The FIELD ARTILLERY JOURNAL

JAN.-FEB. 1949

CHENNAULT

Way OF A Fighter

The Memoirs of **CLAIRE LEE CHENNAULT**
Major General. U. S. Army (Ret.)

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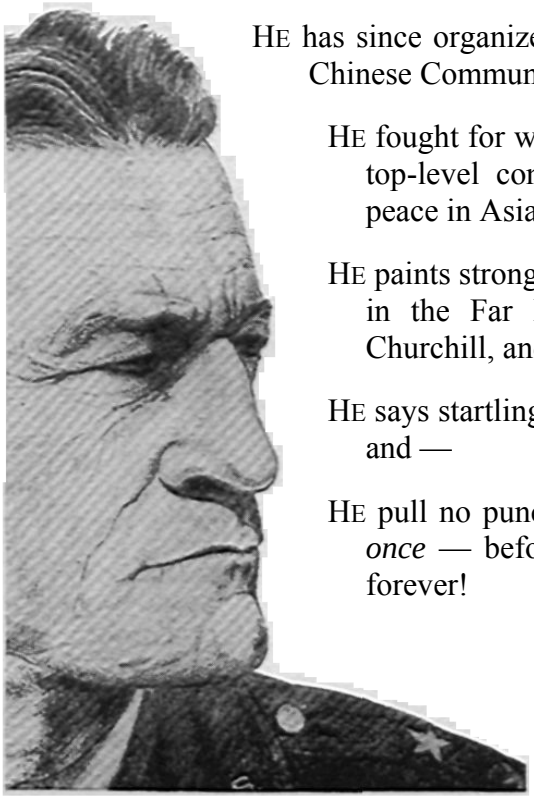

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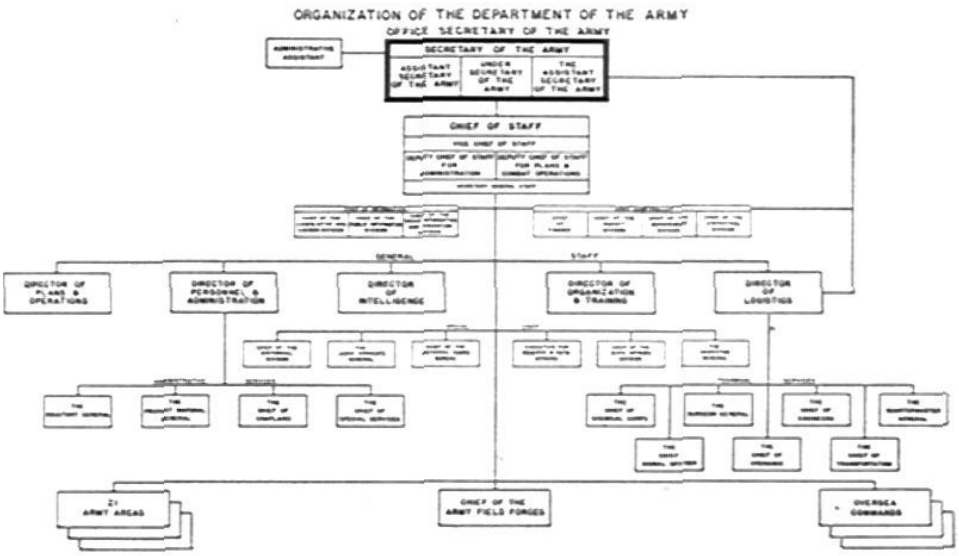
NEW HEADQUARTERS ORGANIZATION, DEPARTMENT OF THE ARMY

A TOP - LEVEL reorganization of the Army to place that service on a peace-or-war functional footing went into effect 15 November 1948.

The principal changes are (1) vesting in The Assistant Secretary (or The Under Secretary) over-all supervision of Army logistics, (2) grouping of the seven technical services directly under the General Staff Director of Logistics, (3) grouping of the four administrative services directly under the General Staff Director of Personnel and Administration, and (4) creation of a Vice Chief of Staff and two Deputy Chiefs of Staff.



The new organization lies between the Army's organization in World War II and the set-up which has been in effect since mid-1946, and is designed to obviate the necessity for sudden change in event of emergency.

In connection with the Staff change, one of the two Deputies will supervise administration, and the other, plans and combat operations. The Vice Chief of Staff, a new post created in place of the old Deputy Chief of Staff position, provides the Chief of Staff with an alter ego whose official acts "shall be considered as emanating from the Chief of Staff and shall have full force and effect as such." In his new capacity, the Vice Chief of Staff will be available to release the Chief of Staff for field inspections at home and overseas, and for coordination with the military chiefs of the other defense departments. In all matters relating to the Army the Vice Chief of Staff will be principal adviser and assistant to the Chief of Staff.

