preservation. The success of the army corps may depend upon one division reaching the flank or rear of the enemy by surprise. Von Kluck attempted to work around and behind the French. Sherman's march to the sea and north through the Carolinas was the same maneuver as that of the flanking squad, on a vaster scale. The soldier who has learned to fight with his squad in the field has learned the basis of all modern war.

Disciplinary drills, they are called. "Drill is practice in standardized procedure. It has for its purpose the . . . inculcation and maintenance of discipline." Discipline is one of the vital traditions without which armies cannot exist. But the symbol of discipline has become smartness, the snappy salute, the straight lines and square corners of drill. We strive for it in terms of its symbols. The form is cultivated and the substance is lost.

Discipline does not lie in drill, or in smartness. Both, Ludendorff wrote, may be shown in peace by a coward or a malcontent. Discipline means strengthening the spirit, educating the soul to fearless action, to overcome the instinct of self-preservation under strains beyond the capacity of normal men, in the danger and loneliness of battle. Drill—the discipline of the herd—destroys the discipline of the individual.

The chorus girl, practicing for months in a routine, would be disciplined for battle if drill promoted battle discipline. And so would the lodge brothers on the exhibition squad. Never has the spiritual and moral discipline of the soldier been more difficult than it is today. Instead of solving the problem, the incantations and motions of drill are substituted. The symbol replaces the reality.

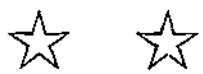
Nevertheless, our professional soldiers become disciplined in time. They absorb discipline from military and organizational traditions. They acquire it from example. When leaders are worthy, self-respect, loyalty, courage, and mutual trust grow of themselves. The concept of duty is absorbed. Occasionally a true leader learns how to teach discipline. And once discipline has been acquired it is almost indestructible. It reseeds itself. The 1st Division, losing from one-third to one-half of its men, in battle after battle, went in again each time, filled with new men, with discipline carrying onward unimpaired. Men going forward in darkness formed chains holding hands. No officer ever needed to punish the man who broke a chain and let his comrade down; the men themselves took care of him.

Soldiers seldom advertise the emotional bonds and prides that make them risk their lives when they could hide. On battlefields there is no hatred of a worthy enemy. The causes for which they fight become shadowy in the reality of death and misery. What keeps them going is a soldier's pride, his duty to his comrades, and his faith in his leaders.

Modern leadership makes demands of the most exacting nature. "The officer is the leader and the teacher. Besides his knowledge of men and his sense of justice, he must be distinguished by his superior knowledge and experience, his earnestness, self-control, and high courage." He must "find a way to the hearts of his subordinates and gain their trust through an understanding of their feelings and thoughts, and through never-ceasing care for their needs. Mutual trust is the surest basis of discipline in necessity and danger."

Initiative and responsibility cannot be taught. They must be learned—learned from failure, from example, from tradition, from precept, from experience. When the practices of peace inhibit responsibility, when custom contradicts precept, when experience is denied, when failure is made impossible—how shall our leaders learn? The conditions must be created to build a corps of officers who can be judged by results and not by a timorous conformity under ceaseless supervision. Since the War, the trappings of leadership have fallen to the shoulders of young men. But slowly every quality they may have possessed to match those ornaments is being destroyed.

The rigid fulfillment of routine tasks in peace is made the symbol of duty in war. Excellence is judged by the "outward and visible sign." The symbols of discipline and training have replaced the reality. Colonels and generals usurp the captains' commands. Since the World War our organizations and our preparations for mobilizing men and industry have improved; staff training has become a reality. The form of an army has been provided without the substance—without true leaders and the discipline of the spirit which alone can keep men on the battlefield of today. Before the army is war worthy the dry rot in the core will be burned out in the fires of lost battles, and by then the war may be lost.



Selecting Sound Locator Personnel

By Captain G. E. Ledfors, Medical Corps

Some years ago at Fort Amador, the commanding officer of Battery C, 4th Coast Artillery Corps came into the post surgeon's office with a problem. He wanted to know whether or not there was any known medical method by which men could be tested and selected for duty on the sound locator. He gave a detailed description of the instrument then in use. It consisted of a phonograph, with a record of an airplane in flight, recorded at varied distances. The phonograph horn was replaced by a wire, which was connected to a tubular device in an 8" x 10" x 38" metal box. This box contained two ½-inch metal tubes similar to the telescoping tubes of a trombone. When the sliding portion of one of the tubes was drawn out, the other slide was completely in, the sound going through the tube whose slide was out. For example, with the slide out on the left side, sound was entering the left ear. The sound was transmitted through another ⅝-inch, flexible rubber tube which led from the metal tube in the box to the headset. From the headset, which was similar to the telephonic headgear, there was a tube for either ear to the metal box. On the end of the box there was a large iron wheel to be manipulated by the examinee. This wheel was fastened to a metal rod which had several gears, working the small cog wheels attached to the two trombone-like tubes and a small wheel on the outside of the box. Also connected to one of the gears was a rod to which was attached a pointer, protruding through an opening in the left side of the box. On this side of the box, and below the slot, was a scale, divided into degrees to the right and left, zero at the mid-point being the normal. The pointer scale was observed by the instructor.

The instructor used the small wheel, changing the sound to "off-normal," and thus created the noise of an airplane in motion. Occasionally the instructor told the examinee to turn the large wheel rapidly so the sound could be heard distinctly in the other ear, examinee hearing the marked contrast in the sound. Knowing the sound to be expected, the examinee was ready for trial.

Two or three trials were given before recording. Then, at the examinee's leisure, two readings for accuracy were made, followed by the third reading for accuracy and speed. At a later date other trials were made as a check against the first. This completed the test.

The complete test on this binaural training instrument required about 25 to 30 minutes per man. There were five trials recorded, the average of these trials being the rating of the examinee. If a man had five trials with consistent reading of "zero" it was considered a perfect score. If he read one degree to the right or left, the score was recorded as 0.2, etc. The following rating was the basis for the classification of the 100 men of Battery C, 4th CA at Fort Amador. The classification was as follows:

Class I	Average reading 0.0.....	Superior
Class II	Average reading 0.2.....	Excellent
Class III	Average reading 0.4 to 0.8...	Fair
Class IV	Average reading 1.0—up...	Poor

The problem, then, was to find a method which would

Left: The 128 d.v.s. tuning fork in the first position. Center: Second position of the fork. Right: Third position of the fork. Note the percussion hammer for stimulation of the fork and also the positions of the fork. In the first and third positions the arms of the fork move upwards and downwards, but in the second position the arms of the fork move laterally.

take less time to run, and still be able to get men in our classification rating of "excellent" and "superior." The writer decided to take 100 men whose rating was already known, and apply to them the various types of hearing tests. The ear drums were examined, history of earaches and infections recorded, as was the distance at which the ticking of a cheap watch could be heard. The Rinné Test, or comparison of air and bone conduction, and the tuning fork were used. The tuning fork of 128 double vibrations per second per second was chosen as its tone was most similar to the hum of an aeroplane engine. The fork was placed on three positions of the head, the *glabella*, or mid-point of the forehead; the *vertex*, or top of the head, and equidistant from either side; the *external occipital protuberance*, or the little "bump" at the back of the head a short distance up from the nape of the neck. The fork was struck and placed on the examinee's forehead. He previously had been instructed to state in which ear the sound was heard loudest, either pointing or stating the result.

The results of this type of examination with an ordinary 128 double vibrations per second per second tuning fork were both amazing and interesting, primarily because it was a simple test which could be accomplished in merely two minutes instead of thirty. Secondly, those who heard the sound equally in both ears were either superior or excellent men, as to rating, or their hearing was so poor that both ears were equally affected, which defect could be detected easily with the ordinary voice test. Thirdly, this fork test eliminated 82% of the men who were unfit as listeners, leaving only 18% to be run on the training instrument. On the training instrument, it will be recalled, the test took 30 minutes, therefore, a great saving in work and time would be effected.

There were 1,600 tests given these 100 men.

It was decided to reverse the test, that is, 209 recruits were examined with the 128 double vibrations per second per second tuning fork, and also with the same tests as the first 100 men except for the binaural training instrument. There were 2,090 tests on this group. Twenty-three men who heard equally in both ears were found. Only eight of these twenty-three men were in or transferred to Battery C. All eight men made good sound listeners. This statement was made by the officer in command of the organization. In many instances the transfer was not made because the man was an excellent soldier, even though a recruit.

The next step was to find if any one fork was superior or inferior for this work. The following forks were used: 84, 128, 256, 512, and 2,048 double vibrations per second

The binaural training instrument in use. The examinee is at the wheel; the instructor stands. Note the headgear and the large wheel.

per second. There were 55 men. Each man was given the same tests as the second group of 209 men, with the extra four forks. There was a total of 1,210 tests. The following conclusions were drawn: First, that the 128 double vibrations per second per second fork was superior. Second, that the 256 double vibrations per second per second fork was next best. Third, the tone of the forks with 512 double vibrations per second per second or above were very difficult for the examinee to evaluate. This complete series of tests was very tedious and time-consuming.

The last step in this series was the examination of 30 men on the audiometer. There was no audiometer on hand at Fort Amador, so this work was completed three and one-half years later at Randolph Field, Texas. After the results of the tuning fork were recorded, the amount of hearing lost was measured on the audiometer. A comparison of the two results was made in each case. There were 240 tests performed. The amount of loss of hearing in each ear had to be nearly the same in order to obtain an "excellent" result by the tuning fork. This condition did not hold true in all cases. The discrepancy was believed to be due to the combined bone and air conduction with the tuning fork, as compared with the air conduction on the audiometer. Secondly, a tuning fork was easier to operate and very inexpensive as compared with an audiometer.

The foregoing tests were performed, not in a spirit of criticism as to the efficiency of the binaural training instrument, nor to advocate the employment of a new method, but as a measure which would greatly reduce the large amount of time wasted on unfit men, thus making it necessary to examine on the binaural training instrument only such men as would be potential "good listeners."

Three hundred and ninety-four men were examined, and 4,540 tests were made by the writer (600 more tests were made by First Sergeant Erwin Smith and Sergeant E. W. Fraser).

The writer believes that the 128 double vibrations per second per second tuning fork should certainly not replace the binaural training instrument, but rather should serve as an adjunct, and used as a preliminary elimination test.

The President of France inspects a model of the latest type naval AA gun recently exhibited in Paris.

Getting the Most From Radio

By Captain L. W. Bartlett, C.A.C.

EDITOR'S NOTE.—*The following article expresses the views of the author as to the effectiveness of present-day tug control. Older Coast Artillery officers will recall that over thirty years ago tugs were radio-controlled in target practices with great precision and alacrity. The discussion includes a description of methods of improving telephone control using the present standard radio equipment.*

"Radio? Take a message to the tug: 'Go out 500 yards and commence towing.' What? Oh, sign it 'Colonel Jones.' "

Major Bones picks up his field glasses, watches the tug with growing impatience, and announces that if he had a rowboat he could row out and give them the message in less time. Finally the tug's funnel belches a cloud of smoke, she swings around and starts to let out the towline. All this trouble and delay just to get a message to a towing vessel some ten, fifteen or twenty thousand yards out in the bay. Yet, if Major Bones had wanted to call his wartime sweetheart in Paris he could have picked up the same telephone and, after little if any more delay, spoken directly to her. Why shouldn't he be able to call a towing vessel, a mine planter or an airplane by telephone just as easily? The answer is easy—he should, and by the exercise of a little ingenuity we can make it possible for him to do so. "Not a service condition," you say? There are many uses to which such a system could be put; some apply only to peacetime target practices and some would be of value in wartime. The following are suggested uses:

(1) Control of towing vessels.
(2) Control of towing airplanes.
(3) Air spotting, with the apparatus so connected that the range adjustment officer speaks directly to the air observer.
(4) Aerial position finding, with the apparatus connected so that the plotter speaks directly to the air observer.
(5) Mine planting, with the apparatus connected so that the plotter speaks directly to the planting officer.
(6) Emergency communication between forts of a harbor defense when wire telephone cables are out of order.

The next objection is that the equipment needed is costly and complicated. In point of fact the cost of extra equipment necessary to supplement standard Signal Corps equipment is $8.41 per radio transmitter to be operated by remote control. The simplicity will be apparent after reading the description of the apparatus.

The third objection is not real but imaginary. Most people are "mike shy." The average person, faced with a radio transmitter and a microphone, is unable to think of anything to say. On the other hand, we are perfectly accustomed to talking over the telephone. The fact that part of the conversation is via the ether will not confuse the person sending the message because in this instance he has in his hand the familiar telephone instead of the unfamiliar microphone.

In designing equipment to accomplish the purpose the following requirements were laid down:

(1) The equipment must be simple and cheap.
(2) No modification, however slight, of standard Signal Corps equipment is permitted.
(3) The equipment must work with any type of telephone—post or fire control, local battery or common battery.
(4) There must be no switching from "transmit" to "receive;" that is, the system must work just like an ordinary telephone.

All of these requirements were met. Two identical sets of equipment were built, one to work with an SCR-136 and the other with an SCR-177.

In order to satisfy the fourth requirement, the radio transmitter must be on the air continuously during a conversation. In order to receive, it is necessary to have a different frequency for reception, far enough from the transmitter frequency so that there will be no interference. Unless frequency separation is very great, it is also necessary that there be a physical separation between the transmitter and the receiver. The physical and frequency separations are interdependent; if one is small the other must be large. Due to variable factors involved, no definite rules for separation can be given.

To feed the output of a radio receiver into a telephone line, an output transformer is necessary to match the last stage of the receiver into the line. The primary of this transformer may be connected to the phone binding posts of the receiver or provided with a plug which fits the headset jack. The operator's headset should be connected across the line side of the transformer and not in parallel with the primary.

The voice currents in the telephone must modulate the transmitter. This is accomplished by the use of a single tube preamplifier which feeds into the microphone circuit of the radio transmitter. The amplifier used is a conventional self-biased power amplifier with an input transformer to match the telephone line to the grid of the tube

and an output transformer to match the plate of the tube to the microphone circuit of the transmitter. A volume control is provided so that the amplification can be varied depending on the strength of the voice currents coming in over the telephone line. The operator adjusts the volume control until the throw of the needle of the plate current meter is normal.

The amplifier and batteries should be in separate boxes connected by a battery cable. An old four-prong tube base may be used as a cable plug. If dry cells are used for the filament supply, four No. 6 cells should be connected in series-parallel as the current drawn (.26 amp.) is too large for two cells in series. To avoid loss of time when it becomes necessary to change batteries, it is wise to build two battery boxes. If the system is used continuously for periods greater than one hour, it is best to interchange battery boxes to allow the dry cells to depolarize.

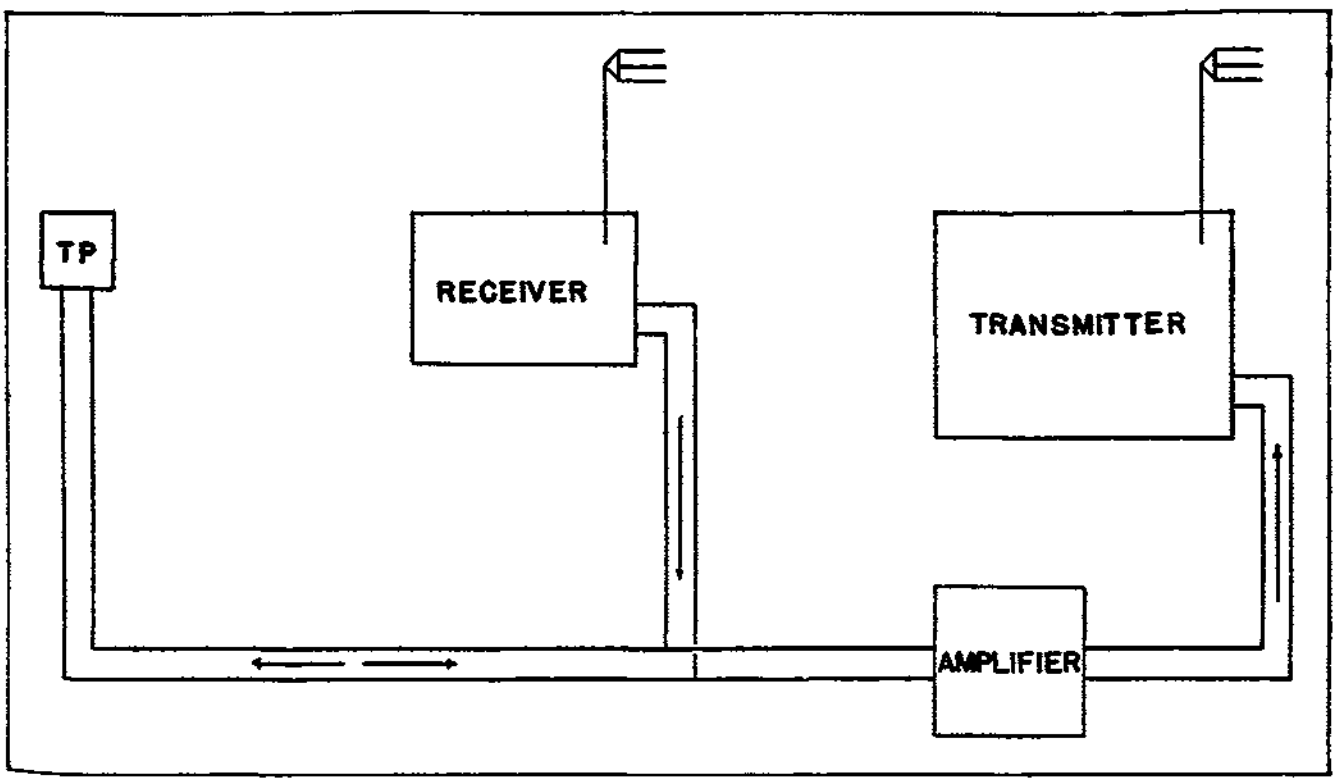
The secondary winding of the output transformer of the preamplifier replaces the microphone in the transmitter circuit. This winding should have an impedance of 200 ohms. Since its DC resistance is normally very low, it is advisable to connect a 2 or 3 microfarad condenser in series with the winding to prevent the flow of direct current.

The plug used and the connections to it will depend on the transmitter with which the preamplifier is to be used. With the SCR-177, connections should be made to ring and sleeve, leaving the tip circuit open.

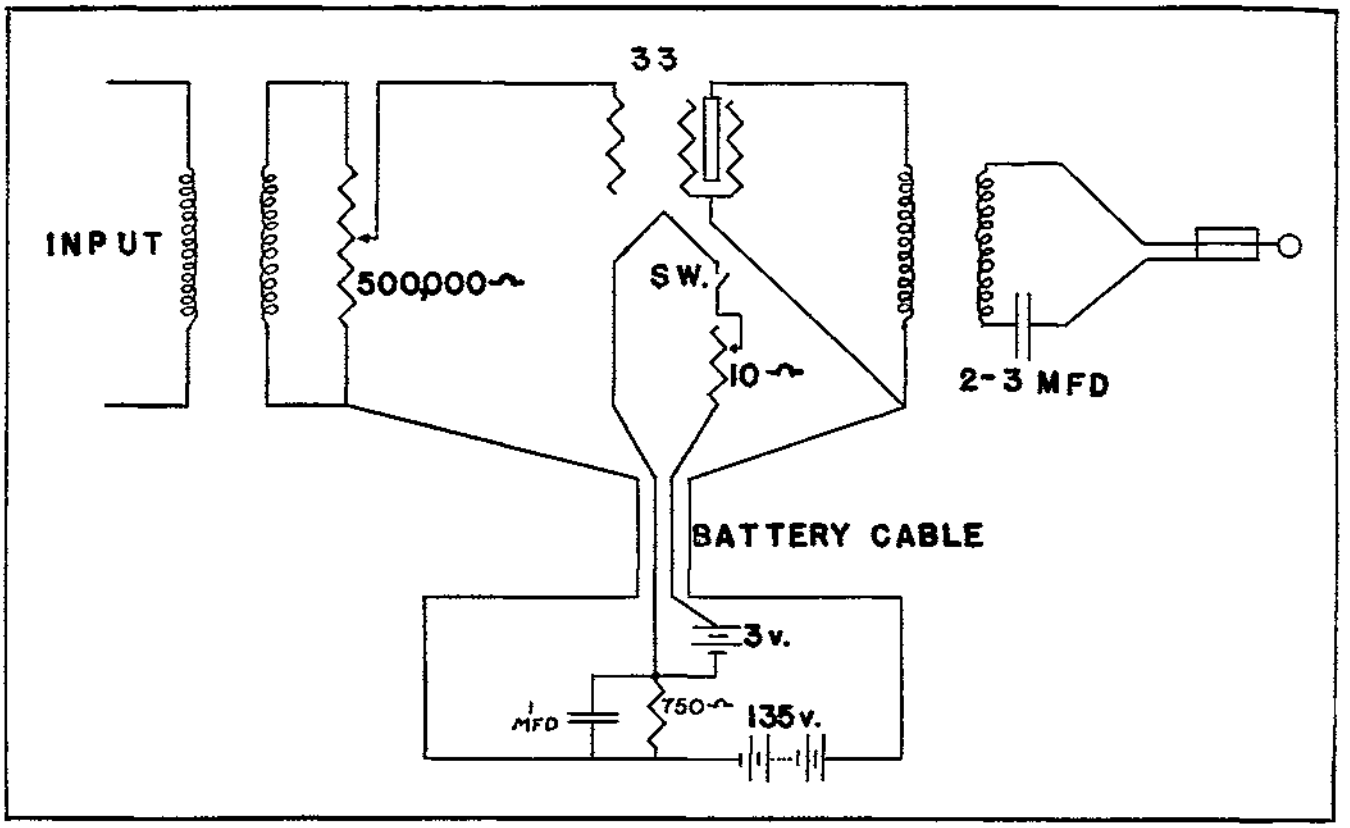
This equipment was designed and constructed for use during the Coast Artillery School target practices at Fort Story in May and June, 1937. It was used for several purposes described below.