The reorganization will require no increase in number or rank of personnel in the Department, and all positions will be filled by officers now on duty in Washington. It is in fact expected that the reorganization plan will effect an eventual overall saving in staff personnel.

Seated, left to right: Mr. William H. Draper, Under Secretary of the Army; Secretary Royall; General Omar N. Bradley. Chief of Staff. Standing, left to right: Lt. Gen. Albert C. Wedemeyer, Deputy Chief of Staff for Plans and Combat Operations: Mr. Tracy S. Voorhees, Assistant Secretary of the Army; Mr. Gordon Gray, Assistant Secretary of the Army; General J. Lawton Collins, Vice Chief of Staff; Lt. Gen. Wade H. Haislip. Deputy Chief of Staff for Administration.

The four administrative services which will be directly under the Director of Personnel and Administration are: Adjutant General, Provost Marshal, Chief of Chaplains, and Special Services.

The seven technical services which will be under the Director of Logistics are: Chemical Corps, Signal Corps, Medical Department, Corps of Engineers, Ordnance Department, Transportation Corps, and Quartermaster Corps.

Other salient points of the reorganization are: (1) Transfer of the Judge Advocate General's Office from the Administrative Services to the Special Staff; (2) Transfer of the Legislative and Liaison, Public Information, and Army-Air Force Troop Information and Education Divisions from the Special Staff to a new grouping under the Chief of Information, directly under the Office of the Chief of Staff; (3) Transfer of the Office, Chief of Finance, from the Technical Services, and establishment of that office under the supervision of the Army Comptroller.

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PUBLISHED BIMONTHLY BY THE UNITED STATES FIELD ARTILLERY ASSOCIATION WHICH WAS FOUNDED IN 1910 WITH THE FOLLOWING OBJECTS—AS WORTHY NOW AS THEN

The objects of the Association shall be the promotion of the efficiency of the Field Artillery by maintaining its best traditions; the publishing of a Journal for disseminating professional knowledge and furnishing information as to the field artillery's progress, development and best use in campaign; to cultivate, with the other arms, a common understanding of the powers and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond; all of which objects are worthy and contribute to the good of our country.

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The FIELD ARTILLERY JOURNAL

"Contributes to the Good of Our Country"

VOL 39 **JANUARY-FEBRUARY, 1949** **NO. 1**

- Cover: A flight of B-29's in the first phase of "Combine III."

ARTICLES

ARTILLERY NOTES

OTHER FEATURES

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Air-Ground Warfare in Florida . . .

OPERATION "COMBINE III"

By Captain Gene A. Walters, Inf.

THE MISSION

THE BASIS of successful operations against an enemy is competent cooperation between the different armed forces and mutual understanding of the capabilities, methods of employment, and tactical doctrines of each other. This is a particularly desirable relation which must exist between Ground and Air Forces in the majority of land operations. The effectiveness of air-ground cooperation attained in World War II indicated a dire need for promulgating and furthering the development of this relationship. It was deemed axiomatic, therefore, that all branches must continually strive for the ultimate coordination in peace time if this goal of successful prosecution of operations against an enemy is to be attained in war. In furtherance of this relationship, a mock warfare, termed Operation "COMBINE III," was presented as a means of concisely and accurately disseminating tactical air doctrine and methods of air-ground operations.

The overall mission of Operation "COMBINE III" was to familiarize junior and senior officers of the Armed Forces with the capabilities and limitations of air power, and to portray the achievements made possible by close and adequate air-ground cooperation. The basic problem involved in joint air-ground action is the preparation and execution of a fire plan which is so concentrated and designed as to render maximum aid to the supported ground units in attaining their objective. Joint planning and target selection seeks to integrate the fire power of all forces so as to use to best advantage the capabilities of each weapon employed. The primary mission of Operation "COMBINE III" was that of general orientation in the many intricate problems of teamwork necessary to achieve these aims and, therefore, required of all forces involved in joint air-ground action.

Under the responsibility of Tactical Air Command's Ninth Air Force, Operation "COMBINE III" was presented in cooperation with Third Army, Air Fleet Marine Force Atlantic, Commander Air Atlantic Fleet, Strategic Air Command, Twelfth Air Force, and the Air Proving Ground Command. Representing the Third Army in this operation was the 505th Airborne Infantry's formidable, well-rounded 3d Battalion Combat Team (reinforced) of the 82d Airborne Division, namely: 3d Battalion, 505th Airborne Infantry