For spotting in battery target practices. The range adjustment officer in the battery plotting room was connected directly with the airplane observer. This eliminated all delay, as the observer reported deviations directly to the officer making the range adjustment. The adjustment officer was able to discuss the problem with the observer before the practice started and to keep the observer informed of the progress of the shoot. The range adjustment officer used a type EE-5 telephone equipped with a EE-70 headset so that his hands were free to operate the adjustment board. An assistant operated the percentage slide rule.

For range adjustment in battle practice, the system was arranged differently. Four batteries, consisting of two 155-mm. gun batteries and two 8-inch railway batteries, fired the battle practice. Two observation planes were used, one for each group. The two planes transmitted on different frequencies and one spotted all 8-inch splashes, and the other all 155-mm. splashes. Each range adjustment officer received directly the reports of deviations for his battery and the other battery of the same caliber. The firing times of the batteries were staggered to allow the different batteries to identify their own splashes. Since it was not advisable to allow four different range adjustment officers to talk to the airplane observers, they were prevented from doing so by replacing their telephones with radio headsets. The airplanes were controlled by a plane director stationed in groupment CP. He spoke into an ordinary telephone (common battery in this case) which was connected to the preamplifier. He wore a split headset so connected that he listened to one plane with one ear and to the other plane with the other ear. This involved the



Schematic layout



Circuit diagram

use of three telephone lines—one connecting the plane director's telephone with the preamplifier at the radio transmitter; one connecting one radio receiver with the plane director's right ear and with the range adjustment officers in two batteries; and one connecting the other radio receiver with the plane director's left ear and with the range adjustment officers of the other two batteries.

In single battery target practices, the tug was directed by an officer stationed in the battery commander's station. He was furnished a telephone connected with the preamplifier at the transmitter and with the receiver. When he wished to speak with the tug, he took the telephone handset, said "Give me the tug"; the radio operator closed his key, said "Go ahead"; and the officer controlling the tug then spoke directly to the tug radio operator or to the tug officer or master if he so desired. This was found so convenient that it was used for all drills as well as for target practices.

In battle practice two tugs were used. The tug director was stationed in groupment CP. The two tugs transmitted on the same frequency. The tug director was able to speak directly to either or both tugs without delay, which was a material help in conducting a smooth running battle practice.

The apparatus described above is extremely simple in construction and use. Many a radio sergeant will be able to build up the extra equipment necessary out of parts found in his junk box.

LIST OF PARTS

Number	*Article*	*Approximate cost*
1	Transformer, input, 500 ohm line to single grid	$1.80
1	Transformer, output, single plate to 200 ohm line	1.80
1	Transformer, output, single plate to 500 ohm line	1.80
1	Volume control, 500,000 ohms	.69
1	Filament resister, variable, 5 or 10 ohms	.39
1	Toggle switch	.21
1	Resister, 10 watt, 750 ohms	.30
1	Condenser, 1 or 2 mfd	.20
4	Binding posts	.24
1	Tube, type 33	.58
2	Sockets, 1 4-prong and 1 5-prong	.40
	Total	$8.41

THE REGIMENTAL TROPHY

The JOURNAL is pleased to announce the winner of the Coast Artillery Association Trophy awarded annually to the regiment that makes the best record during the extension course school year. For the year ending June 30, 1938, the trophy goes to the 977th Coast Artillery (AA), an organization that hails from California. The 977th was declared "best" after an exhaustive examination of the scores of eighty-one regiments all over the United States.

Insignia, 977th Coast Artillery "Vigilance, Swiftness, and Strength"

You will recall that last year the Executive Council of the Association changed the plan of award so that it would be made on an improved and more equitable basis. The Council felt that the regimental trophy should serve as an incentive to further effort beyond the minimum required for camp attendance. The 977th is the first regiment to win the trophy under the new plan. In brief, here are the details of the plan under which the winner was determined for the year 1937-1938:

REGIMENTAL TROPHY

1. The Coast Artillery Association regimental trophy will be awarded annually to the Reserve or Regular regiment, having Reserve officers assigned, that attains the highest figure of merit for the year.

2. The figure of merit will be the sum of the following two components:

a. The total number of credit hours earned during the year by completed extension school subcourses and command and general staff lessons will be divided by the average strength of the regiment.

b. The number of officers who earned 40 or more credit hours during the year by completed extension school subcourses or command and general staff lessons will be divided by the average strength of the regiment. This quotient expressed as a decimal will be multiplied by 100.

3. *a*. The average strength of the regiment is the average of its strength on December 31st and on June 30th.

b. The competition year is from July 1st to June 30th.

c. A regiment must have a strength of 25 or more officers to be eligible for the award.

d. In computing the component in paragraph 2 *a* above no officer will be credited with more than 100 hours.

e. The term "officer" applies to Coast Artillery Reserve officers only, assigned or attached.

f. Only subcourses and command and general staff lessons completed while a member of a regiment will be credited to that regiment.

g. Subcourses must be appropriate to the officer's grade or the next higher grade; that is, for 1st Lieutenants the 30 or 40 Series; except a colonel or an officer holding a certificate of capacity for colonel, may be credited with any courses approved by the corps area for obtaining eligibility for camp attendance.

h. Coast Artillery subcourses and command and general staff lessons only will be credited except as authorized in paragraph 3 *g* above.

i. The date of issue of a subcourse certificate determines when the hours of credit it represents were earned. The date appearing in the "received from student" column on the lesson assignment card determines when hours of credit were earned for command and general staff lessons.

j. When subcourses are issued in parts (designated by Roman numerals) such parts shall be considered as subcourses.

k. 2d Lieutenants exempted from examinations and tests by Section II, Circular No. 81, War Department, 1936, will not be included in the strengh of a regiment nor will correspondence work done by them be credited except as follows: If a 2d Lieutenant, so exempted, completes subcourses during the year totaling 20 hours or more he will be included in the strength of the regiment and his work credited to the unit under the same conditions as for other officers.

It will readily be seen that the plan of award emphasizes the training of the Reserve officer with a view to his ulti-

Standing of Corps Areas

Corps Area	*Average Figure of Merit*
Fifth	92.736
Ninth	76.958
First	71.387
Seventh	57.279
Eighth	44.352
Fourth	42.581
Third	33.740
Second	30.812
Sixth	24.323

Standing of the First Ten Regiments

	Regiment	*Score*	*Corps Area*
1.	977th C.A.	186.249	Ninth
2.	535th C.A.	160.665	Fifth
3.	507th C.A.	126.999	Seventh
4.	509th C.A.	111.599	Ninth
5.	628th C.A.	105.280	Ninth
6.	627th C.A.	93.682	Ninth
7.	906th C.A.	93.156	First
8.	57th C.A.	91.686	Ninth
9.	11th C.A.	91.128	First
10.	976th C.A.	88.940	Ninth

Standing of First Three Regiments in Each Corps Area

First Corps Area	
906th CA (AA)	93.156
11th CA (HD) (RAA)	91.128
614th CA (HD)	88.150
Second Corps Area	
619th CA (HD)	57.231
910th CA (AA)	51.614
530th CA (AA)	50.187
Third Corps Area	
523d CA (AA)	74.945
508th CA (AA)	69.640
503d CA (AA)	69.137
Fourth Corps Area	
545th CA (AA)	51.952
534th CA (AA)	50.373
540th CA (AA)	47.758
Fifth Corps Area	
535th CA (AA)	160.665
525th CA (AA)	74.000
932d CA (AA)	43.543
Sixth Corps Area	
532d CA (AA)	49.887
61st CA (AA) (RAA)	42.584
531st CA (AA)	29.738
Seventh Corps Area	
507th CA (AA)	126.999
960th CA (AA)	81.062
958th CA (AA)	55.444
Eighth Corps Area	
969th CA (AA)	70.561
972d CA (AA)	42.553
974th CA (AA)	33.048
Ninth Corps Area	
977th CA (AA)	168.249
509th CA (AA)	111.599
628th CA (AA)	105.280

mate use in an emergency. The organizations competing were not merely piling up credit hours, they were preparing their personnel for the ultimate test of any officer —fitness to take the field. It follows that the Association's award has a definite place of high importance in the Corps' training scheme.

Although the 977th is young in years of service, it is not at all short on efficient performance of duty. It was created in 1929 and since that time has been in the forefront of all military activities in Southern California. Regimental headquarters are located in Los Angeles and the majority of its officers live within or in proximity to that city.

In common with most present-day antiaircraft regiments, the 977th has had no World War experience, but it does have a background of experienced officers who have had war service. Approximately twenty-five per cent of the commissioned personnel served during the World War.

An uncommon feature of the 977th's roster is the fact that the majority of its officers are professional men. At the time the regiment was created there were virtually no officers available for assignment to it. Therefore a drive was put on in the ranks of the engineering profession in Southern California, with the result that most of the candidates for Coast Artillery commissions were engineers in civil life. That the drive was successful is attested by the large number of engineers now assigned to the 977th Coast Artillery.

Winning the Association trophy was not by any means the first outstanding performance of the 977th. It has always taken a lead in Reserve training, both active and inactive. It takes a just pride in its accomplishments and *esprit*. It has consistently held to the policy of conducting its own training at all times and adheres to the "chain of command" in all matters. The regiment maintains a three-year cycle of assignments, changes being made between battalions and line and staff, thus insuring a competent all-around personnel. Attendance at troop schools is compulsory and officers wear their uniforms.

The 977th takes credit for having instituted the week-end field problems that are a feature of Southern California military life. This custom was initiated some years ago, the 977th leading off with an antiaircraft brigade problem in which the Regular Army, National Guard, and other Reserve units participated.

All of the field officers of the 977th are recent graduates of the Special Course, Command and General Staff School, Fort Leavenworth, Kansas. In the matter of enrollment in the Reserve Officers' Association, the regiment is 100% present.

The regimental distinctive insignia, shown above, bears the figure of a griffin, from time immemorial known as an emblem of vigilance. The griffin, half eagle and half lion, combines in itself swiftness and strength. Appro-

priately enough, the regimental motto is "Vigilance, Swiftness and Strength." The silver-and-black background of the griffin is emblematic of the fact that the 977th fights as well by night as by day.

A word or two about Colonel Edward A. Evans, who commands these California antiaircrafters. The Colonel is a dyed-in-the-wool Coast Artilleryman, having enlisted in the California National Guard Coast Artillery in 1917. He won his commission as second lieutenant from the third training camp at Fort Monroe in March, 1918, and served as an instructor in the Officers' Training Camp until November, 1918. Promoted then to first lieutenant, he served in the Office of the Chief of Coast Artillery until February, 1919, when he was discharged and commissioned a captain, Coast Artillery Corps Reserve. Since then, he has worked his way through the various grades, achieving his eagles in 1936. Colonel Evans graduated from the Special Class at the Command and General Staff School in 1931.

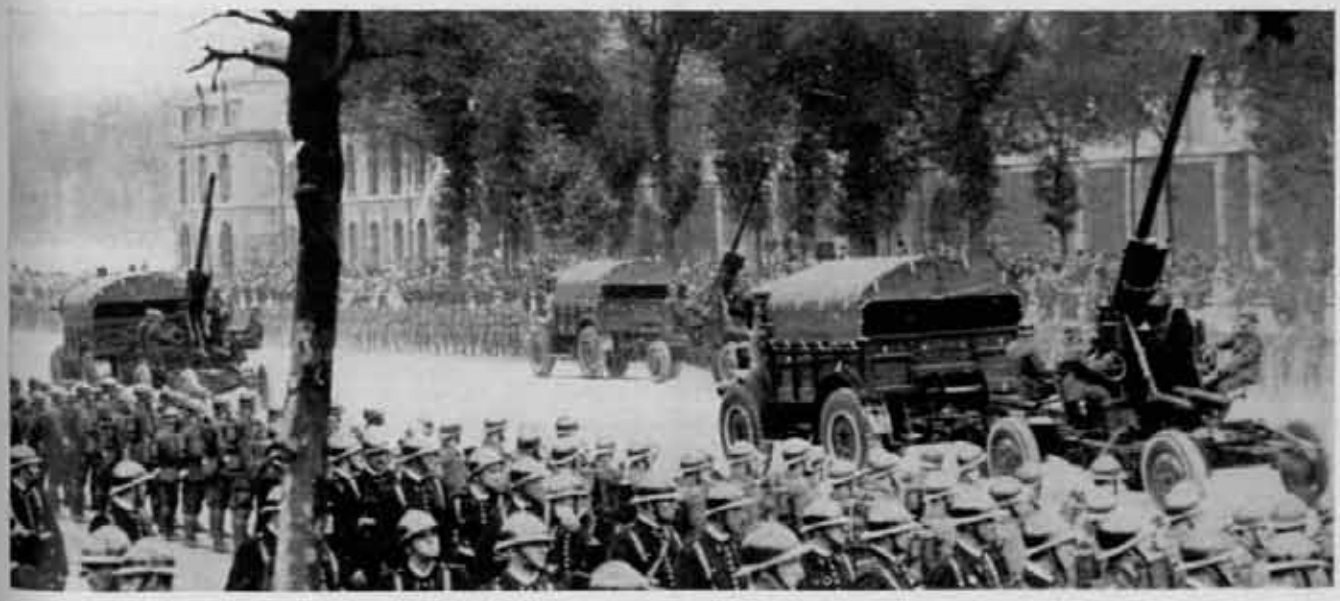
Colonel Edward A. Evans, Commanding 977th Coast Artillery (AA)

In spite of the demands of his profession (structural engineer), Colonel Evans has found time to weld the 977th into an organization of unexcelled morale and efficiency. His has been the guiding spirit behind the 977th for the past nine years. Moreover, Colonel Evans has managed to do yeoman service with other military organizations in the meantime. He twice served as president of the Los Angeles Chapter, Reserve Officers' Association, is a past president of the Army, Navy, and Marine Corps Association of Los Angeles, and, at present is the senior vice president of the California Department, Reserve Officers Association.

Despite his achievements in the present and past instances, Colonel Evans remains the modest citizen soldier, as witness his statement regarding his regiment's prowess. "Colonel R. H. Williams, CAC, for the past several years executive for the Coast Artillery Reserves of Southern California and unit instructor for the 977th, has long been the guiding force and inspiration behind the regiment's success."

From another source close to the 977th Coast Artillery we get an evaluation of a regiment that might well be wished for by any other organization: "From a unit instructor's viewpoint, the 977th is a dispensation straight from heaven. At the semi-monthly troop schools the number of absentees is negligible and every officer is in proper uniform—unless he has come to the class directly from his job. At the end of the last school year, there was not a single line officer of the regiment who had not completed well over the prescribed minimum number of hours of extension course work.

"The 977th won the trophy not by a few officers carrying all the load but by teamwork from all the officers of the regiment."



Antiaircraft guns take part in the Bastille Day Parade in Paris

News and Comment

Ashmore Modernized

Students of antiaircraft defense will be interested in studying the lead article in the July, 1938 *Royal Air Force Quarterly* which is written by the authors of *Air Strategy*. This article deals with the modernization of the 1918 air defense plan of the United Kingdom so that it will accord with present-day technique. It stresses the necessity for the closest cooperation between fighter aircraft and the other elements of antiaircraft defense. In outlining the solution to the problem, consideration is given to the latest type of modern bomber with a possible speed of 350 miles per hour.

The use of infra-red ray and hertzian-wave detectors in not less than 500 antiaircraft observation posts in England, the south of Scotland and on the eastern coast of Ireland is visualized.

A strong argument is made in favor of supplanting the present guns of about 3-inch caliber with up-to-date guns of larger caliber, i.e., of about six to nine inches. The advantage at long range of larger calibers, it is maintained, tells not only in width, but also in depth. It is further maintained that automatic devices can partly cure the main disadvantage of raising the caliber which normally increases the time required for loading and firing. Furthermore, ten 6-inch guns will suffice to cover a front of 150 miles; and on an airplane flying at 30,000 feet they can concentrate a total weight of projectiles very much superior to that which could be fired from *eighty* 3-inch guns. These assumptions are somewhat in line with Rougeron's estimate that one 5-inch gun is equivalent to at least five 3-inch guns, and one 9-inch gun is equivalent to at least twenty-five 3-inch guns.

This article goes on to discuss in detail the cooperation of naval and shore AA defense and includes a discussion of the use of radiogoniometry.

The authors maintain that the combined action of fighters and antiaircraft gunners must comply with the following conditions in order to insure the desired cooperation between fighter aircraft and antiaircraft artillery:

a. Elimination of the risk of aircraft being fired upon by their own AA artillery.
b. Assistance to pilots in detecting enemy air units by indicating courses followed and illuminating hostile bombers by special shells.
c. Mutual support of fighters and AA guns in action against enemy aircraft.

A list of the precautions necessary to exclude the possibility of aircraft being hit by their own AA guns is then

given. This is followed by a complete statement as to how the action of fighting aircraft and of AA artillery can be coördinated.

Aerial obstructions and aprons are dealt with at great length, and their use in various countries during the World War is outlined. The authors believe that although the daytime efficiency of aerial obstructions is open to criticism their usefulness at night cannot be questioned, particularly since the advent of modern "high altitude" aprons. Great importance is placed upon this means of defense.

The article closes with an estimate of material likely to be needed for the air defense of the United Kingdom. The estimate includes 650 airplanes, 650 searchlights, 2,500 units of balloon aprons and 300 antiaircraft guns for the semi-mobile defense reserve with a grand total of 600 guns for the air defense of Britain.

It would be difficult to exaggerate the worth and comprehensiveness of this able study.

* * *

Battleship Vulnerability

Enthusiasts who advocate the use of mortars, howitzers and other curved-fire trajectory weapons will be pleased to read the following extract from the August 25, 1938 *United Services Review*. This extract and the rest of the article in which it was contained tend to prove that the most effective fire against battleships will come from weapons with curved fire trajectories unless battleship design is changed.

The *Queen Mary* struck very much heavier blows than any of the ships in the German battle-cruiser squadron, one of which sank her at Jutland. With her superior dynamic power she should have sunk her opponent—that is to say the ship which delivered the salvo that caused her to blow up. We all know why the *Queen Mary*, *Invincible*, and *Indefatigable* went up during the battle-cruiser action in the opening phase of Jutland, while none of the German ships was mortally wounded. In a "straight" artillery duel on traditional lines, with the gunners concentrating upon broadside fire so as to hole the enemy below the water line, a comparison of weights of metal thrown shows so heavily in favour of the British ships that the results seem to be an easy conclusion. *The race is not always to the swift nor the battle to the strong*. The fatal blows were not delivered upon the broadside belting, but on topsides.

To say that our naval designers had never foreseen plunging fire would be neither fair nor correct. It was not in consequence of defective armour protection that three of our battle-cruisers went up with such appalling rapidity, but because the flashes from the plunging salvoes ignited the shalloon-covered [fabric-covered] charges for the big guns and the blasts reached the open magazines.

The Dogger Bank Action

During the Dogger Bank action our five battle-cruisers fired 1,154 heavy shells, 708 of which were armour-piercing. The four German battle-cruisers (classing the *Blücher* as one of them) replied with 976 heavy shells. The *Blücher* was terribly crippled by gunfire, but it was torpedo attack which sent her to the bottom. The late Mr. Filson Young, who was present throughout the battle, writes: "Every gunnery officer in the Fleet wanted to know exactly how the great ranges and the high speeds of the ships engaged affected the existing organization for fire control. Everyone of them, you must remember, had been brought up on the theory of the big gun, the first blow, &c. We had the biggest guns and we got in the first blows, but none of the results that the gunnery experts of those days had been taught to believe as Gospel had happened. The idea that one blow from a 13.5 in. shell was going to do the business of any capital ship had to be abandoned. We had gone on hitting, and hitting, and hitting—and three out of four ships had got home. Why?"

This simple and perfectly legitimate question is rather in the nature of a searchlight upon the problems of the naval designer. He had striven to protect "the vitals of the ships" against broadside penetration, and apparently he had succeeded so well that the results commented upon by Mr. Filson Young were the consequence. No armoured ship was mortally wounded by direct gunfire in the big battles of the Great War. But high-angle gun-fire was another matter, and the plunging shells at Jutland were heralds of a new form of attack, from above. The practical "lessons" of the war, as they affected naval design, were that the capital ship of the future must be effectively protected against horizontal attack, vertical attack, and attack from beneath. This is the premise upon which rests the main arguments for a great increase in size. Give the naval designer all he will demand in the matter of weight and he will give all that is demanded of him in the matter of armour protection.

But will he—or, rather, can he? To increase size is automatically to increase weight, so that the ratio of additional protection is not represented by mere tonnage figures. Moreover, weight cannot always be imposed where protection is most needed under modern methods of war. I am told that the *"King George V"* class of battleships now building will have 16 in. broadside armour. This would probably withstand bombs and aerial torpedoes. But bombs fall on deck, and the idea of a 16 in. armoured deck is altogether too fantastic. The naval designer has to think of a better way of meeting this form of attack. He did it in the case of underwater attack not by any attempt to oppose mass and weight to the torpedo, but by means of the comparatively light cofferdam, enclosing a "cushion" of dead water, which would so far absorb the terrific shock of a torpedo explosion as to minimize the damage it could do the skin of the ship and the honeycomb of bulkheads behind the skin.

Germany of Today

In December, 1937, Dr. E. Woermann, for many years a member of the German Foreign Office in the Embassy in Paris and the Legation in Vienna, and currently Minister Plenipotentiary and Counsellor of the German Embassy in London, described some of the principal institutions of Nazi Germany in a lecture before the Royal United Service Institution. The short time available made it impossible for Dr. Woermann to explain in complete detail the economic machinery of the German nation, the policies of the Party, its foreign relations, the racial, cultural and spiritual theories in effect, or the social and other effects of all these. However, he did review them briefly, and pointed out the fundamentals of the relationship of the citizen to the State, and of the State to the Party.

As could be expected, the bright spots of German life under Nazi rule were emphasized, while some of the major problems of the nation, such as increasing the wealth of the State, fulfillment of more of the material needs of the people, and raising the living standard generally were ignored. But, all in all, Dr. Woermann points out things which are clearing up much of the confusion imbedded in the minds of most Germans in the long years following the War. For good or bad—only the future will tell—they are restoring a consciousness of national unity and strength. The continued expert handling of the forces that mould public opinion and influence the national life will determine the result in a large degree.

Liberty is a relative, flexible quality, but Dr. Woermann demonstrates how it has been restricted in order that one government's formula for a fuller life for everyone may be put into effect—and, some think, so that the power of an aggressive militaristic group of leaders may be maintained.

According to Dr. Woermann, two conceptions, National and Socialist ". . . dominate the life of the individual, and the life of the State and the nation." "National" means that the nation must be put first in the deeds and thoughts of Germans, not only as a requisite of survival in the struggle among nations and for eventual individual benefit to all, but, also, because their achievements must be "the product of . . . national qualities, not of an ill-conceived and ill-defined internationalism." To a German, "Socialist" implies a very limited form of socialism, necessitating the intervention of the state in any field where "private enterprise does not succeed in satisfying the needs of the people."

As a convenient vehicle for carrying the thread of description through his account and to typify the life of the average German, Dr. Woermann tells the story of a mythical creature called Fritz. Some time before Fritz's birth, his parents, who are poor, have obtained from the State a "marriage credit allowance," with which to furnish an apartment. Presently, Fritz enters the world, and a social organization of the Party insures medical aid for child and mother, as well as holidays in the country and at the seashore. Fritz grows, enters school, and at the age of ten, is enrolled in the Young Boys Association—the *Jungvolk*—one of the great organizations of the Party. The *Jungvolk* is the junior group of the Hitler Youth, bringing together boys from ten to fourteen for sports, primarily outdoors, and, we may assume from Dr. Woermann's explanation, teaching them, in a preliminary manner, the duties of all Germans, regardless of the social standing of their parents. Of course, many German youngsters start work at fourteen, none the less participating in the Party-sponsored movements.

The Hitler Youth (comprising youngsters from fourteen to eighteen) resembles the Boy Scouts to some extent claims Dr. Woermann; its guiding principle is leadership from within, and, as in the *Jungvolk*, leaders are chosen from their own ranks. In neither body is membership compulsory, although the tendency is for all the male youth to join. The spirit inculcated in the *Jungvolk* is also taught to the Hitler Youth. A critic might suspect that a new crop of generals is being reared, beginning at age ten, and that preparedness for attack or defense and at all costs is a cardinal tenet of the present regime.

Fritz completes secondary school at eighteen, and then must serve six months in the Labor Service, which has similarities in our Civilian Conservation Corps in methods and aims, and then he spends two years in the army.

After leaving the Hitler Youth, a boy is entitled to become a member of the National Socialist Party and to join any of its affiliated groups, such as the Storm Troopers, etc.

It is not indicated what percentage of the population participates in the various movements or what cost, if any, is attached.

Fritz volunteered before he was due for service, and thus was permitted to choose the type of regiment; he selected the infantry. With sufficient progress, he is appointed corporal after one year's service, and then begins instructing the new class of soldiers. After further military service and courses, he will be appointed an officer on the reserve list. Dr. Woermann adds, incidentally, that Germany is very much in lack of trained reserves.

Our Charlie McCarthy, Fritz, having come of age, goes to a University for an education—a much more different life than what it was pre-War days, for he must simultaneously discharge his duty to the Party. Scientific research is encouraged, but it is not deemed sufficient in itself and must be made to serve the community. Gymnastics play a prominent part in school life.

Upon completion of his University course, Fritz obtains a professional position, and "the young German is expected to marry between the ages of twenty-five and thirty . . . and have at least four-and-a-half children," in order to maintain the population, which was stationary in 1933 and would have declined in the next few decades. To encourage growth, Germany taxes big families less, and lays heavy burdens on bachelors. The observation might be offered that because of the comparative lateness of the German's marriage, caused by labor and military service, and, hence, a delayed entry into his field of livelihood, the

policy of population-increase is self-conflicting. Germany is preventing absorption of the race by more intensive propagation.

Without covering the subject any too exhaustively, Dr. Woermann defended Hitler's scrapping of the Versailles treaty, on the grounds that the other world powers signatory to the agreement did not fulfill their obligations, and equality for Germany had to be regained. Re-militarization of Germany in defiance of the Versailles document was undertaken because "history has taught us that cowards and weaklings are the target of aggression from other peoples, and that they therefore constitute a permanent source of upheaval and crises."

The German army consists of 13 army corps, which comprise 36 infantry divisions, one mountain brigade and armored units. Dr. Woermann mentioned the air force, but did not describe it. The Navy has not yet built up to the 35% of the aggregate tonnage of the fleets of England and other members of the Commonwealth, permitted by the Anglo-German pact concluded on June 18, 1935. "The Supreme Commander of the German military forces is the Chancellor—Adolf Hitler. Next in command is the Minister of War and Chief Commander of the Military Services. . . . The three military services are of equal status. Each of them has its own Commander-in-Chief."

Germany's activities involving the Jewish question are predicated on the belief that the race must remain pure. That's why an Aryan may marry only an Aryan; a Jew, only 100% or 50% Jewess. A health certificate must be obtained before marriage.

The Labor Front in Germany is the successor to trade unions and employers' associations, embracing both, and seeking to maintain and further work. Boards representative of the Labor Front try to improve working conditions, beautify plant surroundings, assist in creating sports centers near factories, and organize the spare-time activities of employees in recreation, travel and general benefits for the workers. In 1934, 2,000,000 workers traveled through the efforts of the organization, and in 1936, 6,000,000 journeyed. Labor disturbances, says Dr. Woermann, have been unknown since 1933; strikes and lockouts are prohibited.

State insurance organizations for workers, which have existed for a long time in Germany, have been augmented by the National Socialist Welfare Society, ". . . one of the best and most important institutions of new Germany. Membership in this organization, as of all the others of the Party, is voluntary." The Society controls the Winter Relief Fund, through which, in 1936, 1,200,000 honorary helpers assisted 13,000,000 people from cold and hunger. In a state largely socialist, like Germany the point of self-sufficiency obviously has not been reached when 20% of the population must receive aid to sustain life.

Dr. Woermann declared that German finances are now sound, although admitting that "taxes due for future years have been mobilized to a certain extent for immediate purposes. . . . The yield of the taxes has increased to an extent that had been foreseen in order to reach the necessary balance . . . due to the fact that unemployment has practically disappeared." In 1933, six to seven million were unemployed; in November, 1937, little more than half a million. National income increased from 45 billion marks in 1932 to 62 billion in 1936. Savings rose from 10 billion to 14½ billion marks in 1937. The boom-through-armament theory is discarded by Dr. Woermann, because "we in Germany have the firm belief that this apparently valid law of boom and slump is no longer applicable to our country." And the slack in employment is taken up by works financed by the Government, held in reserve for such periods of distress. It has been said that there are lies, damn lies, and statistics; further information, explanations, of conditions, and counter arguments might dispute Dr. Woermann's gauges of prosperity.

The Four Years Plan in Germany "is concerned naturally with defense purposes, but this is not the ultimate and particular end. Its true purpose is to give permanent work to the German worker." It is explained, though, that the pre-War policy of exporting manufactured goods to the greatest extent possible has been replaced by one designed to guarantee self-sufficiency. That is not economy from an economist's standpoint, but it is an essential sacrifice if, as many believe, Germany is determined to grow great again.

In agriculture, "one of the most important aims . . . [is] to reëstablish a healthy peasant population by guaranteeing to the farmers prices for their products which will enable them to lead a decent and comfortable life.

"There is the problem of the relationship between the State and the Party. On this point the Führer laid down the principle that it is the Party who commands the State. As you know, Germany is not a dictatorship, because we have democratic control by the means of frequent plebiscites . . . Germany is a State directed by the Leader, who enjoys the full confidence of the entire nation."

Dr. Woermann denies that the Nazis look upon a woman as nothing more than a "breeding machine." "There are millions of German women working in all kinds of professions; but it is the aim to let a man's work be done by a man. . . ."

Other points developed by questioning are the existence of a German law requiring everybody to take part in air raid protection measures in wartime; even peacetime exercises are carried out in that connection; the lessening number of concentration camps and inmates, the latter consisting of "unsocial" people; and the lack of a free press, which is controlled in order that "other values" besides news may be obtained, such as absence of disturbances of the people and of international relations. A controlled press, of course, is imperative to the successful operation of a program such as that now taking place in Germany.

Long Range Coast Defense Practice

Firing seacoast guns at long ranges, such as 25,000 yards, necessitates extensive advance preparations and well thought out plans of execution in order to insure proper range clearing and safety.

It is evident that safety officers located at the battery position cannot be certain of seeing all small craft which may be fouling the range and therefore there is generally no alternative but to depute the responsibility for safety at the extreme end of the range and over such water areas as cannot be seen from the battery to another officer either at sea or stationed where he can obtain an unobstructed view of the whole area.

Where officers stationed at great distances from the firing battery are important links in the plan for safety, the whole success of the firings will depend in the main on communications and nothing should be overlooked that might provide for their perfection, and to that end as many alternative means as can be devised are required.

Those of us who have waited hours because some vessel was fouling the range realize maybe too vividly the necessity for detailed plans and preparation to insure safety for long range coast defense practices. Well executed plans will not only insure safety but will improve morale and guarantee better results as they will certainly avoid many unfortunate delays.

Much of the thought above is contained in an excellent article by Major R. C. Gill, M.C., R.A., in the July, 1938, *Journal of the Royal Artillery* entitled "Clearing and Safety for Long Range Coast Defense Practice." Major Gill's article describes the difficulties of long range practices in the water areas around Hong Kong. He tells of some of the steps taken to overcome these difficulties and outlines the signal and communication plan in general. He also states the main lessons that were learned from these practices. The article should prove of interest to all seacoast gunners.

* * *

British AA Defense Force to be Doubled and Reorganized

The Secretary of State for War announced yesterday in the House of Commons the reorganization scheme which is to be undertaken to secure that undivided attention may be given to every aspect and detail of antiaircraft defense and to ensure that this branch of defense shall be given a status commensurate with its rapidly expanding scope.

Existing Teritorial antiaircraft units, with the addition of others to be created, will be formed into five divisions instead of two and the strength of the force will be raised from 43,000 to about 100,000. The five divisions will be under a Corps Commander with the rank of Lieutenant-General, who will be responsible for training, inspection, and personal questions. He will be responsible to the Air Officer Commanding Fighter Command for operations. At the War Office there will be a Lieutenant-General designated Deputy Chief of the Imperial General Staff (Antiaircraft Defense) responsible, through the Chief of the Imperial General Staff, to the Secretary of State. He will devote his whole time to antiaircraft defense and there will be appointed under him a new Director of Antiaircraft Training and Organization with the rank of Major-General. Appointments to the new positions will probably be announced in a week or 10 days.

Closer Contact

The expansion of the antiaircraft formations is a matter which will be dealt with by local Territorial Associations. The need for antiaircraft defense is much greater in some areas than in others and each Territorial Association will be informed how its area is affected. Many departments of the Government are concerned in antiaircraft defense. The general plan of defense is evolved by the Committee of Imperial Defense, which coördinates the activities of the various departments. The Air Officer Commanding Fighter Command is in operational control, and broadly the conception of defense is to give full scope to the fighter aircraft of the Royal Air Force. The part of the defense for which the War Office is responsible is the illumination of the enemy with searchlights supported by antiaircraft guns, and the main design is to subject the raider to attack from the moment he crosses our coast.

This work, it is claimed, will be aided by the change in command, for in future the Corps Commander will be in close touch with the Air Officer Commanding Fighter Command instead of, as at present, with Army Liaison Staff, a much junior staff. They will work together at Headquarters and under Headquarters will come the Royal Air Force Group and the Antiaircraft Division absolutely parallel to one another. There will be a chain of command all the way down, placing the Air Force and the War Office together so that, to quote a War Office spokesman, there will be real unified control.

Equipment

The Deputy Chief of the Imperial General Staff (Antiaircraft Defense), who will be responsible through the Chief of the Imperial General Staff for the antiaircraft defense which is dealt with by the War Office, will use other departments of the War Office to see that his requirements are fulfilled. If he wants more munitions he will go to the Director-General of Munitions Production and if he wants more drill halls he will go to the Director-General of the Territorial Army.

There is a feeling in official quarters that harm may be done to recruiting for the air defense formations in the Territorial Army by fears that there is not enough equipment and that the equipment which exists is of an inferior and obsolete kind. The description "dud" which has been applied in the House of Commons to the 3-in. gun is not accepted and this weapon is still regarded as an essential part of our defense. It was claimed for the gun yesterday by an official at the War Office that, modernized and used with new instruments and a better shell, it has a higher ceiling and bigger burst than is generally supposed and

is a useful weapon of defense. The 3.7-in. is a bigger and better gun, but its final design was only approved a year ago. It was regarded as almost impossible to produce a new gun and get it into commercial production in less than two years, but it is now coming forward in regular quantities. The rate at which it had been brought into production (the War Office spokesman said) was not exceeded even in the War. A factory at Nottingham which was a bare site a year ago was now producing a regular supply of 3.7-in. guns. No country in the world published figures of the number of guns it was producing, and the most that could be said was that the War Office considered that what had already been done was a real achievement. Even when sufficient quantities of the new gun have been produced it is not proposed to withdraw the 3-in. gun.—*London Times*, June 29, 1938.

Watch Your Deadline!

Contributors to the "Coast Artillery Activities" section of the JOURNAL are reminded that our deadline for copy is the first of the month preceding publication date. That is, copy for the November-December number must reach us by November 1st. The deadline requirement applies to pictures also. Please go into a huddle with your postal schedules and drop your copy into the mail in time to reach us *before* the deadline. Thank you.

While we're on the subject, please note that pictures should be protected from metal paper clips by heavy paper. A folded 3 x 5 card does the trick nicely. Glossy prints lend themselves best to reproduction and should be sent whenever possible.

When you write your newsletter, don't forget to flip the little gadget that makes your typewriter double-space. This little precaution is a big help to your editor when he prepares copy for the printer.

The Trophies

Elsewhere in this issue you will read of the winner of Coast Artillery Association Trophy for the regiment making the best record during the extension course school year that ended June 30, 1938. In the November-December issue we shall carry the story of the nine winners (one from each corps area) of the individual trophy.

37-mm. Rheinmetall Automatic Cannon

The characteristics of the 37-mm. Rheinmetall antiaircraft automatic cannon are given in the June, 1938, *Revue d'Artillerie* as follows:

CHARACTERISTICS

Length of Tube	40 calibers
Weight of Shell	.625 kg.
Initial Velocity	840 m/s
Range	6,000 meters
Limits of Traverse	0-360°
Elevation Limits	— 10° to + 85°
Rate of Fire	150 shots per min.
Weight:	
In Firing Position	1,700 kg.
In Traveling Position	2,600 kg.
Magazine Capacity	6 shots
Range of Tracer	3,200 meters

Coast Artillery Activities

OFFICE OF CHIEF OF COAST ARTILLREY

Chief of Coast Artillery
MAJOR GENERAL A. H. SUNDERLAND

Executive
COLONEL JOSEPH A. GREEN

Matériel and Finance Section
LIEUTENANT COLONEL H. B. HOLMES, JR.
MAJOR J. T. LEWIS
MAJOR S. L. MCCROSKEY

Organization and Training Section
MAJOR D. D. HINMAN
MAJOR AARON BRADSHAW, JR.
MAJOR W. H. WARREN

Plans and Projects Section
LIEUTENANT COLONEL K. T. BLOOD
MAJOR T. J. BETTS

Notes from the Chief's Office

Commencing with the calendar year 1939, instructions for target practice will appear in Training Manual 2160-35, Coast Artillery Target Practice (formerly TR 435-55). This training manual is now in the hands of the printer, and it is expected will be issued to the service prior to January 1, 1939. Much of the instruction and tables formerly in the annual training memorandum on target practice have been incorporated in this new training manual.

Training Memorandum, Instructions for Coast Artillery Target Practice—1939, will shortly be issued. This training memorandum now includes, in general, only the scoring formulae proper, and the method of computing scores.

* * *

The War Department recently issued instructions to Major General George Van Horn Moseley, commanding the Third Army, to make detailed plans for a joint Antiaircraft-Air Corps exercise to be held at Fort Bragg, North Carolina, during the period October 3-17, 1938. A Provisional Antiaircraft Artillery Brigade, composed of the 61st, 62d and 69th Coast Artillery (AA) and Batteries A and C, 2d Coast Artillery (HD) will be concentrated there and will form the ground element of a complete all-round coördinated antiaircraft defense. General Fulton Q. C. Gardner, U.S.A., will be in command. In addition to the Regular Army antiaircraft artillery regiments listed above, General Gardner's command will include the 51st Signal Battalion, a Provisional Wing of the GHQ Air Force made up of pursuit units, and the personnel necessary for the establishment of an aircraft warning service. The service will consist of some 300 stations that will utilize to a maximum extent the existing commercial telephone communication facilities, together with similar facilities of the various Federal, State and Municipal agencies. The net will be the most extensive one ever tested and will place for the first time principal reliance on the civilian personnel of the area covered.

The defense will be tested in connection with a strong GHQ air force concentration which will operate from Langley Field, Virginia.

In addition to the participation in the general exercise, the antiaircraft artillery units will conduct individual and multiple battery firings at aerial targets, under as near service conditions as is practicable in time of peace, during the period September 14-29, 1938.

* * *

The Table of Basic Allowances, Coast Artillery Corps, July 1, 1937, is in process of revision. This is in accord with the annual revision of all tables of basic allowances for the arms and services. The new table should be ready for distribution to organizations before the first of next year.

The procurement of Coast Artillery matériel, both seacoast and antiaircraft, made possible by the appropriations for the fiscal year 1939, has been initiated by the services and is progressing satisfactorily.

Fort Monroe

Brigadier General John W. Gulick, U. S. Army, *Commanding*

Colonel W. E. Shedd, Jr.
Commanding Harbor Defenses of Chesapeake Bay and 2d Coast Artillery (HD)

Colonel Eugene B. Walker
Commanding 51st Coast Artillery (TD)

Lieutenant Colonel Frederic A. Price
Commanding 52d Coast Artillery (Ry)

By Lieutenant Kenneth R. Kenerick

Fort Monroe, the crossroads of the Coast Artillery, finds itself engrossed in the usual rush and activity that comes with the summer months.

A large turnover of permanent officer personnel, departing and incoming school officers by the dozens, and hundreds of transients including the U.S.M.A. Cadets, Organized Reserve officers, R.O.T.C. trainees, National Guard, and C.M.T.C. groups all tend to keep the wheels revolving fast and the pulse beating high.

Personnel

General Gulick left with his family during August for a month's leave of absence in the cool Maine woods.

At the completion of the School course the majority of the student officers left on leaves of absence prior to reporting to their new stations.

The staff departments of the harbor defenses are due for a general shakeup around September 1st when Lieutenant Colonel Lawrence B. Weeks, executive 2d Coast Artillery leaves for the Army War College and Lieutenant Colonel Frederic A. Price relinquishes command of the 52d Coast Artillery to proceed to the Philippine Department.

Other losses during the two-month period have been Majors R. E. McGarraugh, E. M. Foster (FD), and G. S. Lavin (Ord.); Captains R. E. Dingeman and E. Barber; and Lieutenants R. F. Moore, N. A. Congdon, T. A. Harvey, and M. S. George.

Incoming officers have been Majors D. E. Morrison, L. C. Dennis, C. D. McNeely, D. M. Griggs, R. D. Daugherity (FD) and L .W. Jefferson; Captains H. J. Vandersluis, D. G. Pamplin; and D. M. Wilson; and Lieutenant J. Snyder (MC).