Battery "B," 376th Airborne Field Artillery Battalion

Company "B," 758th Heavy Tank Battalion

Battery "B," 98th Field Artillery Battalion

Detachment, 82d Airborne Parachute Maintenance Company

Detachment, 82d Airborne Military Police Company

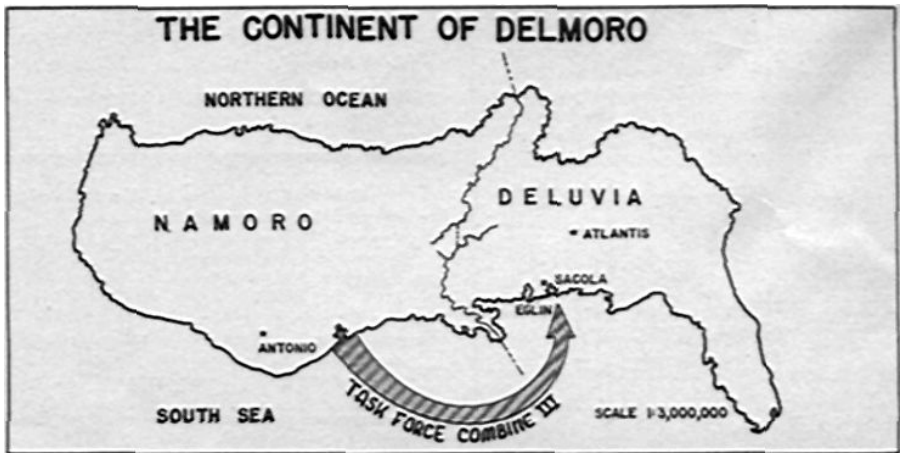
In the presentation of "COMBINE III," two separate and distinct methods of instruction were utilized. The first (the theoretical side of the mission) was accomplished by means of skits, demonstrations, and static displays. The second (the practical side of the mission) was accomplished by actual demonstrations of tactical air power working in cooperation and conjunction with the above-listed army units.

During the period 4 October to 10 November 1948, Operation "COMBINE III" was presented visually at Eglin Air Force Base, Florida, to various civil dignitaries, and to United States Army officers and officers of allied nations attending ten of the foremost service schools of the Air and Field Forces. In presenting Operation "COMBINE III," six distinct exercises, each of three days' duration, were presented to combined student bodies of the various service schools.

THE SITUATION

A hypothetical and unique background, as the military situation for this operation, was invented, based upon the varied aspects of a surprise offensive. The situation involved two imaginary adversaries, NAMORO and DELUVIA, sharing the island continent of DELMORO. These two nations had engaged in periodical warfare for over 500 years with neither being able to achieve a decisive victory over the other. Each nation was approximately equal in land area, population, raw materials, and industrial capacity. The opposing armies, navies, and air forces, in size and equipment, were approximately the same although differing in organization. The NAMORAN military establishment was more comparable to that of the United States in that their Army, Navy, and Air Forces were each independent but unified at high level.

In view of intelligence reports to the effect that DELUVIA was again contemplating the undertaking of a war of aggression within the near future, NAMORO, for the first time in history, had decided to become the aggressor. NAMORO hoped to achieve a decisive victory primarily through her



unified military establishment, through her well trained and equipped airborne armies, her more advanced strategic, tactical, and troop-carrier air forces, and through fast, mobile land armies reaching the capital and industrial centers of DELUVIA in a very short time. By attacking first, the element of surprise was to have been a decisive factor in permitting NAMORO to overwhelm DELUVIA and to achieve a decisive victory.

THE PRESENTATION OF SKITS

The initial phase of the exercise began on Monday morning of each week. A series of skits, with short commentaries inserted to show a continuity of planning, were the basic vehicles of instruction pertinent to the academic portion of the exercise. These dramatized skits, six in number, portrayed broadly an ideal of integrated Army, Air, and Naval Forces in action in the operational planning stages for and during action. The skits depicted the planning for and implementation of the general plan of operations from the highest level in the NAMORAN Government down to and including infantry battalion combat-team level. They established the plan of operations for the Task Force Combine III and the actual Wednesday morning Army-Air demonstration which was shown to the student officers.

The opening skit presented a "top secret" meeting on D minus 90 in the office of the NAMORAN Secretary of National Defense. It depicted him briefing the Chiefs of Staff on the overall situation concerning the DELUVIAN demands on the NAMORAN oil fields. The general theme of this skit showed the implementation highlights of a defense plan alerted for immediate action and the necessary first steps for offensive action.

The second skit theoretically took place two months later, on D minus 30. The Supreme Commander of the projected NAMORAN Expeditionary Forces, together with the Joint Chiefs of Staff, outlined their plans in overall strategy to their Civilian Chieftain, the NAMORAN Secretary of National Defense. This skit portrayed the key battle plan for the offensive. Problems involved at this level, in addition to the role of air power, included timing of airborne and air-transport operations in conjunction with an amphibious assault.

The third skit, on D minus ten, portrayed the Supreme Commander as he monitored the coordination of final battle plans for Operation "COMBINE III" by the Task Force Commander, his integrated command staff, and their principal subordinates. At this time, the various plans for the launching of airborne troops, air power, the amphibious landing, logistics, resupply, and consolidation of forces were agreed upon.