Fort Monroe extends a greeting on behalf of the Corps to the three officers at this post, Lieutenants J. D. Wood, A. A. Abston, and W. J. Hodges, who were selected for commissions in the Coast Artillery on the completion of a year's active duty under the Thomason Act. During July sixteen Thomason Act officers reported and look forward to success in qualifying for regular commissions. These Reserve officers are: Lieutenants William L. Cole, Joseph Cohen, John S. Diefendorf, John E. Hart, William P. Hickman, William J. Hussey, Bernard R. Luczak, Oliver K. Marshall, George T. Mehalko, Charles W. Reeves, Richard B. Robinson, Seymour F. Saunders, Richard B. Todd, John E. Wood, Thomas H. Barfield, and Elmer T. Poutra.

Gettysburg Anniversary

Fort Monroe contributed in large part toward a picturesque and interesting Army display at Gettysburg, on the occasion of the 75th Anniversary of that famous battle. Detachments of Coast Artillery, Field Artillery, Infantry, and Cavalry combined their efforts to add to the colorful reunion exercises.

Thousands of visitors had their first opportunity to see the matériel of the Coast Artillery Corps, and from all reports displayed unusual interest in the equipment, particularly the 8-inch gun setup.

On the evening of July 3rd the visitors were entertained by a night aerial and antiaircraft mock battle.

USMA Cadets

On August 12th, 458 1st Classmen of the Military Academy arrived on the post from Fort Benning, to get a first-hand glimpse of the Coast Artillery to wind up their summer training tour.

Everything was in readiness, and everybody worked hard to enable our future officers to absorb a large amount of Coast Artillery information and experience in the five days they were with us.

Three days of intensive drills were terminated by target practice by the Cadets at Fort Story. During the practice the Cadets manned, observed, and fired antiaircraft, railway and beach guns—the first real taste of the powder and roar of the big guns for most of them.

Summer Training

The 246th Coast Artillery, Virginia National Guard spent two weeks at Fort Story during July, training 600 officers and men. Following closely behind came the 260th Coast Artillery (AA) District of Columbia National Guard, with 400 officers and men.

From July 13th to August 11th, 225 CMTC trainees put in a month's training at the drillfields and gun batteries.

Reserve officers of the 913th Coast Artillery (AA), 1319th Service Unit, 622nd Coast Artillery (HD), 42nd, 43rd and 44th Coast Artillery (Ry and TD) and the 508th Coast Artillery (AA), totaling 280 officers, have been with us for various two-week periods during the summer months.

Athletics

As we go to press nothing has been decided toward determining the champion baseball team. After an interesting all summer inter-battery schedule the teams of the 2d Coast Artillery have proved their superiority over the

Fort Monroe exhibits at the Gettysburg celebration

other teams of the ten-team league but seem to have settled nothing between themselves. Present standing is as follows:

Team	*Played*	*Won*	*Lost*	*Games to Play*
Hq. Btry. 2d CA ..	17	15	2	1
Btry. C 2d CA	15	13	2	3
Btry. A 2d CA	15	12	3	3

It appears that the feud will be carried to another state because the 2nd Coast Artillery leaves early in September to participate in the maneuvers at Fort Bragg.

The Beach Club continues to be a popular spot for afternoon swimming, volley ball and paddle tennis, and is an equally inviting rendezvous for dances by the sea in the cool fall evenings.

252d Coast Artillery

By Captain Andrew H. Harriss, Jr.

The 252d Coast Artillery is one of the few truck-drawn 155-mm. GPF regiments in the service. It was first converted from harbor defense troops to tractor drawn in 1929, and in 1937 to truck-drawn artillery.

Expanded to a regiment in 1924 from a separate battalion, the age of this regiment appears short, but when one considers that the regimental coat-of-arms shows participation in the Revolutionary, Civil, Spanish-American, and World Wars, it is seen that the 252d enjoys a very enviable record of service. Battery A (Wilmington Light Infantry) is a member of the Centennial Legion.

Colonel Royce S. McClelland commands the regiment. He is assisted by a staff consisting of: Lieutenant Colonel Robert B. Lewis, executive; Major Robert A. Matheson, surgeon; Captain Andrew H. Harriss, Jr., plans-training and intelligence; Captain Norwood B. Chesnutt, supply; Captain Joseph G. Howe, adjutant; Captain James E. Holton, Jr., communications; Lieutenant Kenneth M. Corbett, searchlight; Lieutenant William M. Latta, chaplain; and Lieutenant Frank Burns, liaison.

Until January, 1938, the 252d operated with a dual mission, having served in 1936 and 1937 on land missions at Fort Bragg. The regiment is now under full-time coast defense assignment.

The outstanding activities of the 1938 training period were an overnight march and bivouac by battalions en route to Fort Moultrie and firing on a target at sea.

Governor Hoey of North Carolina taking review with staff of 252d Coast Artillery.

Guard of Honor, 252d Coast Artillery for Governor of North Carolina.

Hawaiian Separate Coast Artillery Brigade

Brigadier General Philip B. Peyton, *Commanding*
Colonel Robert Arthur, *Chief of Staff*
Major F. A. Macon, *Adjutant General & S-1*

Captain W. H. Dunham, *S-2 & Gunnery* — Lieutenant Colonel W. D. Frazer, *S-3*
Lieutenant Colonel A. E. Rowland, *S-4 & War Plans*

Captain L. D. Flory
Com. and Engineer Officer

Captain W. H. Kendall
Sec. Ath. Officer

Captain S. E. Whitesides, Jr.
Chemical Warfare Officer

Lieutenant W. A. Call
Ordnance Officer

Colonel H. C. Merriam
Commanding Harbor Defenses of Pearl Harbor

Colonel Ralph M. Mitchell
Commanding 64th Coast Artillery (AA)

Colonel G. A. Wildrick
Commanding Harbor Defenses of Honolulu

By Captain Paul B. Kelly

Training

Late August finds all units of the brigade busily engaged in the many and various phases of training prescribed by our intensive summer program. A great deal of thought has been devoted to the subject of close-in defense of battery installations with the result that recent quarterly maneuvers found all units with workable plans for local defense. This activity has not operated to slow up our artillery training and the target practice peak is rapidly approaching.

The 64th Coast Artillery (AA), encamped at Kawailoa on the North Shore for the past month, has reached the record stage of 3-inch gun target practice. Preliminary shoots indicate that the six firing batteries are prepared to establish a high standard of excellence for this year's competitions. All firings have been at altitudes of over 15,000 feet and results so far indicate that the Archie's effective ceiling is going up. Upon completion of the gun target practices, the two searchlight batteries will hold their annual record practices.

At the Harbor Defenses of Pearl Harbor, batteries of the 15th, 41st and 55th are preparing to fire their annual seacoast record practices. At the Harbor Defenses of Honolulu, the 16th and 55th are putting on the final polish for their antiaircraft practices. By the end of September all firings for this year will be over and the brigade will be preparing for its part in the department maneuvers.

A firing of particular interest to all coast artillerymen was held on August 16 at the Harbor Defenses of Pearl Harbor. Battery A, 15th Coast Artillery, commanded by Captain Granger Anderson, fired fourteen rounds from the 16-inch BC guns of Battery Williston. Both position finding and adjustment of fire were accomplished by aerial observation, and the results obtained were so remarkable that it is hoped that a detailed report of this firing will find its way into the pages of the JOURNAL.

Arrivals and Departures

Arrivals on "Republic" July 13: Lt. Col. R. H. Van Volkenburg, Capt. I. H. Ritchie, Capt. G. Schmidt.

Departures "Republic" July 18: Capt. F. L. Hayden, Capt. P. A. Jaccard, Lt. R. G. Finkenaur, Lt. T. F. Hoffman, Lt. R. R. Moorman.

Arrivals on "St. Mihiel," August 15: Capt. F. E. Day, 64th CA, Capt. R. I. Glasgow, 64th CA, Capt. L. O. Shutt, HD of PH, Capt. F. B. Waters, 64th CA, Capt. Ray H. Larkins, FD, 1st Lt. D. S. Alexander, HD of Hon., 1st Lt. W. S. Coit, HD of Hon., 1st Lt. F. T. Folk, 64th CA, 1st Lt. H. W. Hunter, HD of PH.

Departures on "St. Mihiel," August 19: Major J. R. Lowder, Major H. C. Mabbott, Capt. J. I. Hincke, Capt. G. W. Palmer, Capt. C. F. Tischbein.

Athletics

Winning ten of the then twelve scheduled games, the 64th Coast Artillery (AA) won the 1938 Honolulu Sector-Navy League baseball title. This was the first time in thirteen years that an Army team has held undisputed possession of the championship. Except for 1934, when they were tied for first place with Fort Shafter, Submarine Squadron Four, a Pearl Harbor team, has won the pennant.

The race for the championship was close, as shown by the fact that sixteen games played in the forty-two game schedule were decided by one run. In the four games the 64th played with the second- and third-place teams, three resulted in one-run victories for the AA gunners.

The Pearl Harbor Marines were the dark horses of the league. They beat the 64th in the next to the last game, to force the league into a tie, and then defeated Patrol Wing Two in the final game. The Marine's defeat of Patrol Wing Two gave Subron Four undisputed possession of second place and the right to meet the winners of the Hawaiian Department series for the Army-Navy championship.

John L. McGhee, Jr., affectionately known to his teammates as "Punchy," hurled the only no-hit game of the year, when he pitched the Luke Field Fliers to a 2-1 victory over Patrol Wing Two. McGhee, just a youngster, has a lot of stuff, and fooled some of the best hitters of the loop.

Tennis, which has come rapidly to the front in popu-

General Peyton presents sector baseball trophy to 1st Sgt. Joe Ghans, 64th Coast Artillery (AA)

larity in the Brigade, opened its season on August 2d. Subron Four, last year's champions, got off to a slow start and appear to be lost behind Honolulu and the 5th Bombardment Group.

Lieutenant Dolph Muehleisen, No. 1 singles player of the Islands, who is coaching the 5th Bombardment Group, is easily the outstanding singles player in the league. After a poor start, in which they dropped four matches against Honolulu, the "Bombers" won nineteen of their next twenty matches.

Honolulu suffered a tremendous loss on August 19th when John Mitchell, second singles player, departed for the mainland. Mitchell was undefeated in eighteen consecutive singles matches, and leaves the Sector with a record of never having lost a match.

Walt Rybinsky of Luke Field defeated Tommy Sutton, also of Luke Field, over 36 holes for the E. O. Hall Sector gold trophy. The tournament is a semi-annual affair, sponsored by the Army-Navy Y.M.C.A. Rybinsky's victory was his second for the year, as he won the spring tournament for the same trophy.

Presentation of athletic awards to men who had distinguished themselves in Honolulu Sector and Hawaiian Department athletics was made on the morning of August 17th. Brigadier General Philip B. Peyton made the awards for the brigade championships, while Colonel Robert Arthur, chief of staff, HSCAB, made the awards for the Hawaiian Department.

Brigade leather jackets, symbolic of a Department championship or runner-up, were presented to track and field men and boxers. Silver basketballs were given to the members of the Luke Field Basketball team, winners of the Hawaiian Department title. Individual trophies and silver track shoes were awarded men who had succeeded in breaking a Honolulu Sector Track and Field Record.

FINAL STANDINGS—BASEBALL

Name of Team	*Won*	*Lost*	*Pct*
64th CA	10	2	.833
Subron Four (Submarine Base)	8	4	.667
Patrol Wing Two (Fleet Air Base)	7	5	.583
HD of PH	5	7	.417
Marines	5	7	.417
ED of Honolulu	4	8	.333
Luke Field	33	9	.250

TENNIS—AUGUST 19

	Won	*Lost*
HD of Honolulu	16	4
Fifth Bombardment Group	20	5
Subron Four	13	7
HD of PH	11	9
Patrol Wing Two	3	10
64th CA	2	16
Navy Yard	1	14

Staff and enlisted detachment, Hawaiian Separate Coast Artillery Brigade

Corregidor

BRIGADIER GENERAL WALTER K. WILSON, *Commanding*
COLONEL T. A. TERRY, *Executive*

COLONEL GEORGE RUHLEN
Commanding 59th Coast Artillery (HD)

COLONEL WILLIAM C. KOENIG
Commanding 91st Coast Artillery (PS) (HD)

COLONEL J. H. CUNNINGHAM
Commanding 60th Coast Artillery (AA)

LIEUTENANT COLONEL ALBERT H. WARREN
Commanding 92d Coast Artillery (PS) (TD)

By Major R. E. Phillips

Billions doomed at Corregidor! The foregoing is a dignified cautious understatement of the fate which has overtaken the ant kingdom since we inaugurated our "Termite Terror." It involves a new and interesting contest started at Corregidor and rapidly spreading to other posts in the Philippine Islands. The essential elements include a Cine or some other fund from which one can pay a bounty, plenty of picks and shovels and about the same number of physically fit soldiers in need of training in field engineering. Next three scouts should be assembled from each organization and led to a place where a mud termite tunnel comes above ground. It can be shown that by digging to a depth of two feet at this spot a lump of hard earth resembling a swiss cheese may be found. Should it contain holes like a cheese, then you have a "castle" and the royal prisoner within,—the big immobile, queen ant who has been the object of the search! Up to this point no particular show of interest need be expected on the part of the scouts. To remedy the apathy, it is advisable to announce the suspension of training for one week, and a reasonably attractive bounty payment per queen. Then fire the starting gun and stand clear. In a week's time we had 1,825. A few precautions are advisable. For instance, the problem of importation may arise as it did with us. Many of the officers were caught using golf equipment to dig in the area around the Corregidor Club.

Statements released by the local press indicate that the Coast Artillery officers composing the Harbor Defense Staff "A" team were tops in the officers' ten-pin league.

Unusual item sighted in a recent Daily Bulletin:—SCHOOL FOR MOTORMEN AND CONDUCTORS. It only happens here.

Corregidor has developed a civic conscience. The first call for the annual meeting of the Club brought forth a quorum. The utter absence of any verbal fireworks was somewhat disappointing. Financial reports were accepted without question, all retiring officers and committees were thanked and discharged, and a new board of governors elected, consisting of Lieutenant Colonels Crawford and Halbert, Major Firestone and Captain Kyster.

As a result of the arrival of the *Grant* on July 15th, two changes in the Harbor Defense staff may be reported. Lieutenant Colonel R. B. Patterson has reported for duty, thereby eliminating the problem of how to get along without an adjutant general, and Chaplain Lennan has replaced Chaplain Cleary.

The work of rehabilitation continues at Fort Wint. A new class of Philippine Army trainees reported on July 1st bringing the total garrison up to about 250. Apartments for three American officers' families and two houses built by the Philippine Army for their own officers are nearing completion.

The regimental news which follows, completes the *Corregidor Quarterly*.

59TH COAST ARTILLERY

The July transport has arrived, bringing us two first sergeants and one member of the noncom staff. Also, it has departed, taking with it Technical Sergeants Morris Bander and Theodore Gillett, First Sergeant Harry Cole of Headquarters, and our own sergeant major—Master Sergeant William J. Fayne. The only change in officer personnel was to put our athletic officer, Lieutenant Leland R. Drake, our adjutant, Major J. T. Campbell, and our regimental commander, Colonel George Ruhlen, "over-the bump." This event was celebrated with fitting ceremony.

Except in ten-pins, where our enlisted men's team cleaned up in a manner worthy of our best traditions, we are forced to admit that in inter-regimental athletics our good ship has hit rough sailing. This is a temporaty condition, of course; there are blue skies and fair winds ahead.

Our regiment took its part in the 4th of July parade in Manila. Captain Edward A. Kleinman claims the championship. His exact words, uttered after the event were, "I have taken part in five 4th of July parades, and *I* want a medal."

Those who went through the last rainy season have been waiting to show the newcomers how miserable a rainy season can be. So far they have had no luck; the weather remains fine, the typhoon signals have shown themselves only about twice, in the low numbers, and golf goes on without serious interruption. And in just a little over a week the season closes officially.

Private Herbert E. Cole, Battery G, has been awarded the Soldier's Medal for heroism in rescuing another soldier from drowning. On a very dark night this other soldier fell from the dock at Fort Hughes. Private Cole disregarded the dangers of a strong current, sharks, and barracudas, dove from the dock into the water, and swam to safety with the drowning man.

60TH COAST ARTILLERY

There have been a number of changes in the officer personnel of the regiment during the past two months in spite of the small number of arrivals and departures on the July, 1938 transport. On June 25, 1938, Major Joseph H. Gilbreth was relieved as commanding officer, 1st Battalion and acting adjutant and transferred to the Harbor Defense staff as post exchange officer. Effective the same day, Major John H. Harrington was relieved from assignment to the Harbor Defense staff (post exchange officer) and joined the regiment as commanding officer, 1st Battalion. On July 15, Lieutenant John B. F. Dice, was transferred from the 3d (Guard) Battalion, 92d Coast Artillery (PS) and was assigned to command Battery A. Lieutenant Franklin G. Rothwell, arrived on the same day from the USAT *Grant* and was assigned to Battery B. On the July 20th sailing of the *Grant* the regiment lost Lieutenant Colonel R. T. Gibson, to the ORC Chicago, and Captain Arthur H. Bender, as a student Command and General Staff School, Fort Leavenworth. A number of afternoon parties were given for the departing officers and their families including a reception by Colonel and Mrs. Cunningham in honor of the departing officers and families and welcoming the newcomers.

The close of the competitive period on June 30th found Battery B, commanded by Captain E. G. Martin, a nose ahead of Battery A in the race for regimental athletic honors. Battery B will be awarded the cup donated by the regimental commander, Colonel J. H. Cunningham, to the battery having the best all around athletic record for the year. Basketball is just starting. Battery teams have been formed and there are a number of high class ones, which makes the prospect of a successful regimental team bright.

On July 4th, the 60th participated in the parade in Manila, making a fine showing. Gunners' instruction has been one of the main objectives for the past two months, with the examination of second and first class gunners well on the way to completion. The regular troop schools for officers and men have occupied a prominent place in our schedules. In conjunction with this there have been a number of interesting conferences on various phases of defense. The Philippine Department chemical officer has recently completed an inspection of the regiment to determine the status of training in defense against chemical attacks. The report indicates a very high state of efficiency on the part of the 60th in this phase of training.

91ST COAST ARTILLERY (PS)

Gunners' instruction and troop schools for officers and enlisted men has been conducted during the past two months.

An extensive search was made for termite queens during this period and this regiment managed to eliminate 1,081 queens.

The regiment lost two officers on the last transport—Captain Robert H. Krueger who commanded Battery D and Captain Arthur B. Nicholson, formerly commanding Battery G, but has been on detached service with the Philippine Army for the past year. No officers were assigned this regiment from the last transport.

The period covered by this news letter brought the 91st inter-battery ten-pin tournament to a close with Battery G, Captain A. R. Hartman, commanding, taking top place.

Following the inter-battery ten-pin meet, attention turned to the post inter-regimental ten-pin championship for Scout Troops, which the 91st won by defeating the 92nd in an interesting and close series of games.

This period saw also the 91st win the post softball championship, Scout Division from the 92nd, both teams showing fine spirit and form.

92D COAST ARTILLERY (PS)

The 92d celebrated its Regimental Day, the 14th anniversary of its organization, with considerable éclat, on July 1st. In accordance with the sacred traditions of the regiment, the weatherman provided the customary typhoon causing the celebration to be held in the Kindley Field hangars. There were many athletic events, much food and beer and splendid addresses by Brigadier General Walter K. Wilson, the harbor defense commander, Lieutenant Colonel Albert H. Warren, the regimental commander and by Major Robert M. Carswell, the commander of the 3d (Guard) Battalion, lauding the superb achievements of the 92d during the past year. All of which was received with prolonged and enthusiastic applause.

August 7th will mark the end of the indoor season and with it the completion of gunners' instruction and examinations. The regiment is being organized for the outdoor training season, rifle range firing, beach defense firing and antiaircraft machine-gun firing.

The inter-battery bowling league finished in June with the Guard Battalion away out in front. The civil prisoner Guards showed plenty of spirit and good bowling and deserved their front place. Battery C finally edged out Battery D in a hard fought play-off which determined the volleyball championship.

On July 5th, 6th and 7th the ten-pin tournament between the 92d and 91st teams was held. In the first game Private Bustamante swung off with a 258 which put our team in the lead for the day. The 91st won the other two matches and we lost out.

Among the very welcome arrivals on the July transport were: Mrs. Emma Warren, mother of Colonel Warren, Captain and Mrs. Joseph H. Rousseau, Jr., and little Peter Rousseau and Lieutenant and Mrs. George W. Croker. Captain Rousseau has been assigned to command of Battery F, 3d (Guard) Battalion, and Lieutenant Croker to Battery B.

Captain and Mrs. Marvin J. McKinney and Lieutenant and Mrs. George J. Weitzel left on the July transport; Captain McKinney for the 6th Coast Artillery, Fort Winfield Scott and Lieutenant Weitzel for the 11th Coast Artillery, Fort H. G. Wright. The regiment regrets their departure and wishes them a happy tour in their new stations.

Panama Canal Department

COLONEL EDWARD A. STOCKTON, JR.
Department Artillery Officer

COLONEL FORREST E. WILLIFORD
Commanding Harbor Defenses of Balboa and 4th Coast Artillery (AA & HD)

COLONEL WILLIAM T. CARPENTER
Commanding Harbor Defenses of Cristobal and 1st Coast Artillery (AA & HD)

LIEUTENANT COLONEL OLIVER L. SPILLER
Commanding Fort Randolph

Fort Amador

By Captain John H. Kochevar

On August 4th the Pacific Sector welcomed President Franklin D. Roosevelt who arrived on the U. S. S. *Houston* The President made a short tour of the West Side of the Canal, crossing over to the East Side at Pedro Miguel. Troops lined the Gaillard Highway as the President proceeded from Pedro Miguel to the Governor's residence. After having lunch at the Governor's home, the President left by train for the Atlantic Side.

With the completion of all firings and the annual inspection in July, the garrison has settled down to routine duties. Gunners' instruction, with written examinations in October, occupies the major portion of the training schedule. In addition, the garrison will be kept busy with training recruits, firing on the small-arms range, and weekly gun and communications drill.

A boxing tournament is under way and adds a great deal to the pleasure and entertainment of the post. Over 200 men who have never appeared in a ring before are participating in the tournament. Boxing bouts are held twice a week and it is hoped to develop an excellent post team from all the material available. Battery C leads the tournament with 200 points. However Battery G is making a strong bid for first place and may displace Battery C before the tournament is ended.

The basketball season has ended. Fort Clayton won the sector championship with Fort Amador coming out second. In order to get a good start in the battery baseball league, a number of the batteries are working out daily. With the excellent start in boxing and baseball, we are going to climb out of second place to first place.

A very entertaining program was held August 20th, celebrating the 4th's Organization Day. Track and field contests, basketball, and boxing held the interest of the garrison. Battery E, a newly organized battery commanded by Captain Hatch, has the habit of winning the track and field contests. Fort Amador defeated the 2d Field Artillery in basketball. An excellent boxing card was held in the evening followed by a post dance in the gym.

Since last report we are glad to welcome the following officers of the Coast Artillery Corps to our garrison:

Colonel Clarence T. Marsh, adjutant Pacific Sector; Major Joseph F. Stiley, artillery engineer and signal officer; Captain Wayne L. Barker, commanding Headquarters Battery; Captain Malcolm H. Harwell, commanding Service Battery; Captain William H. Hennig, commanding Battery A; Lieutenant Frank A. Bogart, commanding Fort Kobbe Detachment; Lieutenant Francis A. Lieski, Battery G; Lieutenant Henry G. McFeely, regimental supply and property officer.

The following officers recently departed:

Major Albert M. Jackson, Captains Richard A. Ericson, Holger N. Toftoy, Robert L. Miller, Lieutenants Harvey J. Jablonsky and Robert E. Gallagher.

* * *

69th Coast Artillery (AA) At the Third Army Maneuvers

By Captain Jeff Barnette, 69th CA-Res.

Twenty-four Reserve officers, of whom nine are regularly assigned to the 69th, reported to Fort Crockett on August 7th for fourteen days' active duty. After a physical examination and preliminary training in connection with various assignments the regiment left for Dodd Field, located in the vicinity of Fort Sam Houston. All told, forty-nine officers made the trip. There were fourteen regular officers, eleven Thomason act lieutenants and twenty-four Reserve officers.

The convoy left Fort Crockett at five a.m., August 9th with more than seventy-five vehicles, traveling in four serials—Headquarters Battery, Machine Gun Battery, 3-inch gun battery, and searchlight battery, and arrived at Dodd Field, in the afternoon.

During our stay at Dodd Field we established liaison with the 36th Division, Texas National Guard. This division was augmented by the 56th Cavalry Brigade and the 36th Division Observation Squadron, all Texas National Guard. The 69th was the only regular army unit assigned to the 36th Division. The above constituted the Blue force.

Our friendly enemies, the Brown force, was made up of the 45th Division (Oklahoma National Guard) and the following Regular units: 3d Infantry Brigade (9th and 23d Infantry); 2d Field Artillery Brigade (12th and 15th Field Artillery); 12th Cavalry, 77th Field Artillery and the 8th Engineer Squadron. Necessary auxiliary units of the arms and services were attached to the Blue and Brown Armies.

The Blue army had the task of defending the mythical railhead and ammunition depot at Boerne, Texas, 29 miles northwest of Fort Sam Houston. The Brown Army's mission was the capture of the Boerne depot.

The most smashing "victory" won by the 69th was the day eighteen attack planes flew within range and the umpires credited the 69th with bringing down nine of them.

On August 12th the 69th moved to a bivouac position northwest of Boerne, to await orders from the commanding general, 36th Division, to move to battle position. We remained in bivouac until late Sunday afternoon, August 14th, then we moved, partially under cover of darkness, to a position fourteen miles southwest. Battery E, was assigned a dual mission—one platoon to protect the 36th Division CP at Boerne, and the other platoon to protect the west flank. Headquarters Battery and Battery B got position around midnight. Battery A, stayed in the bivouac position until the night of August 15th, when they proceeded to their battle position, close enough to Battery B to give ample searchlight coverage.

During the 15th, 16th, 17th and 18th of August, Battery B was almost constantly engaged throughout daylight hours. After each engagement an action report was turned over to the regimental umpire, Colonel Oscar Warner, CAC. These reports were transmitted by telephone to the chief umpire's headquarters, where decisions were reached as to the effectiveness of the fire.

Battery A, unfortunately, did not see a great deal of action. It seemed that the Brown Army preferred to fly during daylight and rest at night, therefore the searchlights saw very little service.

The 69th operated under interesting and actual field conditions. Commencing the night of August 14th, we were on field rations to August 18th. All movements were made under field conditions and the entire regiment was camouflaged at all times. The effectiveness of the camouflage is attested by the fact that Captain Robert D. Harrison, CA-Res., flew over Battery B positions in a Blue plane, and neither he nor the pilot spotted the battery.

This type of training affords a Reserve officer the chance of a lifetime because he is able to actually see and do more than he could possibly get out of the ordinary 14-day active duty period.

Every Reserve officer assigned to the 69th during this maneuver was high in his praise of the officers and enlisted men of the only antiaircraft regiment in the Eighth Corps Area.

An Italian antiaircraft gun on a truck mount.

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.

TWENTY-MM RHEINMETALL GUN. One gun, together with 200 rounds of high explosive ammunition, was furnished the Board for test.

a. Gun and mount. The gun itself is of the inertia or recoil-operated type. It is fed from a 20-round magazine and fires at a cyclic rate of about 200-250 rounds per minute. When a magazine is exhausted, it is necessary to stop firing and insert a loaded magazine. The barrel is demountable. A combination muzzle brake and flash hider may be attached to the barrel of the muzzle. The mount furnished was a naval pedestal provided with a device for raising the trunions to a convenient height and with a cross tilting axis to compensate for the ship's roll. A convenient shoulder rest made holding, aiming, and firing very simple and easy operations.

b. Sight and sight computing mechanism. The sight is of the reflecting type employing a four-volt battery and flashlight bulb for forming the illuminated aiming mark. The corrector is an on-carriage computing mechanism of the Le Prieu type built by Nedinsco. In so far as pointing the gun is concerned, the sight is very effective and convenient to use. The electric light and its circuit gave some trouble from burnt out bulbs, open circuits, and exhausted batteries. Backlash is excessive in the long flexible shaft drive between the azimuth gear on the mount and the sight itself. The sight is subject to the common disadvantages of all such instruments; namely, the necessity for obtaining target speed and slant range from outside sources and for setting the course of the target by estimating by eye the relation of a sight bar to the actual course of the target. The space available to the operator setting these data is limited and places him in an awkward position. The application of adjustment corrections while firing is particularly difficult.

c. Suitability as an antiaircraft weapon. During the test a total of 153 rounds of ammunition was expended, of which about 100 rounds were fired at a towed sleeve target. Though no hits on the sleeve target were obtained with this gun, the functioning of the gun and ammunition, together with the stability and steadiness of the fire from the naval mount, was such as to indicate considerable effectiveness had a more satisfactory sighting system been available. The naval mount furnished was not suitable for use by mobile artillery. It would be satisfactory for fixed guns bolted to a concrete base. It is difficult to state what should be the characteristics of a mobile mount suitable for this weapon but doubtless such a mount could be designed.

d. Ammunition. Each round of high explosive ammunition furnished contained a tracer element and was equipped with a point detonating super-sensitive fuze. A self-destroying feature is incorporated in each projectile. The shell appears to be very effective considering its caliber and weight. The exact size of an intermediate caliber gun of this character that will produce the most effective results as an antiaircraft weapon has not, as yet, been precisely evaluated. However, the Coast Artillery Board believes that, for the present at any rate, an automatic gun firing high explosive shell against airplanes should be of a caliber larger than 20-mm.

e. The Board concluded that:

(1) The 20-mm. Rheinmetall gun appears to be well designed.

(2) The mount furnished is not suitable for mobile antiaircraft artillery.

(3) The sighting system does not meet the requirements considered essential for guns of this character.

(4) The matériel is not suitable for antiaircraft artillery at this time.

DATA COMPUTOR M1917 (R. A. CORRECTOR). In 1934 plans were considered for the modification of the AA Data Computor M1917 with a view to making such changes as would render the instrument "acceptably usable in present day antiaircraft defense." The action contemplated at that time was considered highly important in view of the anticipated difficulty of obtaining directors and other standard antiaircraft fire control equipment in an emergency. Based on studies made by the Ordnance Department it was found that the modifications proposed would not result in a satisfactory instrument and a recommendation was recently made by the Commanding Officer,

Frankford Arsenal, that the project of modernizing the existing stock of R. A. Correctors be dropped. The Coast Artillery Board concurred in this recommendation and cited the following pertinent considerations to support its conclusions:

a. Even though modernized (along any lines so far suggested) the resulting instrument probably would be unsatisfactory.

b. The cost of modernizing these instruments would be excessive.

c. As time goes on, the number of fixed antiaircraft batteries not equipped to accommodate modern directors grows smaller.

d. The relative effectiveness of the M1918 trailer-mounted antiaircraft guns is diminishing in comparison with modern weapons to the point where it is of doubtful expediency to provide them with modern or modernized fire control equipment.

e. The lag between the production of guns and the production of modern directors now has tended to disappear so that the requirements for a stop-gap in the nature of a modernized R. A. Corrector likewise has tended to disappear.

f. The existing stock of R. A. Correctors is available for use with such batteries as are equipped to accommodate them and such instruments will, within their technical and mechanical limitations, be effective for such batteries when no better means of controlling their fire can be had. Only such overhaul and reconditioning of these R. A. Correctors should be undertaken as is inexpensive and is necessary to equip those specific batteries for which such a requirement exists.

EXPERIMENTAL TOW TARGETS FOR ANTIAIRCRAFT ARTILLERY. *a.* For some time the Air Corps, at the suggestion of the Chief of Coast Artillery, has had under development certain experimental types of tow targets. This development has been conducted with two main objects in view:

(1) To produce a target capable of being towed at speeds considerably higher than are possible with the present standard B-12 target.

(2) To produce a target with a larger presented area thereby providing better visibility for antiaircraft gun firings at the longer ranges and, for machine guns and automatic cannon, a means for recording some of the "misses" as well as the hits.

b. After a study of the problem by the Engineering Section of the Matériel Division, Wright Field, Ohio, a number of targets of experimental design were made available to the Coast Artillery Board for use in connection with recent firing tests of antiaircraft automatic weapons. An airplane of the B-10B type was furnished for towing purposes. Following is a brief discussion of the types of targets observed:

(1) *Four-foot trapezoidal target forty feet long.* This target consisted of a rectangular strip of target cloth, with a stabilizing fin about two feet wide at the rear end and tapering off to a few inches at the forward end, attached at right angles to the main target face. The target was towed with its main surface horizontal, but it was later revealed at a conference with representatives of the Matériel Division, Wright Field, that it can be towed in either a horizontal or a vertical position as desired. As used in these firings the target was difficult to pick up at the longer ranges, particularly when its angle of presentation was small. Its length was quite satisfactory but it was considered much too narrow for antiaircraft gunnery purposes.

(2) *Rectangular flag target, 6 by 50 feet, towed vertically.* This target was towed successfully at an air speed of approximately 120 miles per hour. It was fired upon by both the 37-mm. gun and the machine guns. It was finally shot down by machine-gun fire and lost in the water. This and other flag targets are difficult for observers to pick up and track at small angles of presentation.

(3) *Rectangular flag target, 10 by 40 feet, towed vertically.* This target was constructed of a fine wire mesh, with metal spreaders at either end. It was towed successfully for a number of courses, but finally broke apart at the instant when it appeared to observers at the battery to have been struck near the tail by a 37-mm. projectile. An air speed of approximately 125 miles per hour was attained.

(4) *Standard B-12 target.* The B-10B towing airplane was also used to tow a standard B-12 target at a speed of approximately 160 miles per hour. Firings were conducted on four courses at varying ranges. No gunnery or fire control difficulties of any kind were experienced due to this high speed and the percentage of hits obtained approximated that obtained at similar ranges with usual target speeds (100 to 110 miles per hour).

(5) Several other types of experimental flag and trapezoidal targets were available, but it was found to be impracticable to prolong the firings sufficiently to test them.

c. Based on the experience gained in the above-mentioned firings at high speed, large size targets, the Coast Artillery Board expressed the opinion that:

(1) A sleeve target is generally more suitable than a flag type target for antiaircraft artillery purposes, even though its maximum presented area may of necessity be somewhat smaller.

(2) Targets towed at air speeds of less than approximately 200 miles per hour afford little additional training for antiaircraft units beyond that obtainable with the standard B-12 target towed by an observation plane at 100 to 110 miles per hour.

d. A report of the tests just described was furnished to the Chief of Air Corps who after some further investigation, indicated that, regardless of any possible improvements in target design, suitable airplanes will not, for

some time to come, be available for towing targets at the higher speeds which are particularly desirable for training of antiaircraft troops. The Coast Artillery Board accordingly recommended that present development be directed toward the design of a suitable sleeve type target, larger than the B-12, with a view to its possible usefulness in increasing visibility at the longer ranges.

e. Recent information indicates that development of such a target, four feet in diameter by 45 feet in length, is well under way. These dimensions appear to be the maximum at present attainable without an attendant serious reduction in target speed. It is expected that when towed by a B-10B type airplane, the new target will attain a top speed of approximately 135 miles per hour.

AUTOGIRO. One autogiro has been made available to the Coast Artillery Board for an extended service test. While no time limit was initially fixed for the test it is expected that it will extend over a period of about six months. The following general program, prepared by the Coast Artillery Board, has been approved by the Secretary of War:

a. Purpose. To determine the value of characteristic features of the autogiro, such as its ability to hover in the air and to operate from restricted ground space, in relation to the solution of seacoast artillery problems; and to determine the general suitability of the autogiro for use by the Coast Artillery Corps.

b. General program.

(1) *Preliminary operation and communication tests.* These tests will include:

(*a*) Reconnaissance by autogiro of the Harbor Defenses of Chesapeake Bay to select suitable landing grounds.

(*b*) Landings and take-offs to determine space requirements under various weather conditions.

(*c*) Hovering tests to determine accuracy of maintaining position, loss of altitude, endurance, and stability when engaged in this form of flight.

(*d*) Communication tests, including radio, signal lamp, wire telephone, dropped message, and voice.

(*e*) Tests of characteristics such as speed, weight-carrying capacity, endurance, glide angle and visibility.

(2) *Spotting tests.* The seacoast artillery service practices scheduled in connection with summer training camps at Fort Monroe, and the Reserve and National Guard Officers' course at the Coast Artillery School, and the Coast Artillery Board firings during the test of the Panoramic Telescope T2 will be utilized for these tests. The tests will include aerial spotting from positions normally occupied by observation airplanes and by observation balloons, for the purpose of determining the effect of the hovering and unobstructed visibility features of the autogiro on facility and accuracy of spotting.

(3) *Aerial position finding.* These tests will include investigations of the following:

(*a*) Capability of the autogiro in determining direction to a target by pointing the plane and reading a compass installed in the plane.

(*b*) Suitability of the autogiro for mounting special instruments required for determining target position, or for the use of hand instruments for this purpose.

(*c*) Possibility of using the autogiro as an aiming point in indirect fire on targets invisible from terrestrial observing stations.

(*d*) Utilization of the autogiro in connection with a device for fixing the location of the observing plane which is now under development by the Signal Corps and which is expected to be available for test during the period.

(4) *Reconnaissance and miscellaneous tests.* These tests will include determination of the suitability of the autogiro for the following purposes:

(*a*) Emergency transportation and liaison within the harbor defense command, and to higher and supporting units.

(*b*) Detection of submerged objects such as mines or submarines.

(*c*) Reconnaissance and surveillance over water areas, including communication with shore stations and vessels of the inshore patrol.

(*d*) Detailed reconnaissance for the purpose of selecting positions for antiaircraft defense installations.

(*e*) Such further investigations as may be indicated by results of the above tests.

(5) *Maintenance requirements.* These tests will comprise a general observation of the mechanical performance and maintenance requirements of the autogiro with a view to determining its suitability for extended operation within a harbor defense command.

A preliminary report as to the progress of the test is to be submitted as of December 31, 1938.

☆ ☆

The Contributors

Lieutenant Colonel A. C. M. AZOY, Coast Artillery Corps Reserve, is a member of the New York staff of *Click*, the monthly picture magazine.

Captain L. W. BARTLETT, Coast Artillery Corps, has contributed a number of articles to the JOURNAL. His biography appeared in the May-June, 1938 issue. At the moment Captain Bartlett is on duty as a student, the Command and General Staff School, Fort Leavenworth.

GORDON GRANT, who illustrated "Our One-Battle War," is the well-known artist now living at Gloucester, Massachusetts. He has had a varied military career, notwithstanding his disclaimer that "there is nothing very distinguished about it." He first enlisted in Company I, 7th New York Infantry in 1907 and went to the Mexican Border with that outfit in 1916. During the World War he served as a captain with the General Staff.

Captain G. E. LEDFORS, M.C., was born in Washington State. He received his medical education at the University of Minnesota Medical School, graduating in 1929 with the degree of M.D. Appointed a first lieutenant, Medical Corps Reserve in 1929, he received his regular army commission in 1930. He has graduated from the Army Medical School (1932), the Medical Field Service School (1932), and the School of Aviation Medicine (1935). Captain Ledfors is now on duty at the New York General Depot, Brooklyn, New York.

Major THOMAS R. PHILLIPS, Coast Artillery, is an instructor at the Command and General Staff School, Fort Leavenworth. JOURNAL readers will recall him as the author of "Air Power and Troop Movement" in the May-June, 1938 number. He has had a number of articles published in various magazines. His most recent *Saturday Evening Post* article was "Preview of Armageddon," March 12, 1938.

Lieutenant JOHN R. SEWARD, Coast Artillery Corps, is a native of Pennsylvania. Graduating from the United States Military Academy with the class of 1929 he has served with the Coast Artillery Corps since that time. He is a graduate of the Coast Artillery School Regular Course (1936), and is now on duty with the 1st Coast Artillery, Fort Sherman, Canal Zone.

Brigadier General WALTER K. Wilson, a native of Tennessee, graduated from the United States Military Academy with the class of 1902. Virtually all his service has been with the Coast Artillery Corps. A captain when we entered the World War, he shortly rose to the temporary rank of colonel and won the Distinguished Service Medal for his outstanding work in organizing and administering the far-flung cable service of the War Department during that period. He is an honor graduate of the Coast Artillery School (1910), a graduate of the Coast Artillery School Advanced Course (1911), and the Army War College (1922). General Wilson is a member of the Initial General Staff Corps Eligible List and has served three tours of duty with the War Department General Staff. He now commands the Harbor Defenses of Manila and Subic Bays, Philippine Islands.

WILLIAM YALE is professor of history at the University of New Hampshire. A graduate of Yale University (1910), he has had a long and distinguished career in public and private life. During the period 1913-1917 he was in the employ of the Standard Oil Company, engaged in exploration and development in Turkey. He spent the period of U. S. participation in the World War as a special agent, Department of State at Cairo, Egypt. Later he served with General Allenby's headquarters in Palestine and Syria as an observer detailed for military intelligence. During the Peace Conference in Paris he was on the American staff as an expert on Arab affairs. In 1919 he returned to Turkey as a member of the American Section of the International Commission on Mandates. From 1920 to 1923 he engaged in private business at Alexandria and Port Said, Egypt. Returning to this country in 1923 he lectured at the Institute of Politics at Williamstown, Massachusetts. He has had articles published in the *Atlantic Monthly*, the *London Times*, *North American Review*, *Boston Globe*, and numerous other periodicals.

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Book Reviews

OFFICIAL HISTORY OF THE CANADIAN FORCES IN THE GREAT WAR, 1914-19; General Series, Volume I: From the Outbreak of War to the Formation of the Canadian Corps, August, 1914-September, 1915. By Colonel A. Fortescue Duguid, DSO, B.Sc., RCA., Director of the Historical Section, General Staff. Maps and Sketches Compiled and Drawn by Captain J. I. P. Neal, RCE; Maps and Charts; 596 Pages. Supplementary Volume of 855 Documentary Notes and 14 Large Maps; 458 Pages. Ottawa: J. O. Patenaude, I.S.O., Printer to the King's Most Excellent Majesty, 1938. Text $4.00; Maps $3.00.

"A memorial for participants, a source for historians, a manual for soldiers, and a guide for the future." Thus, in his preface, does the author of this new work admirably set forth, not only a description of his own goal, but a keen and comprehensive definition of what all official histories should be.