On Tuesday, the three remaining skits were presented. Each of these carried the operation a little farther, and portrayed to the students the progress of the invasion. The fourth skit, on D plus 21, found the Third Army and the Ninth Air Force commanders and their key staff officers conferring on the general situation and outlining their plans for the final inland attack upon ATLANTIS.

The last skit of the day, representing D plus 30, took place in the forward field command post of one of the infantry battalion commanders. In this skit, the battalion commander and members of his staff discussed the plans for their attack, which was a part of the main drive on ATLANTIS.

In addition to the above skits, enacted on a theater stage, various demonstrations and displays of control facilities of a tactical air force were interestingly presented to the student officers. Among them were a joint operations center, a tactical air control center, and a tactical air direction center. Others included a tactical aerial reconnaissance demonstration and an air transportability demonstration.

AIR-GROUND DEMONSTRATION

The highlight and climax of each week's operation was the Wednesday morning air-ground demonstration. In presenting this combined-arm team in action, only a portion of the hypothetical operations of the southern task force, known as Task Force Combine III, was presented to the student officers and visitors. It was explained to them that they were privileged to observe the action and operation of this small part of a much larger force. Emphasis in the presentation was on the Army-Tactical Air Force operations. The plan of operations for Task Force Combine III was divided into three distinct phases in order to show how a tactical air force is employed in cooperation with army forces under different tactical situations. These three phases covered the hypothetical periods D-Day through D plus 18 for Phase I, D plus 19 through D plus 29 for Phase II, and D plus 30 through D plus 60 for Phase III.

Phase I

Phase I of the actual demonstration depicted the tactics and methods employed in obtaining air superiority and in preparing the airborne and amphibious landing areas prior to invasion by army forces. Also, in this phase was demonstrated the airborne and troop-carrier phases of operation in the establishment of an airhead.

The doctrine of joint employment recognizes without question that the gaining of air superiority is the first requirement for the success of any major land operation. Land forces operating without air superiority must take such extensive security measures against hostile air attack that their mobility and ability to defeat the enemy land forces are greatly reduced. The possession of air superiority means that destructive and demoralizing enemy air attacks against our ground forces will be minimized and the inherent mobility of our modern land forces may be exploited to the fullest. This first phase of tactical air operations (air superiority) is a counter-air force operation, designed to gain mastery of the air, not by plane-against-plane combat alone, but by the destruction of enemy aircraft on the ground, enemy airdrome installations, factories producing airplanes and parts, gasoline supplies, bomb and ammunition dumps, and lines of air-force supply. By destroying these things which the enemy requires for his application of air power—his gasoline supplies so his planes can't fly, his ammunition dumps so his guns are useless—and by preventing the enemy air force from building up through replacements, enemy air power is rendered impotent, and air attacks on our own troops are minimized.

Local air superiority over the airhead area is a fundamental prerequisite for successful airborne operations. Reasonable assurance of this requirement was accomplished by a logical and continuous

build-up in preparation for the initial airborne assault. The principal mission of airborne forces is to move by aircraft to attack, seize, and hold important objectives, pending the arrival of other ground forces, and to occupy or to reinforce areas which are beyond the immediate reach of other ground units but which are considered vital to the success of the main effort. The primary missions of the troop-carrier units are: to transport airborne forces into combat, to include the towing of gliders; to transport supplies and cargo; and to evacuate casualties. Since airborne forces possess great strategic mobility, they must take advantage of this by making the greatest possible use on the ground of speed, bold aggressive action, and surprise in the accomplishment of their mission.

The Pathfinders. Dropping by parachute in advance of the main airborne assault force was the airborne pathfinder team. This team, consisting of one officer and nine enlisted men, includes specialists in the use of radio, radar, visual, and navigational aids. It is their responsibility to precede the main airborne assault echelons to the proper drop zone by approximately fifteen minutes on a daylight operation. Upon landing, they recover and set up their equipment, contact their main assault force, and assist in directing the subsequent troop-carrier aircraft to the exact location to which they are to deliver the airborne troops and equipment. Personnel of pathfinder teams must not only be able to operate many and varied types of navigational aids, but also must be able to orient themselves quickly on the ground and protect themselves against enemy opposition until the arrival of the main assault force. A suitable drop zone should be sufficiently close to the objective so that airborne troops can attack with surprise, but beyond the range of enemy small-arms fire, if practicable, in order that the airborne assault units may be brought under effective command control before entering combat.

The Airborne Assault Force. The initial objective of the airborne forces was to establish an airhead in the EGLIN area on D-Day, with the mission of securing vital air fields and beaches for subsequent air and amphibious landings. Upon capture of these areas and installations, the lodgement was exploited by amphibious forces whose primary objective was the port of SACOLA and its major port facilities. After securing the port of SACOLA, additional army groups were landed and a major build-up effected, in order that a drive northward through the enemy's vital industrial zone might be effected. These airborne and amphibious assaults in the EGLIN area constituted but one phase in the over-all plan of attack against DELUVIA. In the visual presentation of this phase of the demonstration, an airborne battalion combat team, comprising only a very small element of the total force, was all that could be seen by the spectators.