In 1914, and in the other years before that April day when we joined forces with our World War Allies, no army appeared more romantic to Americans than that of Canada. In every town and city of any size, in our own country, there was at least one volunteer whose sympathies early crystallized and took him north to join the Princess Pats, or another Canadian unit. And many there were in our own country, too, with friends across the border—friends suddenly in uniform, and almost as suddenly carried in a transport to the Great War overseas.

This first volume of the Canadian official history is an account of the first year, from August, 1914, to September, 1915, which saw Canada struggle, even as we did later, desperately but successfully against unpreparedness in her loyal efforts to send needed help to the armies of the mother country. It carries the First Contingent through the period of mobilization at the camp at Valcartier near Quebec, across to the miserable training period on Salisbury Plain in England, where wind and rain flattened out the tent camp and even blew the money off the pay table, and then to the War itself, through Ypres, the First Gas Attack, Festubert, Givenchy, and Hill 63.

Most careful research and thorough editing have gone into this work. And much good writing. The story of the First Gas Attack, among others, is an accurately dramatic piece of description. The many details of units and numbers necessary in such a work have not been allowed unduly to hamper its clear and running style. Colonel Duguid, in his fine preface, writes briefly of the tremendous detail involved. "For Ypres 1915," he says, "the inter-relation and inter-dependence of units were so involved that, in order to find out exactly what happened, the position and occupation of over 80 British and Canadian battalions at three-hour intervals during fourteen days of battle were tabulated. For certain battles it was necessary to check the trench system on maps against those shown on air photographs."

Most official histories, naturally, stick close to the facts and leave criticism and comment on tactics and strategy to writers of works less circumscribed. This is quite true of the Canadian work, but takes nothing from its reference value.

In Colonel Duguid's words, Canada went to war as "a young country, as yet imperfectly knit by bonds of mutual danger, of joint interest or of common origin, to an external impulse. . . . The impulse was sudden . . . the reaction was immediate . . . at first ensued the uncertainty natural in a community not organized to meet such an eventuality. . . . But from that uncertainty emerged a body of 31,000 men, the First Contingent, whose exploits thrilled and whose spirit permeated the country. . . . In all, 628,462 served and 60,661 returned no more." In the new Canadian history will be found, splendidly recounted, their enduring story.

In one passage, Colonel Duguid expresses in language impossible to better, the basic truth of national defense:

> Even if that war had made an end to all war, men would still be interested in the great experiences of the race. There are other aspects too. The statement of impartial truths in a dispassionate war history may engender healthy gratitude for the blessings of peace, and although it may temper the brightly glowing legends of men hazarding their lives for their convictions, of women not afraid to lose their dearest and suffer agony, yet it cannot impair the tradition of devoted service. There have been peoples who, after the manner of the Zidonians, the Incas, and even the Athenians, became so civilized as to be unable or unwilling to defend themselves and whose protection by others was not worth while. On earth at least such types are doomed; under artificial conditions the unstable and unfit prosper; eventually nature takes its course, more robust or adaptable species reduce and supplant them.

Our friendly neighbors to the north, as well we know without this new official history to inform us, are far from being a people "after the manner of the Zidonians" or the Incas. They are moreover to be congratulated cordially not only upon the appearance of a signal military work but upon the story of courageous and tremendous endeavor which that work itself imparts. J. I. G.

* * *

BLOOD AND STEEL. By Bernhard Menne. New York: Lee Furman, Inc., 1938. 407 pages; illustrated; Bibliography; Index; $3.00.

Munitions makers have been rapped on all sides here of late as the fomenters of armament races and war. The

present book adds to the condemnatory evidence by exposing the rise of the House of Krupp whose big guns have been bombarding world history for more than half a century.

This giant organization has had resources and powers extending through many countries, and has thus been able to dictate the specifications of army and navy programs, where necessary using pressure upon high government officials. It collected royalties on British shell fuses used to kill Germans and secured immunity from bombardment for its mines behind the Western Front. It made an estimated 800,000,000 marks profit on the War. It carried out Germany's secret rearmament through foreign controls. There has been little this international institution could not do, if it wanted to.

The story begins with the first known Krupp, who was registered in the merchants' guild of Essende for 1587, and carries the cannon kings up to the spring of 1936, when Hitler addresses tens of thousands of Krupp workers at the Essen works while Dr. Gustav Krupp von Bohlen und Halbach sits alongside, and "publicly honours our great leader Adolf Hitler, to whose service he pledges himself."

This is a factual chronicle, well told by a former Krupp employee who fled Germany to finish his work in Prague, and who was last heard of in Vienna on the eve of *Anschluss*.

Mr. Menne gives these data on the "Paris Gun": Barrel, 112 feet long; diameter, 39 inches; bore, 8½ inches; projectile weight, 200-230 pounds. After every round the barrel was slung from special blocks and "straightened." Every second projectile was larger and longer. The life of each barrel was 65 rounds, each of which cost 35,000 marks. Each round was accompanied by a salvo from 90 adjacent guns. From March 23 to August 9, 1918, a round was fired every 20 minutes; 320 reached Paris. A chain of spies from Paris to Switzerland reported hits. Naval detachments manned the gun, an admiral commanded it. W. G. J.

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ELEMENTS OF ORDNANCE. By Lieutenant Colonel Thomas J. Hayes, Professor of Ordnance and Science of Gunnery, USMA. New York: John Wiley & Sons, Inc., 1938; 715 pages; $6.50.

This new textbook, as Colonel Hayes writes in his preface, is essentially a revision of Lieutenant Colonel Earl McFarland's *Textbook of Ordnance and Gunnery*, of 1929, which in turn contained revised chapters from General W. H. Tschappat's still earlier text *Ordnance and Gunnery*. Colonel Hayes has brought his work up to date by many important additions, but has done more than that. He has written a remarkably clear treatise of a difficult technical subject.

Some twenty years ago this reviewer was certain that a course based on an older textbook on ordnance and gunnery was going to rob the Infantry (or any other arm, for that matter) of an otherwise reasonably bright young

man. It might have been easier work studying a text as simply and clearly written as Colonel Hayes'. But the subject matter still looks pretty hard in places.

* * *

SUBMARINE. The Autobiography of Simon Lake as told to Herbert Corey. New York: D. Appleton-Century Company, 1938. 303 pages; illustrated; index. $3.00.

This is the story of the colorful and exciting life of one of the pioneers in the invention and development of the modern submarine. Simon Lake has secured more than 100 patents on submarines, many of which are in use in all submarines of the world.

Lake's first essay in submarine building came at the age of fourteen and from then on he lived the life of an inventor with all its vicissitudes, its successes and its failures. He tells of his many attempts to sell his submarine to the United States Navy and the part that the Coast Artillery Corps played when his vessel was being considered for purchase by the Government. President Taft appointed a board of three officers—Major Arthur Murray (later Chief of Coast Artillery) and Captains Charles J. Bailey and Charles F. Parker, all of the Coast Artillery Corps, to investigate the possibilities of Simon Lake's undersea craft. According to Lake, Murray at one time had stated in his annual report as Commandant of the School of Submarine Defense that "This is the only submarine boat, as far as is known, that can be efficiently used in countermining electrically controlled mines."

Lake also deals with the use of submarines in the Spanish-American, the Russo-Japanese, and World Wars. He then turns to relate his exploits as a treasure hunter and makes some predictions as to the future of submarines in war. He foresees that the U-boat will play a more important part than ever before in naval warfare.

It is an absorbing story, bringing Jules Verne more or less up to date. It belongs on your bookshelf.

* * *

TELEVISION. A Struggle for Power. By Frank Waldrop and Joseph Borkin. New York: William Morrow and Company, 1938. 299 pages; index; $2.75.

At the moment, television is slowly coming out of the realm of imagination into the world of fact. The day is surely not distant when the televisor will be a standard piece of home—and perhaps military—equipment as common as the radio. And what the automobile did to the horse, television threatens to do to a score of industries.

Messrs. Waldrop and Borkin examine the television situation and its possibilities on our life to come. They find that the business ramifications behind the television picture are so diverse and tangled that it will take what they call "a struggle for power" to settle the matter as to its ultimate use.

Other than for its pointing up of the television business scene the book is valuable for its introductory pages in which the authors give an historical summary of television

to date. They include a short digest of the principles by which television works, but make no pretense to furnishing a technical work. The book is interesting for the layman.

THE ENIGMATIC CZAR. The Life of Alexander I of Russia. By Maurice Paléologue. New York: Harper and Brothers, 1938. 326 pages; illustrated; index; $3.50.

Member of the French Academy and well-known in this country for his biography of Cavour and *The Tragic Empress*, M. Paléologue now tells the story of the Russian Czar who succeeded in outwitting Napoleon. The author's background has in part been furnished by former service as Ambassador of France at St. Petersburg in pre-war days.

The life of Alexander I was a series of strange contradictions. Coming to the throne upon the assassination of his father—the mad emperor Paul—a murder about which he knew a bit too much, Alexander set out with the idea of becoming a liberal monarch. But he turned rapidly into a tyrannical despot. For a time he was seemingly the dupe of Napoleon, but in the end it was the Russian who gained the victory.

The Enigmatic Czar is, to say the least, an interesting book. The Story of Alexander I touches virtually every important contemporary country of Europe and his influence was far-reaching. His biography is engrossing and dramatic.

THE TWILIGHT OF THE KINGS. By Jonathan F. Scott. New York: Reynal and Hitchcock, 1938. 340 pages; illustrated; index; $2.75.

Mr. Scott's book has a triple theme: the decay of royalty, the rise of democracy, and the startling challenge of the dictators. He has tried to tell the every-day story of monarchs and give the story behind the clouds that shroud the abdications, assassinations, and losses of thrones.

Beginning with Edward VIII, the most recent uncrowned king, he works backward to cover the stories of the sad ends of various other monarchs: the Stuarts, the Bourbons, the Hapsburgs, and the Czars. There is glamor in the tales of these vanished kings and Mr. Scott has told it well.

At the end, he poses the question: Has the world gained anything by hurling down these thrones? The answer, startling enough to American ears, is no. Mr. Scott claims that a country will do better under an enlightened constitutional monarchy rather than under the mailed fist of a dictator. The book is recommended as a by-path for those who are interested in the theory of government.

SOME STILL LIVE. By F. G. Tinker, Jr. New York: Funk & Wagnalls Co., 1938. 313 pages; illustrated; $2.50.

Graduate of Annapolis, Pensacola, and Randolph Field, F. G. Tinker, Jr., was living in Arkansas in the fall of

1936 when he decided to offer his service to Spanish Leftist aviation. He got in through the Spanish Ambassador in Mexico City, a phony passport, and a free ticket from Mexico to New York, Havre, Paris, Barcelona, Valencia.

The account of this devious entry is matched by that of the exit, upon expiration of his contract, and return to the States some eight months later. The main narrative, however, is a fascinating chronicle of training, fighting Insurgent planes, and strafing Insurgent ground forces in the vicinity of Madrid, Guadalajara, and Teruel.

His account appears straightforward and devoid of bunk, save for occasional facetious comments and some padding to glorify the Loyalist achievements at Guadalajara (Brihuega). This abortive operation of the Insurgents is the only general action of the war to which the author devotes any space. His story would have had greater military value had he woven into it a little of the ground fighting to which the air activities were linked.

Many Army and Navy officers read Tinker's memoirs when they appeared in the *Saturday Evening Post* in March, 1938. Those who missed them then can now follow his flights in this book. W. G. J.

* * *

New Books

AIR ANNUAL OF THE BRITISH EMPIRE, 1938. 8th Edition. $7.00.

JULIUS CAESAR, Colonel John Buchan (Lord Tweedsmuir). New and cheap edition. $1.00.

SEBASTIEN LE PRESTRE DE VAUBAN, Sir Reginald Blomfield. A new biography of the great military engineer. $5.00.

SEAS OF ADVENTURE, Admiral E. K. Chatterton. The British navy in the Mediterranean, Adriatic and Aegean in the World War. Cheap edition. $1.50.

THE DEVELOPMENT OF THE BRITISH ARMY, 1899-1914, Colonel J. K. Dunlop. From the eve of the South-African War to the eve of the World War, with special reference to the Territorial Force. $3.75.

SOMME HARVEST, G. E. M. Eyre. Memories of a PBI (Poor Bloody Infantryman). $3.50.

T. E. LAWRENCE, Charles Edmonds. Supplements Lawrence's own *Seven Pillars of Wisdom*. Cheap edition. $1.00.

PLUMER OF MESSINES, General C. Harington. The Life of Field Marshal Viscount Plumer, who commanded the British Second Army. The book contains new light on the fighting around Passchendaele. Cheap edition. $2.50.

FLYING ADVENTURES, Captain W. Mittelholzer. Experiences of a German aviator in the World War. Cheap edition. $2.50.

SCIENCE AND MECHANIZATION IN LAND WARFARE, Colonel D. Portway, British Army. $2.50.

SOME STILL LIVE, F. G. Tinker. An American pilot's story of modern combat flying in the Spanish civil war. $2.65.

WITH LAWRENCE IN ARABIA, Lowell Thomas. Cheap edition. $1.00.

TRANSPORTATION ON THE WESTERN FRONT, 1914-18, Colonel A. M. Henniker. This volume is part of the British Official History of the Great War. Text and maps, $7.00.

BLAST and COUNTERBLAST, Admiral C. V. Usborne. A naval impression of the War. Cheap edition. $2.50.

HENRY OF NAVARRE, Marcelle Vioux. Cheap edition. $1.00.

ALL THE WORLD'S AIRCRAFT, 1937. Edited by Air Commodore C. G. Grey and Laurence Bridgman. 27th year of publication. $12.50.

Coast Artillery Orders

July 1 to August 31, 1938

Colonel Clifford Jones, from office, Chief of Coast Artillery, to Org. Res. 4th Corps Area.

Colonel Edward Kimmel, retired, August 31.

Colonel R. M. Mitchell, from Hawaii, to Org. Res. 3d Corps Area, Richmond.

Colonel E. W. Putney, from Univ. of New Hampshire, to Panama, sailing New York, November 23.

Colonel H. F. Spurgin, retired, August 31.

Lieutenant Colonel R. F. Cox, designated assistant commandant, C.A. School.

Lieutenant Colonel Octave DeCarre, to Org. Res. 7th Corps Area, in addition to his other duties.

Lieutenant Colonel A. J. French, from Org. Res. 9th Corps Area, Los Angeles, to Panama, sailing San Francisco, November 29.

Lieutenant Colonel P. S. Gage promoted Colonel August 1.

Lieutenant Colonel M. J. Hickok promoted Colonel August 1.

Lieutenant Colonel E. L. Kelly promoted Colonel July 1.

Lieutenant Colonel E. H. Metzger, from instructor, R.I.N.G., Providence, to General Staff with troops, 4th Corps Area, Atlanta.

Lieutenant Colonel C. B. Meyer promoted Colonel July 1.

Lieutenant Colonel F. A. Mountford promoted Colonel July 1.

Lieutenant Colonel O. L. Spiller, from Panama, to 62d, Fort Totten.

Major C. H. Armstrong, from office, Chief of Coast Artillery, September 20, to U.S.M.A., West Point.

Major H. C. Barnes, Jr., from General Staff with troops, Panama, to CAC, Panama Canal Department.

Major C. W. Bundy promoted Lieutenant Colonel July 1.

Major A. F. Englehart, from 15th, Fort Kamehameha, to General Staff Corps, Hawaiian Department, Fort Shafter.

Major F. A. Hause promoted Lieutenant Colonel July 3.

Major H. B. Holmes, Jr. promoted Lieutenant Colonel August 1.

Major J. C. Hutson promoted Lieutenant Colonel July 1.

Major J. D. MacMullen promoted Lieutenant Colonel July 1.

Major C. D. Y. Ostrom promoted Lieutenant Colonel July 1.

Major J. D. Powers, from instructor, Arkansas N.G., Hot Springs to 13th Fort Crockett.

Major E. W. Timberlake, from Havana, Cuba, to Univ. of Illinois, Champaign.

Captain K. C. Bonney promoted Major August 1.

Captain A. L. Bullard promoted Major July 1.

Captain W. R. Ellis, transferred to Quartermaster Corps, August 8.

Captain C. A. Gillett promoted Major July 1.

Captain L. Y. Hartman promoted Major July 1.

Captain G. F. Peirce, from 3d, Fort MacArthur, to Panama, sailing San Francisco, January 6.

Captain J. A. Sawyer, from USAMP *General J. Franklin Bell*, Fort Worden, to Fort Monmouth.

Captain V. C. Snell promoted Major July 1.

Captain R. F. Tomlin, from Hawaii, to 63d, Fort MacArthur.

First Lieutenant H. C. Donnelly, from the Philippines, to 65th, Fort Winfield Scott. Previous orders amended.

First Lieutenant E. F. Heidland, to 7th, Fort Hancock. Previous orders amended.

Second Lieutenant J. R. Bailey, Jr., to 62d, Fort Totten.

Second Lieutenant L. C. Baldwin, to 51st, Fort Monroe.

Second Lieutenant S. J. Cherubin, from 52d, Fort Hancock, to Panama, sailing New York, November 23.

Second Lieutenant P. R. Cornwall, to 51st, Fort Monroe.

Second Lieutenant P. C. Davis, to the Philippines, sailing New York.

Second Lieutenant A. J. D'Arezzo, to 63d, Fort MacArthur.

Second Lieutenant P. H. Eubank, from 61st, Fort Sheridan, to Hawaii, sailing New York, October 6.

Second Lieutenant M. S. George, from 51st Fort Monroe to Panama sailing New York August 25.

Second Lieutenant F. J. Gerlich, to 61st, Fort Sheridan.

Second Lieutenant Kenneth Glade, to the Philippines, sailing New York, September 9.

Second Lieutenant E. E. Hallinger, to Panama, sailing New York, November 15.

Second Lieutenant D. F. Haynes, to the Philippines, sailing San Francisco, October 1.

Second Lieutenant J. R. Holmes, to 69th, Fort Bragg.

Second Lieutenant R. G. Ivey, to 14th, Fort Worden.

Second Lieutenant A. A. Kopcsak, to Hawaii, sailing New York, October 6.

Second Lieutenant C. A. Langford, to 63d, Fort MacArthur.

Second Lieutenant H. E. Michelet, to 13th, Fort Barrancas.

Second Lieutenant F. A. Miller, to 14th, Fort Worden.

Second Lieutenant J. B. Pattison, Jr., to Panama, sailing New York, November 15.

Second Lieutenant N. T. Perkins, from Panama, to Randolph Field. Previous orders revoked.

Second Lieutenant I. A. Peterson, to 6th, Fort Winfield Scott.

Second Lieutenant J. W. Rawls, Jr., from 13th, Fort Barrancas, to Panama, sailing Charleston, S. C., November 25.

Second Lieutenant E. S. Rosenstock, to 6th, Fort Winfield Scott.

Second Lieutenant R. W. Rumph, from 62d, Fort Totten, to Hawaii, sailing New York, November 15.

Second Lieutenant M. R. Russell, to the Philippines, sailing New York, September 9.

Second Lieutenant E. M. Shiley, to 2d, Fort Monroe.

Second Lieutenant W. H. Vail, Jr., to 62d, Fort Totten.

Second Lieutenant A. J. Weinmig, to 13th, Fort Barrancas.

Second Lieutenant K. G. Wickham, to 62d, Fort Totten.

OFFICERS' STATION LIST

COAST ARTILLERY CORPS

October 1, 1938

OFFICE OF CHIEF OF COAST ARTILLERY

Washington, D. C.

CHIEF OF COAST ARTILLERY
Major General A. H. Sunderland

COLONEL
Green, J. A.

LIEUTENANT COLONELS
Blood, K. T.
Holmes, H. B., Jr.

MAJORS
Hinman, D. D.
Bradshaw, Aaron, Jr.
Lewis, J. T.
McCroskey, S. L.
Warren, W. H.

THE COAST ARTILLERY BOARD
Fort Monroe

COLONEL
Bowen, W. S.

MAJORS
Edgecomb, F. E.
Herrick, H. N.
Welch, G. B. (Ord.)

CAPTAINS
Kreuter, R. H.
Schuyler, C. Van R.
Shepherd, C. E.
Chamberlain, E. W.

SUBMARINE MINE DEPOT
Fort Monroe

LIEUTENANT COLONEL
Cottrell, J. F.

CAPTAINS
Reuter, H. C.
Toftoy, H. N.

DISTRICTS AND BRIGADES

1st C. A. DISTRICT
Boston, Mass.

BRIGADIER GENERAL
Wilson, Wm. H.

COLONELS
Cochen, G. W.
South, R. H.

MAJOR
Chaplin, R. T.

2d C.A. DISTRICT
New York, N. Y.

COLONELS
Cooper, A. J.
Biscoe, E.
Kelly, E. L.

3d C. A. DISTRICT
Fort Monroe

BRIGADIER GENERAL
Smith, F. H.

COLONEL
Nichols, W. R.

4th C.A. DISTRICT
Fort McPherson, Ga.

BRIGADIER GENERAL
Gardner, F. Q. C.

COLONEL
Collins, R. W.

LIEUTENANT COLONEL
McCain, J. D.

1ST LIEUTENANT
Weber, M. G. (Aide)

9th C.A. DISTRICT
Presidio, San Francisco Calif.