The main airborne assault force was transported by troop-carrier C-82 aircraft. They were flying in a flight of three-ship-element "V" formations, in column. The formation used for the drop of paratroops varies with the size of the jumping elements, whether a day or night operation, the size and conformation of the drop area, and the tactical situation. However, to achieve a concentrated ground pattern in the jumping of parachutists, a flight of nine ships in a "V" of "Vs" formation is normally adopted as the basic flight formation. Even under the most favorable circumstances, parachute troops make a considerably dispersed landing.

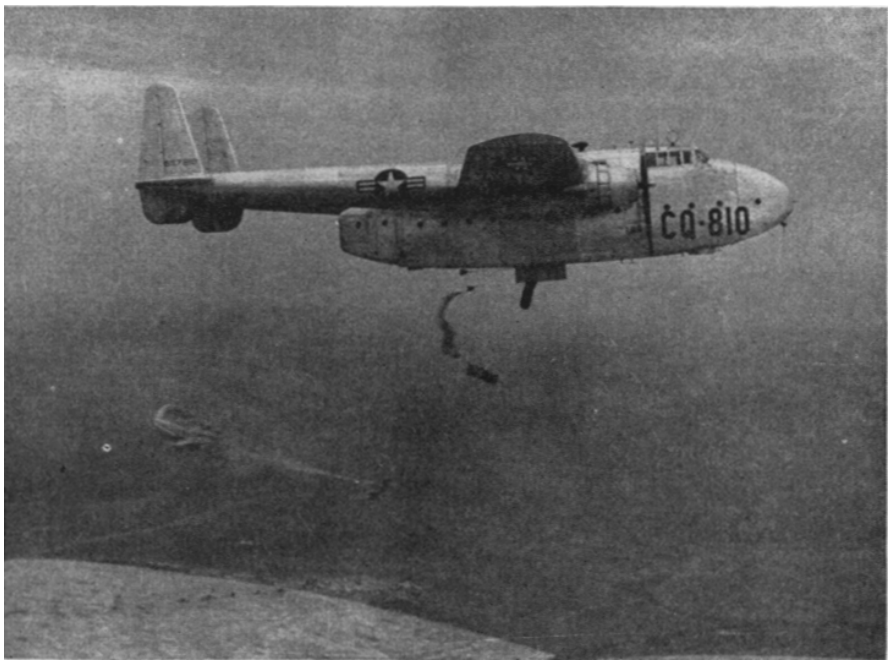
Since troop-carrier aircraft are unarmored and are highly vulnerable to antiaircraft fire and enemy aircraft, a very close cover must be maintained by the tactical air force in order to protect them in their flight to and from the drop zones. On airborne invasions, intense fighter cover is vital for protection of the troop-carrier serials. Therefore, on the day, or days, of the airborne operation, quite frequently every available fighter in the theater will guard the airborne movement.

Airborne troops are extremely vulnerable during their landing and reorganization. Therefore, the most critical period of an airborne operation is from the time of the landing until the troops are ready to move on to their objective, for functioning as a fighting unit is almost impossible until organization has been accomplished. The control and recovery of equipment is of vital importance in assuring rapid reorganization and movement of parachute and glider units from the drop zone. Immediately after reorganization, unless otherwise planned or ordered, troops will proceed on their assigned mission, exploiting speed, surprise, and aggressive action to the fullest.

The shock action and surprise employment of airborne forces produces an adverse effect upon enemy morale. The sudden destruction of vital installations or the surprise occupation of positions by airborne forces tends to disorganize the enemy and decrease his capacity for coordinated action. In order to produce the maximum effect, airborne forces are normally employed in mass so as to overwhelm the enemy before he is able to prepare an effective defense or counteroffensive. The limited amount of equipment, transportation, and supplies that can accompany airborne troops determines their ability to maintain effective sustaining action. Therefore, the overall plan of employment of airborne forces must include a time when support or link-up is expected from cooperating ground and air forces. Although the mission of airborne troops in the initial phase of an operation is usually one of offensive action, a transition to defensive action, in holding the position or objective, is normally required pending reinforcement by other ground troops. Once the objective has been taken and defensive positions established, it is most important that the force constantly harass the enemy, raid his installations, disrupt his communication, maintain vigorous counter-patrol activity, and ambush his forces.

The Airborne Artillery. Following closely behind the attacking infantry came the airborne artillery battery, which was initially attached as an integral part of the airborne battalion combat team. In order to facilitate and expedite control, it was deemed more desirable to drop the field artilery battery as a unit, rather than with the infantry assault echelons.

The primary mission of the airborne field artillery was to assist the advance of the infantry by furnishing close fire support and by neutralizing or destroying those targets which were most dangerous to the assaulting infantry forces. After the battery had dropped, the pieces were assembled by section and, where necessary, went into action immediately



75-mm pach howitzer loads start their drop from a C-82.

as individual sections. Every effort was made, however, to speed the assembly and reorganization of the sections of the battery so as to permit the fire power of all pieces to be employed as a unit.

The movement of weapons, supplies, and ammunition in an airborne field artillery battery which is committed by parachute must be accomplished by hand or by captured transportation until gliders arrive with prime movers. Since the initial ammunition supply is limited and resupply is often difficult, conservation of ammunition must be considered essential. The first round is often fired at the actual target, since there may be little or no time in which to register prior to the taking of the initial target under fire. Because of the fluid situations frequently encountered in airborne operations, individual sections and even the battery must be prepared to shift fire readily and support an attack in any direction, to the front, flanks, or rear. For the protection of reorganization areas, initial fires are frequently of a defensive nature. For the delivery of fires in close support and for local security, fire on targets is often by direct laying. Initially, little opportunity will exist in airborne operations for the delivery of fires other than by forward-observer methods. Of course, when opportunity permits and when the objective has been secured, the initiation of surveys will be undertaken, utilizing methods most appropriate to the particular situation. (For a detailed discussion of the types, organization, weapons, transportation, and employment of airborne artillery, see the Nov.-Dec. 1947 issue of THE FIELD ARTILLERY JOURNAL.)

The Glider Serial. The heavy wallop and mobility of an airborne force is transported by the gliders. Normally they are employed initially in an airborne operation to carry the essential transportation for command, heavy weapons, artillery pieces and ammunition, items of heavy equipment and supply, and the necessary personnel to handle and operate such. Since the gliderborne element was carrying just such a load belonging to the elements already committed by parachute, and was not an independent, integral fighting unit itself, it was landed in the area already secured by the parachutist elements. This, however, does not preclude the need to provide their own security; the glidermen must be prepared to fight in order to clear their landing zone prior to unloading. On the other hand, had the gliders been transporting an independent and complete fighting unit, they might have landed either as described above, or simultaneously with the parachutist elements in an entirely different area. As a rule, though, parachute and glider serials are not landed simultaneously unless a definite requirement exists for such simultaneous saturation of the enemy defenses.

The glider serial, transported in CG-15A gliders, came in for their landings within a few minutes after the airborne artillery had landed and reorganized. Each C-82 towed two of the CG-15A gliders. This type of glider is capable of carrying sixteen people, a ¼-ton "jeep," a 75mm howitzer, or some similar type load not exceeding 3500 pounds. One of the remarkable things about this type of glider is its capability of landing in a very small area. Its landing speed is approximately sixty miles per hour. Under normal daylight conditions,

Airborne cannoneers landing beside howitzer loads already landed.

these gliders can land at the rate of fifteen to twenty per minute when in double tow and when tow planes are echeloned in elements of two. Prior to releasing the gliders, a ten-minute warning of cast-off is normally given to the glider pilot by the tug pilot. The command to cast off is given by the tug pilot when at appropriate position on the final approach leg. The warning and order to cast off is given over an intercom system and confirmed by the use of an Aldis lamp. However, in the absence of intercom facilities, complete reliance is placed upon the Aldis lamp. Upon being released from the tug plane, the glider pilot must establish a definite rate of descent and take into precise account the direction and velocity of the wind. Immediately upon landing, the glider pilots will assist in unloading the supplies and equipment, and then proceed with the troops from their gliders to the airborne unit reorganization area. Here, they are organized under the senior officer or glider pilot and utilized at the discretion of the airborne commander. The glider pilot should be a qualified infantryman, as he is frequently used for such duties as the defense of command posts, the guarding of prisoners of war, the collection of supplies, and the protection of supply dumps.

The Unit Aerial Resupply. Airborne troops upon landing carry with them only enough equipment and supplies to last a very few days. Therefore, their resupply is considered vital and must begin as soon as possible, pending the arrival of or link-up with other ground forces. The aerial resupply for the battalion combat team was a preplanned mission by parachute delivery, flown by C-82's. A special code system was used, utilizing colored canopies and aerial-delivery containers designating the class of supplies that had been set up. Supplies of the different classes were so distributed in the loading plan that the loss of any one aircraft would not entail the loss of the total amount of any one item. The battalion supply point for the essential combat supplies was located relatively close to the troops being served, in order to obtain the security provided by the combat elements, to prevent them from being cut off by infiltrating hostile forces, and to shorten the vital supply lines.

In the early stage of an airborne operation, plans for the resupply of the airborne forces must be completed and coordinated between the troop carrier and airborne staffs. The airborne resupply plan usually involves two different types of resupply missions. The first is the pre-planned mission in which a specific quantity and type of supplies are automatically dropped at a predetermined time and place in accordance with prearranged schedules. The second involves having supplies located at departure airdromes available to be flown in on call, as may be requested by the airborne commander in the event of an emergency.