COLONELS
Lincoln, F. H.
Wing, C. K.

HAWAIIAN SEPARATE COAST ARTILLERY BRIGADE
Fort DeRussy, T. H.

BRIGADIER GENERAL
Peyton, P. B.

COLONEL
Arthur, Robert

LIEUTENANT COLONELS
Frazer, W. D.
Rowland, A. E.

CAPTAINS
Flory, L. D.
Dunham, W. H. J.
Kendall, Wm. H.
Kelly, P. B. (Aide)

COAST ARTILLERY REGIMENTS

1st COAST ARTILLERY
Fort Sherman, C. Z.

COLONEL
Carpenter, W. T.

LIEUTENANT COLONEL
Washington, W. C.

MAJORS
Imperatori, R. J.
Farnsworth, L. D.
Lowe, P. S.

CAPTAINS
McGeehan, C. W.
Ratter, W. C.
Townsend, H. F.
Anderson, G. B.

1ST LIEUTENANTS
Francis, W. H.
Berg, F. T.
Parr, W. H.
VanOrmer, H. P.
Seward, J. R.
Odenweller, C. J., Jr.

2D LIEUTENANTS
Scott, J. A., Jr.
Noonaw, O. A.
Burnoski, A. S.

Fort Randolph, C. Z.

LIEUTENANT COLONEL
Spiller, O. L.

MAJORS
Christian, F. L.

CAPTAINS
Wahle, C. B.
Haakensen, N. T.
Ford, G. A.
McConnell, F. C.

1ST LIEUTENANTS
Fernstrom, C. H.
Foote, S. W.
Passarella, P. F.
Greenlee, H. R., Jr.
Alfrey, John

2D LIEUTENANT
Nelson, J. G.

2d COAST ARTILLERY
Fort Monroe

COLONEL
Shedd, W. E., Jr.

MAJORS
French, P. H.
Goeppert, L. W.
Jefferson, L. W.

CAPTAINS
Peddicord, E. D.
Ross, L. G.
Tischbein, C. F.
Burgess, G. R.
Reierson, J. E.

1ST LIEUTENANTS
Fuller, A. L., Jr.
Spurgin, W. F.
MacNair, T. K.
Root, W. G.

2D LIEUTENANTS
Nye, D. B.
Shiley, E. M.
Abston, A. A.

3d COAST ARTILLERY
Fort MacArthur, Calif.

CAPTAINS
Mendenhall, C. M., Jr.
Neprud, L.
Peirce, G. F.

Fort Rosecrans, Calif.

COLONEL
Guthrie, R. E.

MAJOR
Jacobs, J. P.

CAPTAIN
Young, N. D.

1ST LIEUTENANT
Schenck, H. W.

Fort Stevens, Ore.

COLONEL
Thompson, E. H.

MAJOR
Lofquist, F.

CAPTAINS
Chambers, A. K.
Shaw, L. E.

1ST LIEUTENANT
Perry, W. A.

4th COAST ARTILLERY
Fort Amador, C. Z.

COLONELS
Williford, F. E.
Meyer, C. B.

LIEUTENANT COLONELS
Small, H. E.
Hutson, J. C.

MAJORS
deCamp, J. T.
O'Connell, G. M.
Stiley, J. F.

CAPTAINS
Nelson, O. A.
Hatch, M. A.
Grinder, R. H.
Kochevar, J. H.
Harwell, M. H.
Barker, W. L.
Hennig, W. H.

1ST LIEUTENANTS
MacLachlin, C. L.
Robbins, A. D.
Twyman, J. H.
Taber, A. P.
Bogart, E. A.
Liwski, F. A.
McFeely, H. G.

2D LIEUTENANTS
Hickok, M. J., Jr.
Fitzgerald, R. H.
Lockhart, E. E.
Ripley, L. H.
DeBill, W. C.

5th COAST ARTILLERY
Fort Hamilton, N. Y.

MAJORS
Barrows, E. R.
Lowder, J. R.

6th COAST ARTILLERY
Fort Winfield Scott, Calif.

LIEUTENANT COLONEL
Davis, H. C., Jr.

MAJORS
Gibson, M. B.
Whittaker, L. A.
Jones, R. C.

CAPTAINS
Myrah, H. H.
Bain, J. G.
Engelhart, E. C.
McKinney, M. J.
Kleinman, E. A.

1ST LIEUTENANTS
Metzler, J. E.
Clark, E.
Gilman, S. I.
Guiney, P. W., Jr.
East, J. C.
Carey, G. R.

2D LIEUTENANTS
Peterson, I. A.
Rosenstock, E. S.

7th COAST ARTILLERY
Fort Hancock, N. Y.

LIEUTENANT COLONEL
Turner, E. W.

MAJORS
Cowen, E. G.
Rhein, W. W.

CAPTAIN
Woods, F. J.

1ST LIEUTENANTS
Heidland, E. F.
Gilbert, O. H.

Fort DuPont, Del.

CAPTAINS
Nichols, G. F.
Harris, P. A.

8th COAST ARTILLERY
Fort Preble, Maine

COLONEL
Schrader, O. H.

MAJORS
Hudgins, L. A.
Lins, H. W.

CAPTAIN
Palmer, G. W.

1ST LIEUTENANT
Somerville, E. C.

9th COAST ARTILLERY
Fort Banks, Mass.

COLONEL
Hickok, M. J.

MAJORS
Cassard, H. DeV.
Gillette, C. A.

CAPTAIN
Cordell, B. E.

1ST LIEUTENANT
Congdon, N. A.

10th COAST ARTILLERY
Fort Adams, R. I.

MAJOR
Supple, E. L.

CAPTAINS
Jolls, F. P.
Kimm, V. M.

Fort Rodman, Mass.

CAPTAIN
Branham, C. N.

11th COAST ARTILLERY
Fort H. G. Wright, N. Y.

LIEUTENANT COLONEL
Foote, W. C.

MAJORS
Chesledon, A. C.
Stephens, J. C.
Schmidt, V. G.

CAPTAINS
McCarthy, W. J.
Moore, J. M.
Simmons, N. B.
Dunham, C. E.
Ostenberg, F. T.

1ST LIEUTENANTS
Harris, W. H.
Logan, W. B.
Lipscomb, L., Jr.
Andrews, C. L.
Barber, J. T.
McGoldrick, F. M.
Samuels, A., Jr.
Weitzel, G. J.

13th COAST ARTILLERY
Fort Barrancas, Fla.

COLONEL
Williams, B. H. L.

LIEUTENANT COLONEL
Humbert, G. F.

MAJORS
Sweet, W. H.
Cordero, M.
Bonney, K. C.

CAPTAINS
Gunn, C. O.
Shumate, J. P.
French, F. J.
Thomas, A. R.
Burnett, J. R.
Conzelman, C. McK.
Niethamer, W. F.

1ST LIEUTENANTS
Rude, W. A.
Glass, T. A.

2D LIEUTENANTS
Michelet, H. E.
Weinnig, A. J.
Rawls, J. W.

Key West, Fla.

LIEUTENANT COLONEL
MacMullen, J. D.

CAPTAIN
Johnson, W. L.

Fort Moultrie, S. C.

COLONEL
Gage, P. S.

MAJOR
Dunn, G. W., Jr.

Fort Crockett, Texas

LIEUTENANT COLONEL
Dawson, C. A. W.

MAJOR
Powers, J. D.

CAPTAIN
Dodge, F. B.

14th COAST ARTILLERY
Fort Worden, Wash.

COLONEL
Peace, W. G.

MAJORS
Cook, F. W.
Clayton, L. L.
Parsons, M. H.
Hartman, L. Y.

CAPTAINS
McCormick, W. L.
Bell, C. O.
Lamson, D. D.
Gurley, F. K.
Myers, C. M.
Vickers, L. T.
McGraw, J. E.

1ST LIEUTENANTS
Ashworth, E. T.
Flynn, T. DeN.
Fairchild, F. H.

2D LIEUTENANTS
Ivey, R. G.
Miller, F. A.

15th COAST ARTILLERY
Fort Kamehameha, T. H.

COLONEL
Merriam, H. C.

LIEUTENANT COLONEL
VanVolkenburgh, R. H.

MAJORS
DeMerritt, R. E.
Snell, V. C.

CAPTAINS
White, L. A.
Gregory, P. T.
Anderson, G.
Ellis, H. P.
Simmons, J. F.
Schmidt, G.

1ST LIEUTENANTS
Curtis, K. I.
Weld, S. L., Jr.
Morris, Robert
Hunter, H. W.

2D LIEUTENANTS
Lee, E. M.
Neier, T. D.

16th COAST ARTILLERY
Fort Ruger, T. H.

COLONEL
Smith, J. P.

LIEUTENANT COLONELS
Gross, F. E.
Skene, C. M. S.

MAJORS
Anderson, S. W.
Dailey, B. C.

CAPTAINS
Ulmo, H. W.
Herron, D. B.
Cary, M. G.
Franklin, A. G., Jr.

1ST LIEUTENANT
Darrah, J. T.
Alexander, D. S.

2D LIEUTENANTS
Warfield, B. M.
Register, C. L.
Shive, D. W.
O'Malley, C. S., Jr.

41st COAST ARTILLERY
Fort Kamehameha, T. H.

LIEUTENANT COLONEL
Cravens, W. M.

CAPTAINS
Willard, S. E.
Tomlin, R. F.

1ST LIEUTENANT
Howell, J. N.

2D LIEUTENANTS
Clark, M. H.
Underwood, G. Y., Jr.
Kramer, Arthur

51st COAST ARTILLERY
Fort Monroe, Va.

COLONEL
Walker, E. B.

MAJOR
Kerr, C.

CAPTAINS
Ward, E. R. C.
Hincke, J. I.
Martin, E. G.

1ST LIEUTENANTS
Adams, G. N.
Cooper, H. B., Jr.
Dunn, C. G.

2D LIEUTENANTS
Cornwall, P. R.
Baldwin, L. C.
Hodges, W. J., Jr.

52d COAST ARTILLERY
Fort Hancock, N. J.

LIEUTENANT COLONEL
Sinclair, J. L.

MAJORS
Foster, V. P.
Young, Ellsworth
Putnam, W. F.

CAPTAINS
Carlisle, W. H.
Goff, J. L.
Hennessy, H. P.
Jaccard, P. A.

1ST LIEUTENANTS
Julian, H.
Beazley, L. K.

2D LIEUTENANTS
Cherubin, S. J.
Seff, A.

Fort Monroe

MAJOR
Atkinson, C. E.

CAPTAINS
Chamberlain, F. R., Jr. (S.D.C.A. Board)
Baron, A. S.
Smith, P. McC.

1ST LIEUTENANTS
Corbin, F. P., Jr.
Porter, G. U.
Waugh, W. H., Jr.

2D LIEUTENANTS
Gulick, J. McM.
Ames, G. R.
Worcester, W. J.
Wood, J. D.

55th COAST ARTILLERY
Fort Kamehameha, T. H.

MAJOR
Ladd, R. V.

CAPTAINS
Badger, G. M.
Henn, J. S.
Shutt, L. O.

1ST LIEUTENANT
Partin, C. L.

2D LIEUTENANTS
Easton, W. G.
Hall, L. A.

Fort Ruger, T. H.

MAJOR
Johnson, H. S.

CAPTAINS
Gard, H. P.
Tracy, M. W.
Carter, C. C.
Davis, Wm.

1ST LIEUTENANT
Donohue, J. M.
Coit, Wm. S.

2D LIEUTENANTS
Persons, H. P., Jr.
Ellert, L. J.

59th COAST ARTILLERY
Fort Mills, P. I.

COLONEL
Ruhlen, George

LIEUTENANT COLONEL
Halbert, E. O.

MAJORS
Campbell, J. T.
McBride, R. W.

CAPTAINS
Crim, C. H.
Tredennick, D. C.
Tucker, G. A.
Hendrix, R. R.
Gill, B. D.
Brusher, H. A.
McNamee, W. L.

1ST LIEUTENANTS
Lazar, A. M.
Baynes, W. H.
Frith, R. E., Jr.

2D LIEUTENANTS
Cozart, C. A.
Drake, J. R.
Jordan, W. H.
Lind, H. D.
Leist, G. F.
McLain, E. W.

60th COAST ARTILLERY
Fort Mills, P. I.

MAJORS
Harrington, J. H.
Marquat, W. F.
Jones, A. W.

CAPTAINS
McFadden, W. C.
Wrean, J. T.
Tarrant, L. K.

1ST LIEUTENANTS
Keeler, G. E., Jr.
Anderson, R. L.
Hill, C. W.
Waterman, B. S.
Hildebrandt, C. W.
Hale, H. R.
Ashman, Alfred
Dice, J. B. F.
Rothwell, F. G.

2D LIEUTENANTS
Romlein, J. W.
Murphy, F. L.
Whipple, H. B.

61st COAST ARTILLERY
Fort Sheridan, Ill.

COLONEL
Campbell, A. G.

MAJOR
Armstrong, M. G.

CAPTAINS
Wilson, A. E.
Turnbull, H. T.
Field, G. L.
Walbridge, Vern
Griffin, W. E.
Nelson, P. B.
Roth, A.

1ST LIEUTENANTS
Briggs, K. M.
Cloud, C. C., Jr.
Thompson, M. R.
Roth, I. D.
Elias, P.

2D LIEUTENANT
Gerlich, F. J.

62d COAST ARTILLERY
Fort Totten, N. Y.

COLONEL
Eglin, H. W. T.
Bennett, E. E.

LIEUTENANT COLONEL
Finley, C. R.

MAJORS
Taliaferro, E. H., Jr.
Mackin, R. N.

CAPTAINS
Dwyer, J. W.
Geurys, C. W.
Madison, J. H.
Gregory, E. M.
Miter, F. F.
Lepping, A. J.
deGravelines, K. L. F.
Raymond, M. B.
Bailey, D. J.
Holst, J. J.
Miller, R. L.

1ST LIEUTENANTS
Patterson, C. G.
Kushner, G. L.
Routh, D. B.
Reybold, F. B.
Cassavant, A. F. (D.S., Fort Monmouth, N. J.
Doyle, P. V.
Cory, I. W.

2D LIEUTENANTS
Vail, W. H.
Wickham, K. G.
Byrne, J. S.
Bailey, J. R., Jr.

63d COAST ARTILLERY
Fort MacArthur, Calif.

MAJORS
Detwiler, H. P.
Lawrence, A. M.

CAPTAINS
Amoroso, A. D.
Duval, H. H.
Cole, P. W.
Gamber, J. F.
Edwards, P. W.

1ST LIEUTENANTS
Hampton, W. A.
Massello, W., Jr.
Kauffman, R. K.
Corum, D. R.
Hardy, R. M.

2D LIEUTENANTS
D'Arezzo, A. J.
Langford, C. A.

64th COAST ARTILLERY
Fort Shafter, T. H.

COLONEL
Mitchell, R. M.

LIEUTENANT COLONELS
Hardaway, F. P.
Gallagher, F. F.

MAJORS
Hoge, D. H.
Roberts, C. R.
Jeffards, W. Q., Jr.
Davis, L. L.

CAPTAINS
Goodrich, W. R.
Johnson, J. J.
Ritchie, I. H.
Featherston, J. H.
Heaney, G. F., Jr.
Ellerthorpe, D. S.
Rothgeb, C. E.
Denson, P. B.
Skinner, M. L.
Waters, F. B.
Glasgow, R. I.
Day, F. E.

1ST LIEUTENANTS
Schmick, P.
Gough, A. D.
Shepardson, F. H.
Walter, E. H.
Wilson, N. B.
Murrin, W. R.
Boys, R. C.
Folk, F. T.

2D LIEUTENANTS
Holterman, G. H.
Swain, Oren
Kallman, M. M.
Kinard, W. H., Jr.
Young, C. G.
Katz, H. J.
Thompson, E. H., Jr.
Blair, W. S.

65th COAST ARTILLERY
Fort Winfield Scott, Calif.

LIEUTENANT COLONEL
O'Rear, J. T. H.

MAJORS
Jackson, A. M.
Hickey, D. W., Jr.

CAPTAINS
Wolff, C. M.
Holder, W. G.
Krueger, R. H.
White, T. B.
Pohl, M. G.
Dayharsh, T. J.

1ST LIEUTENANTS
Totten, R.
Schweidel, K. R.
Turner, H. F.
Donnelly, H. C.
McKee, W. F.

69th COAST ARTILLERY
Fort Crockett, Texas

COLONEL
Longino, O. H.

LIEUTENANT COLONEL
Pitz, O. G.

MAJORS
Conway, E. T.
Bullard, A. L.

CAPTAINS
Smith, H. W.
Meyers, H. F.
Short, W. B.
Benz, H. T.
Merkle, E. A.

1ST LIEUTENANTS
Longanecker, C. R.
Kosciciniak, A. A.
Steele, P.
Zeller, F. J.
Chapman, E. A.

2D LIEUTENANTS
Holmes, J. R.
Hauck, H. H.

91st COAST ARTILLERY
Fort Mills, P. I.

COLONEL
Koenig, W. C.

MAJORS
Lohmann, L. H.
Bowering, B.
Lavery, A. L.

CAPTAINS
Denson, L. A., Jr.
Newman, G.
Hartman, A. R.
Santos, M. M. (PS)
Olivares, J. E. (PS)
England, J. M.
Morrow, S. H.
Alba, B. M. (PS)

1ST LIEUTENANTS
Moore, J. C.
Miner, R. M.
Wollaston, P. H.
Morgan, J. B.
Skinrood, N. A.

2D LIEUTENANTS
Yost, J. B.
Metz, T. McG.

92d COAST ARTILLERY
Fort Mills, P. I.

LIEUTENANT COLONEL
Warren, A. H.

MAJORS
Carswell, R. M.
McMorrow, H. A.

CAPTAINS
Caluya, P. Q. (PS)
Young, G. E.
Harry, John
Kyster, O. H., Jr.
Sevilla, P. C. (PS)
Rousseau, J. H., Jr.

1ST LIEUTENANTS
Hiddleston, E. W.
Irvine, M. M.

2D LIEUTENANTS
Spann, C. E., Jr.
Cordes, C. F., Jr.
Kessler, R. H.
Croker, G. W.

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PANAMA CANAL DEPARTMENT STAFF

COLONEL
Stockton, E. A., Jr.

Pacific Sector

COLONEL
Marsh, C. T.

1ST LIEUTENANT
Parks, H. C.

Atlantic Sector
Ft. DeLesseps, C. Z.

MAJOR
Seaman, E. C.

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Putney, E. W.

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Chipman, A. D.
Hayden, J. L.
Gower, A. W.
Barnes, H. C., Jr.

CAPTAINS
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Davis, J. W.
Goodall, J. R.
Wortman, V. W.

2D LIEUTENANTS
Hallinger, E. E.
George, M. S.
Pattison, J. B., Jr.

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Jarman, S.

LIEUTENANT COLONEL
Lindt, J. H.

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Blancy, G.
Topping, F. L.

CAPTAINS
Brady, W. L.

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Rumph, R. W.
Eubank, P. H.
Steely, O. B.
Kopcsak, A. A.

HQ. H.D. OF MANILA AND SUBIC BAYS

BRIGADIER GENERAL
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COLONEL
Terry, T. A.

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Crawford, J. B.
Dalao, E. B. (PS)

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Stewart, W. R.
Swett, F. S.
Gilbreth, J. H.
Conable, M. E.
Hafer, J. B.

CAPTAINS
Smith, J. W. (PS)
Martelino, P. (PS)

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Woodbury, K. J.
Roy, P. A.
Ingram, L. L.
Wilkins, G. R.

2D LIEUTENANT
Mattern, R. H. (Aide)

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Thiele, C. M.

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Cotter, C. E.

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Hogan, J. L.
Kirkpatrick, L. S.
Luce, D.
Goodman, S. J.

1ST LIEUTENANTS
Harvey, T. H.
Moore, R. F.

2D LIEUTENANTS
Spengler, H. M.
Davis, P. C.
Glade, K. ,
Haynes, D. F.
Russell, M. R.

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BRIGADIER GENERAL
Smith, F. H.

STAFF

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Pendleton, R. T.

MAJOR
Lowry, P. P.

CAPTAIN
Chester, G. A.

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Poland, E. L. (Inf.)
Robison, G. B.

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Trigg, O. B. (Cav.)
Griggs, D. M.
Handwerk, M. C.
Morrison, D. E.
Paul, F. M. (A.C.)

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Lemnitzer, L. L.

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LIEUTENANT COLONEL
Cramer, R. V.

MAJORS
Lewis, P. W.
Dennis, L. C.

CAPTAINS
Kane, F. B.
Holcomb, C. W.

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LIEUTENANT COLONEL
Cramer, R. V.

MAJORS
Cochran, H. McC., 3rd
McNeely, O. D.

1ST LIEUTENANT
Russell, S. C.

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LIEUTENANT COLONEL
Pendleton, R. T.

CAPTAINS
Hartman, N. E.
Pamplin, D. G.
Stevens, V. C.

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Foltz, C. G.

CAPTAINS
Merrett, W. B.
Chester, G. A.
Vandersluis, H. J.

STUDENTS

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Sturman, J. F., Jr.
Wilson, D. McC.

1ST LIEUTENANTS
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Mitchell, E. C.
Green, E. C.
Sutherland, A. J.
Nelson, R. M.
Ogden, M. L.
Gerhardt, H. A.
Chace, E. N.
Glassburn, R. D.
Williams, R. L., Jr.
Mellnik, S. M.
Edison, D. D.
Ebey, F. W.
Ball, W. H.
Taylor, E. O.
Ratcliffe, L. C.
Matteson, R. L.
Giffin, S. F.
Tubbs, H. S.
Hackman, E. B.
Thorlin, J. F.
Fritz, W. G.
Hain, R. W.
Crawford, G. H.
McReynolds, S. McF., Jr.
Cooper, A. J., Jr.
King, V. H.
Gallagher, R. E.
Powell, C. W.
Moore, E. W.
Voehl, W. E. H.
Peca, P. S.
Moorman, R. R.
Hoffman, T. F.
Piram, J. S.
Stevens, J. duV.
Wolfe, Y. H.
Ebel, H. W.
Finkenaur, R. G.
Kenerick, K. R.

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CAPTAIN
Mortimer, J. E.

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Vestal, W. M.
Peterson, A. C.
Stayton, T. V.
Skidmore, W. M.
Turner, R. A.

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Instructors

LIEUTENANT COLONELS
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Hocker, C. E.

MAJORS
Irvine, W. W.
Phillips, T. R.
Wilson, J. H.
Bellman, H. F. E.
Milburn, B. L.

Students

MAJORS
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Harris, C. S.
Crowell, E. R.
Rosenthal, W. D.
McCollough, Samuel
Scott, W. W.
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Dingeman, R. E.
Ericson, R. A.
Burnwell, N. A.
Hayden, F. L.
Bartlett, L. W.
Barber, E.
Lawton, W. S.
Thompson, E. B.
Stubbs, G. H.
Richardson, W. L.
Howell, J. F., Jr.
Wright, W. L.
Schieffler, F. S.
Bender, A. H.
Lovell, J. R.
Frederick, R. T.

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Instructor

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Carrington, G. DeL.

Students

LIEUTENANT COLONELS
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Weeks, L. B.
Loomis, H. F.
Ostrom, C. D. Y.

CAPTAINS
Starr, R. E.
Fellers, B. F.
Hewett, Hobart
Harriman, J. E.

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Student

LIEUTENANT COLONEL
Bundy, C. W.

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Hastings, F. H.

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Ruddell, J. C.

CAPTAIN
Weible, W. L.

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Instructor

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Epling, F. G.

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Dutton, D.L.

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Martin, D. D.
Nicholson, A. B.
Deichelmann, M. K.

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Instructor

MAJOR
Turley, R. E., Jr.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Student

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Shunk, P. W.

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Fort H. G. Wright, N. Y.
Captain N. A. McLamb

Cableship Joseph Henry
Fort Hancock, N. J.
Captain J. B. Carroll

General Edward O. C. Ord.
Fort Hancock, N. J.
Captain H. P. Tasker

General John M. Schofield
Fort Monroe, Va.
Capt. W. S. Hawthorne

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Fort Worden, Wash.
1st Lt. R. J. Lawlor

General William M. Graham
Fort Sherman, C. Z.
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Fort Winfield Scott, Calif.
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Fort Mills, P. I.
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Washington, D. C.

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Major LeRoy Lutes

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Lt. Col. F. M. Green
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New York, N. Y.
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Wilmington, Del.
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Lt. Col. C. D. Peirce, Milwaukee, Wisc.
Lt. Col. G. W. Easterday Detroit, Mich.

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Lt. Col. B. L. Flanigen, Minneapolis, Minn.
Lt. Col. E. C. Mead, Topeka, Kansas
Lt. Col. S. E. Wolfe, St. Louis, Mo.
Major I. B. Hill, Duluth, Minn.

8th CORPS AREA

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Major E. B. McCarthy, Denver, Colorado

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Major H. R. Behrens, Portland, Oregon
Col. J. H. Cunningham,
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Lt. Col. J. H. Hood,
Lt. Col. A. J. French, Los Angeles, Calif.
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Massachusetts Institute of Technology, Cambridge, Massachusetts
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Major A. D. Fisken
Major H. R. Jackson

University of New Hampshire, Durham, N. H.
Colonel E. K. Smith
Capt. W. G. Devans

University of Delaware, Newark, Del.
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Capt. F. J. Cunningham
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Fordham University, Fordham, N. Y.
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Major J. G. Murphy
Capt. C. F. Wilson

University of Pittsburgh, Pittsburgh, Pa.
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Lt. Col. R. W. Wilson
Major K. P. Flagg
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Virginia Polytechnic Institute, Blacksburg, Va.
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Major Nelson Dingley, III
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Capt. W. J. Wolfe
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Clift High School, Opelika, Ala.
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University of Alabama, University, Ala.
Major E. H. Underwood
Major W. W. Wertz
Major W. R. Carlson
Capt. W. A. Weddell
Capt. R. W. Russell

Georgia School of Technology, Atlanta, Ga.
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Major W. D. Evans
Major R. E. McGarraugh
Capt. H. H. Newman, Jr.

Athens High School, Athens, Ga.
Lt. Col. A. V. Rinearson

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Capt. C. P. Young
Capt. W. K. Stenuis

Pearl River Junior College, Poplarville, Miss.
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The Citadel, Charleston, S. C.
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Capt. J. S. Robinson

University of Cincinnati, Cincinnati, Ohio
Major C. W. Higgins
Major W. H. Steward
Capt. H. E. Strickland

Joliet Township High School, Joliet, Illinois
Major T. E. Jeffords

Rockford High School, Rockford, Illinois
Capt. A. L. Haggart

University of Illinois, Urbana, Illinois
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Major J. D. Brown
Major J. B. Muir, Jr.
Major H. F. Grimm
Major E. W. Timberlake

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Major D. B. Greenwood

Michigan State College of Agricultural and Applied Science, East Lansing, Mich.
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Capt. D. H. Smith
Capt. J. G. Remmo

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University of Minnesota, Minneapolis, Minn.
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Capt. J. C. Smith

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Major H. E. Pendleton

Denver High Schools, Denver, Colorado
Major J. G. Devine

Agricultural and Mechanical College of Texas, College Station, Texas.
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Major R. E. Hill
Capt. F. A. Hollingshead

Ball High School, Galveston, Texas
Major Maitland Bottems

Alameda High School, Alameda, Calif.
Major L. J. Bowler

Sacramento High School, Sacramento, Calif.
Major J. C. Bates

St. Ignatius High School, San Francisco, Calif.
Major H. G. Archibald

San Francisco High Schools, San Francisco, California
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Lt. Col. Frank Drake
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Reno High School, Reno, Nevada
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Major E. H. Stillman

Utah State Agricultural College, Logan, Utah
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◆ ◆ ◆

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Lt. Col. Harvey C. Allen ..... " " "
Lt. Col. Robert M. Perkins ..... " " "
Lt. Col. Lalbett L. Stuart ..... " " "
Lt. Col. Edgar B. Colladay ..... " " "
Major William M. Goodman ..... " " "
Major George W. Ricker ..... " " "
Major Homer Case ..... " " "
Major Frank J. McSherry ..... " " "
Major Stanley R. Mickelsen ..... " " "
Major Thomas J. Betts ..... " " "

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Colonel Thomas C. Cook, Hq. 2d Corps Area, Governors Island, N. Y.
Col. Robert C. Garrett, Hq. 7th Corps Area, Omaha, Neb.
Col. Homer R. Oldfield, Hq. 9th Corps Area, Presidio of San Francisco, Cal.
Col. John B. Maynard, Hq. 8th Corps Area, Fort Sam Houston, Texas.
Lt. Col. Walter K. Dunn, Hq. Philippine Department, Manila, P. I.
Lt. Col. Earl H. Metzger, Hq. 4th Corps Area, Atlanta, Ga.
Lt. Col. Alden G. Strong, Hq. 1st Corps Area, Boston, Mass.
Lt. Col. Rollin L. Tilton, Hq. Panama Canal Dept., Quarry Heights, C. Z.
Lt. Col. Ralph E. Haines, Hq. 1st Corps Area, Boston, Mass.
Major Alva P. Englehart, Hq. Hawaiian Dept., Fort Shafter, Ht.
Major William H. Donaldson, Jr., Hq. 7th Corps Area, Omaha, Nebraska.

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Capt. A. C. Spalding
Capt. Donald McLean
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Capt. F. A. Mitchell
Capt. A. Hopkins
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Capt. R. W. Berry
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1st Lt. L. McI. Guyer
1st Lt. Joseph Horridge
1st Lt. L. H. Brownlee
1st Lt. E. G. Griffith
1st Lt. E. R. Hempstead
1st Lt. K. J. Wood
1st Lt. H. R. Boyd
1st Lt. M. S. Carter
1st Lt. A. C. Gay
1st Lt. W. P. Ellis
1st Lt. G. F. Blanda
1st Lt. L. N. Crun
1st Lt. C. R. Bard
1st Lt. C. B. Duff
1st Lt. R. S. Spangler
1st Lt. C. J. Dimtel
1st Lt. J. C. Steele
1st Lt. Arnold Semmer
1st Lt. B. L. Paige
1st Lt. L. J. Hillberg
1st Lt. P. B. Stiness
1st Lt. D. R. Webber
1st Lt. R. E. Farnsworth, Jr.
1st Lt. D. B. Johnson
1st Lt. R. C. Leslie
1st Lt. H. J. Jablonsky
1st Lt. J. J. Lane

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U. S. Army Recruiting Office, San Francisco, Calif.
Colonel Lewis Turtle,
U. S. Army Recruiting Office, Seattle, Wash.
Colonel L. B. Magruder,
U. S. Army Recruiting Office, New York, N. Y.
Colonel K. B. Lemmon,
U. S. Army Recruiting Office, Omaha, Nebraska.
Lt. Col. Octave DeCarre,
U. S. Army Recruiting Office, Des Moines, Iowa.
Lt. Col. F. Kemble,
U. S. Army Recruiting Office, Harrisburg, Pa.
Lt. Col. J. B. Martin,
U. S. Army Recruiting Office, Peoria, Illinois.
Lt. Col. Carl J. Smith,
U. S. Army Recruiting Office, New York, N. Y.
Major E. L. Barr,
Fort Slocum, N. Y.
Major A. W. Waldron,
Fort Slocum, N. Y.
Major H. H. Slicer,
Fort Slocum, N. Y.

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Colonel John S. Pratt,
Civ. Component Affairs, Fort Shafter, Hawaii.
Colonel Allen Kimberly,
U. S. Military Mission, Rio de Janeiro, Brazil.
Colonel F. A. Mountford,
S. P. Port of Embarkation, Fort Mason, Calif.
Major William Sackville,
U. S. Military Mission, Rio de Janeiro, Brazil.
1st Lt. W. H. Brucker,
Aide, Hq. 8th Brigade, Fort McPherson, Ga.
Major General T. Q. Ashburn,
Chairman, Advisory Board, I. W. C., Washington, D. C.
Captain O. D. Bowman,
Disciplinary Barracks, Governors Island, N. Y.
Major Walter J. Gilbert,
McKinley High School, Honolulu, T. H.
1st Lt. J. J. Stark,
Aide, Hq. Div. Schofield Barracks, Hawaii.

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Washington, D. C.

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Lt. Col. C. H. Tenney

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Major H. C. Mabbett, Engineer Board, Fort Belvoir, Va.

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1st Lt. K. E. Rasmussen, c/o American Embassy, Tokyo, Japan.

MILITARY ATTACHES

Lt. Col. Eugene Villaret, American Embassy, Belgrade, Yugoslavia.
Lt. Col. Robert D. Brown, American Embassy, Brussels, Belgium.
Major Lawrence C. Mitchell, American Embassy, Rio de Janeiro, Brazil.
Capt. Robin B. Pape, c/o American Embassy, Tokyo, Japan.

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DETAILED I. G. D.

Col. Franc Lecocq, Hq. 3d Corps Area, Baltimore, Md.
Col. C. H. Patterson, 4th Corps Area, Atlanta, Ga.
Col. W. W. Hicks, Hawaiian Dept., Fort Shafter, T. H.
Col. W. M. Colvin, Hq. 2d Corps Area, Governors Island, N. Y.
Lt. Col. J. S. Smylie, Hq. 6th Corps Area, Chicago, Ill.
Lt. Col. Franklin Babcock, Washington, D. C.

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Capt. J. A. Sawyer, S. C. School, Fort Monmouth, N. J.

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1st Lt. W. G. Root, Randolph Field, Texas
2d Lt. P. M. Spicer, Randolph Field, Texas
2d Lt. G. P. Anderson, Jr., Randolph Field, Texas
2d Lt. B. R. Brown, Randolph Field, Texas
2d Lt. S. E. Buckland, Randolph Field, Texas
2d Lt. J. Conigliaro, Randolph Field, Texas
2d Lt. George Kappes, Randolph Field, Texas
2d Lt. L. E. Johnson, Jr., Randolph Field, Texas
2d Lt. H. P. Barnard, Jr., Randolph Field, Texas
2d Lt. J. H. Spangler, Randolph Field, Texas
2d Lt. H. C. Morrison, Randolph Field, Texas
2d Lt. J. B. Herboth, Jr., Randolph Field, Texas
2d Lt. Y. L. Zollar, Randolph Field, Texas
2d Lt. P. R. Hawes, Randolph Field, Texas
2d Lt. C. E. Duncan, Randolph Field, Texas
2d Lt. W. C. Conway, Kelly Field, Texas
2d Lt. N. T. Perkins, Randolph Field, Texas

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1st Lt. H. duB. Lewis, Aberdeen Proving Ground, Md.
1st Lt. R. P. Haggerty, Frankford Arsenal, Pa.
1st Lt. G. F. Powell, Aberdeen Proving Ground, Md.
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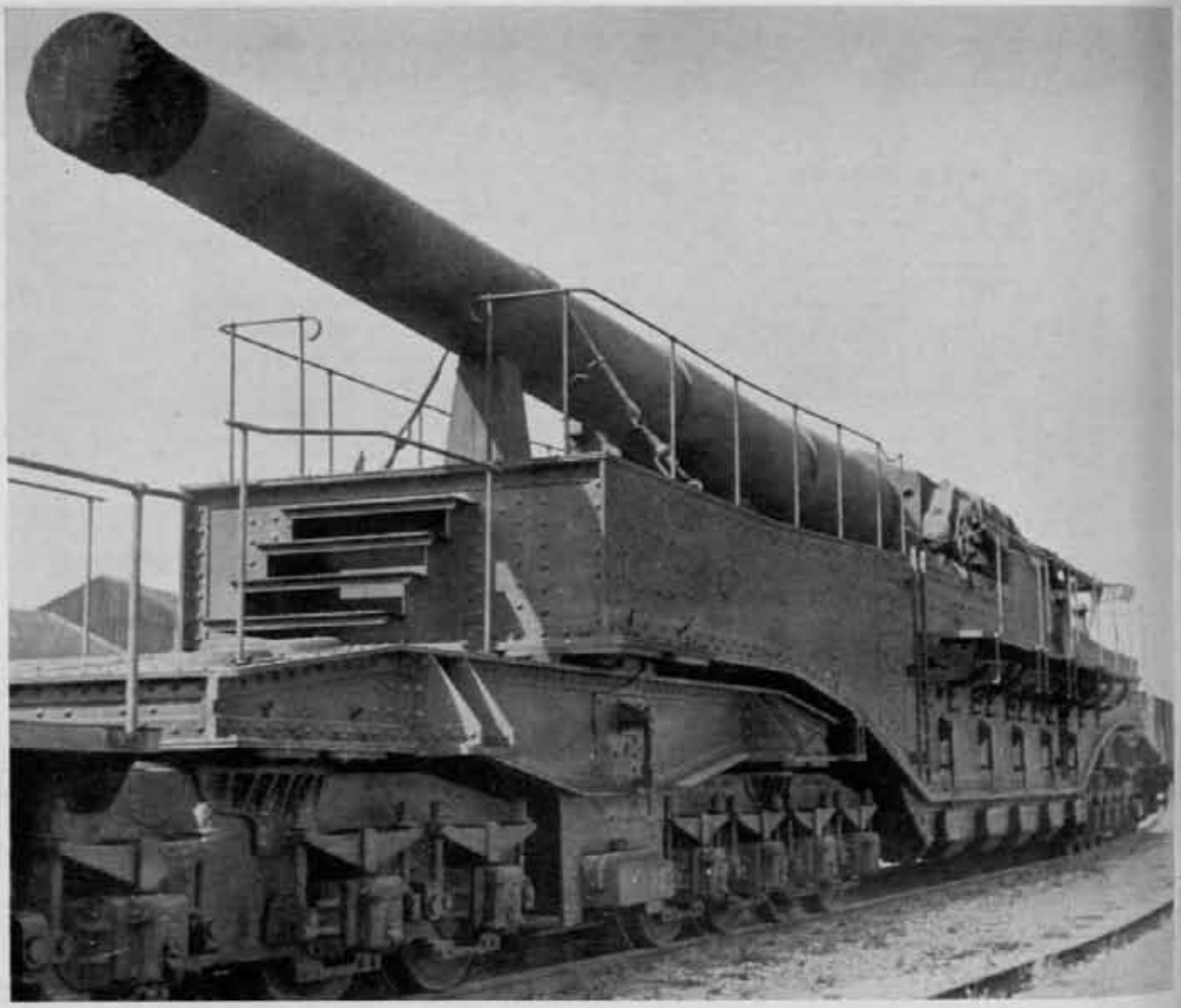
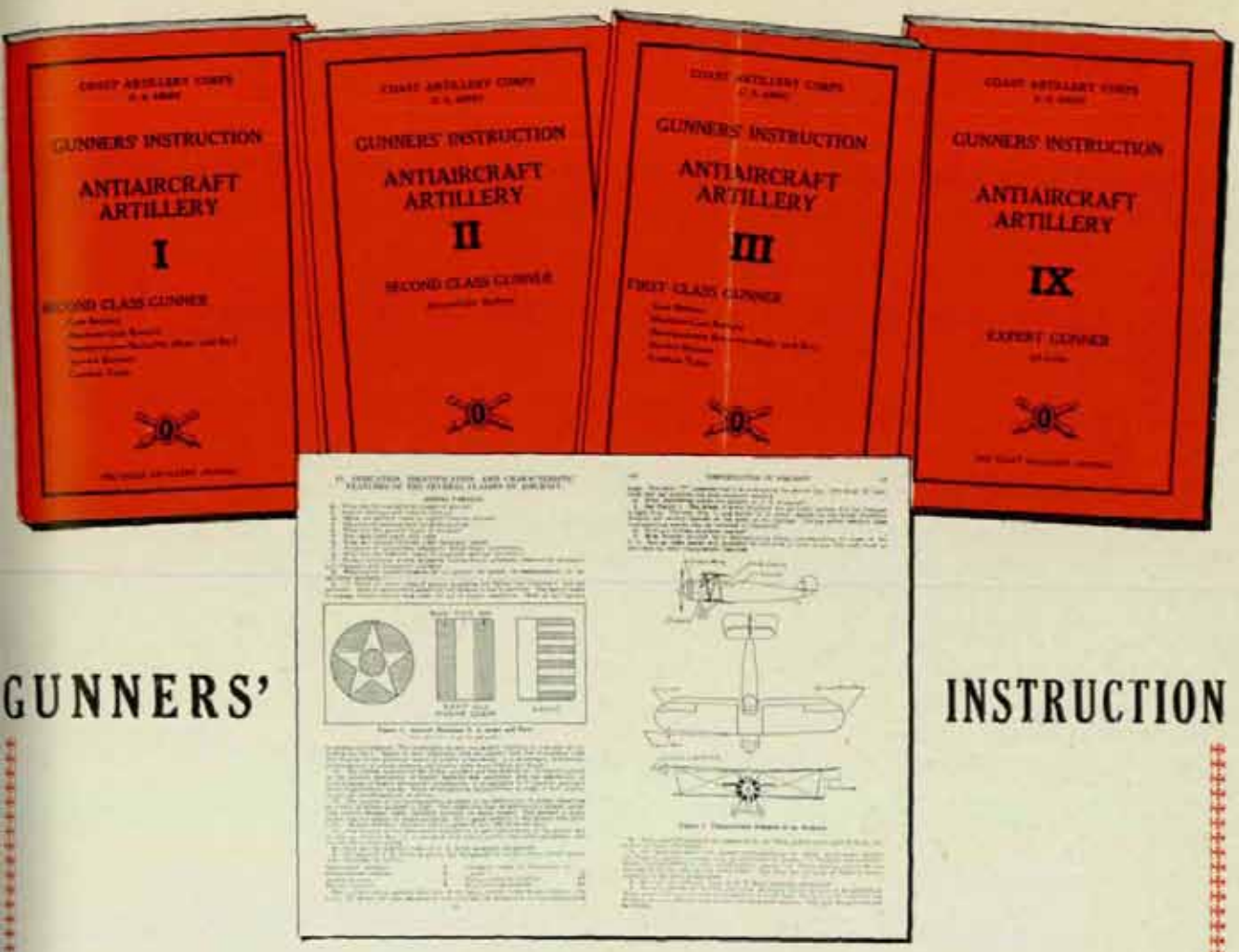


A giant French railway gun moves toward the "front" during the recent maneuvers on the frontier.



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