Resupply by air may be accomplished by any one of four methods: by landing of transport aircraft, by glider landing, by parachute delivery, and by free drop. The dropping of supplies by parachute is normally used when other methods are not suitable, as it is the most economical method of supply when airplanes and gliders cannot land. Parachute resupply is done at a speed of approximately 150 miles per hour and at a low altitude of from 300 to 500 feet in order to prevent a widely dispersed pattern. This is the method most frequently used for the resupply of assault airborne forces after they have landed, particularly when isolated.

Phase II

Phase II of the demonstration depicted how a tactical air force, in conjunction with elements of a strategic air force, is employed in isolating the battlefield and in preparing the ground for the next major attack to be made by army forces. In portraying this phase of the operation, planes of the Navy, Marines, and Air Force demonstrated various type missions, utilizing live ordnance. Typical missions flown were rocket and strafing attacks, skip bombing, dive bombing, strategic bombing, and photo and reconnaissance missions.

The second phase of employment of air power in conjunction with land forces is that of isolation of the battlefield—in other words, limiting the enemy's ability to fight effectively in particular areas. It is designed to prevent the movement of the enemy troops and supplies both into and within the areas being isolated. A large measure of isolation can be achieved by continuous, heavy air attacks upon the enemy's concentrations of troops, rear installations, supply lines, and particularly the lines of communication. In the accomplishment of this second phase of offensive air operations, both the theater and battlefield are "walled off," so that our ground forces are faced with a fixed opposition. These second-phase air missions are considered important in that they permit our ground troops to fight a weakened and "hamstrung" opponent. They keep the enemy aircraft "out of our hair," permit us greater freedom of movement, and at the same time deny that freedom to the enemy. Even though we in the ground forces see few, if any, of the air strikes, we should not feel that we have no air support. Ground units in close combat rarely see any of the missions and air strikes which isolate the battle area and which are so important a part of the Air Force contribution to joint victory.

Phase III

The final phases of the Wednesday air-ground demonstration consisted primarily of the ground phase, which showed a reinforced battalion combat team in an attack, as a part of the hypothetical main drive on the DELUVIAN capital, ATLANTIS. This demonstration was designed and presented to emphasize the tactical employment and methods of coordination of the team of combined arms—the tank-infantry-artillery-air force team in an attack upon a limited objective. The action involved a battery of 155mm howitzers, a battery of 105mm howitzers, and two platoons of a heavy tank company operating with an infantry battalion. In general, this demonstration highlighted a pre-planned airstrike, the fires of the artillery and other supporting weapons, the launching of the attack, the coordination between the infantry and the tanks as they moved to successive objectives, the utilization of air support, and the cooperation between all members of the team.

The third phase of tactical air power, as demonstrated in this phase of the operation, is that of providing direct ground support. Of paramount importance in this phase is ground-air planning and coordination. The basic consideration in ground-air planning, in the battle area, is to so integrate the fire power of all arms that the infantry

can advance rapidly with a minimum of casualties. The airplane, along with the artillery, the tank, and the infantry weapons, is a source of fire power. This third phase contemplates the actual dropping of bombs and strafing right in front of the infantry, in accordance with prior plans and upon the request of ground commanders. To a very great extent, this phase depends for success upon teamwork, cooperation, and effective communications.

Artillery Adjustment by F-80 Jet Aircraft. As a part of this phase in the demonstration, F-80 jet-propelled, high-performance, fighter aircraft were used in the adjustment of heavy-artillery fire. Although the use of aircraft for artillery observation is not a new idea, it is quite logical that, in using long-range artillery, high-performance aircraft may be used to more advantage than the liaison plane, long used as an air OP. The use of tactical reconnaissance squadrons, in assuming the task of artillery adjustment, is merely another method of support in this third phase of air-ground cooperation. The very nature of their work often takes them into the normal artillery-observation area on reconnaissance and photo missions. Tactical reconnaissance pilots were used to adjust heavy-artillery fire from high-performance aircraft, to some extent, during the final stages of World War II in Europe.

Tac/R pilots normally employ one of two basic methods of adjustment. The first, bracket fire for neutralization, is the currently prescribed procedure and the one demonstrated in the COMBINE III operation. It is the normal aerial adjustment used by the forward observer, determining errors in yards and then transmitting the corrections in yards to the fire-control unit. The second method, precision fire for destruction, is now considered outmoded. This method, as used somewhat during the latter phases of World War II, was not so much an adjustment as it was a report of rounds fired. The observer attempts to get an accurate correction on his target instead of bracketing. This procedure proved ineffective on small fixed targets, where direct hits were essential for destruction.

One of the most important things a pilot observer has to remember in adjusting artillery fire is the gun-target line. His target map or photo should have the GT line plotted, in addition to containing grid squares to assist him in estimating corrections.

CONCLUSION

Having accomplished its training mission in a unique mock-warfare style, Operation "COMBINE III" came to its conclusion. It was logically portrayed and emphasized in various forms that success in battle can be assured only when there is complete cooperation of all arms.

No one arm wins battles alone. The combined action of all arms, employed in a coordinated manner, is essential for the teamwork upon which success in battle depends. Since tanks, infantry, artillery, and air are, at times, so closely linked together in purpose on the battlefield, it is essential that the doctrines, powers, and limitations of each be thoroughly understood by the others. Only when this knowledge and understanding has been achieved by all arms can real success in battle be expected.

AIR OP ACCIDENT PREVENTION

Prepared in the Air Training Department, The Artillery School

AIR OP accident prevention is compounded of 40% discipline, 40% supervision, and 20% superstition. Certain accidents occur as a result of the type of flying which the Air OP is required to do. The unit commander should accept the risk of these accidents as a necessary concomitant of having effective air observation. Other accidents, however, are not only unnecessary but can be avoided. It is important for the peace of mind of the unit commander that he be able to differentiate between routine mishaps and preventable accidents.

The routine accident happens during supervised training. While practicing a power approach to an authorized strip in accordance with the drill schedule, the pilot misestimates his touch-down spot and runs off the end of the strip, damaging the airplane. Or again, at an authorized place and in accordance with the drill schedule, the pilot is practicing road landings. A tire blows out and the airplane swerves into the ditch and is damaged. The essence of these accidents is the risk inherent in operating in restricted areas. There may, of course, be a suspicion that the pilot's judgment was at fault to some degree. But on the whole, since they happened at an authorized time and place, and since the pilot was practicing what he was supposed to be practicing, they have the appearance of being routine mishaps. Either accident happening on a weekend would arouse the suspicion that the flight was not supervised.

The type of accident which can be avoided arises from more complex factors. Not the least of the factors is the attitude of pilots. More or less subconsciously, most pilots feel that as far as their own flying is concerned, they will be safe enough if the engine continues to operate and if the airplane structure holds together. They must have this feeling in order to have made the psychological adjustment which enables them to continue flying. In fact, a good part of flying instruction is devoted to developing just this attitude.

The same pilot who holds this view with regard to his own flying will examine the circumstances of another pilot's accident and say that it was caused by an error in judgment, technique, or plain thinking. The pilot is likely to conclude that *he* would not have been involved in that particular accident. The truth of the matter is that all pilots receive substantially the same training, and the differences in flying technique and skill among rated pilots are smaller than one would suppose. If a dozen pilots have been involved in a particular type of accident, the chances are that there are many who are susceptible to the same risk.

The knowledge of this susceptibility should be an aid to unit commanders in the prevention of accidents. Jeep drivers and motorcyclists are also susceptible to accidents, and yet some units have accidents and some do not. The problem

is one of command. An examination of pitfalls into which many pilots stumble may indicate corrective action which a unit commander can take before his airplanes are involved in an accident. In order to do this, a number of case histories of actual accidents are given later in the article with a discussion of the factors involved in each and, just to be sure that the point is not missed, some rules for the guidance of the unit commanders are given.

First, however, it will be better to dispose of the problem of maintenance. The modern light airplane and engine have been developed to the point where they are at least fool-resistant. If they are maintained on the same level as the other vehicles in the unit, there will be no more likelihood of sudden stoppage or sudden structural failure than in any other vehicle. Most maintenance trouble is detected during routine inspections. As with other vehicles which the unit commander inspects, he can at least inspect the airplane for cleanliness on the theory that a clean airplane has been thoroughly examined. As a matter of record, almost all Army light airplanes are structurally intact and the engine is running smoothly when the accident occurs. Therefore, with just those few words regarding maintenance, the subject will be dismissed.

Case 1: **A pilot with a mechanic for passenger was shooting landings on a Brodie device. No other flying personnel witnessed the accident. From the position of the wrecked aircraft and the testimony of the non-flying witnesses, it was apparent to the Accident Investigating Board that the pilot had entered into an intentional spin in order to lose altitude before making his approach toward the Brodie rig. The aircraft partially recovered from the spin, but struck a tree before recovery was completed and then dived into the ground. Both occupants were fatally injured.**

This case reveals serious violations of flying regulations. Spins are required to be completed 1,500 feet above the ground. It was obvious that this spin was entered below 1,500 feet and that the pilot had no intention of recovering until he was perhaps 300 feet high. Moreover, it is possible to state some additional facts with regard to the pilot involved. He had the reputation for being a good pilot, but reckless. His immediate commander had personally watched two or three incidents in which the pilot was tempting fate. The unit commander had done nothing about it.

Case 2: **A pilot was detailed to take an assistant G-3 to visit some training activities on a rifle range. After the visit was completed, the pilot and passenger took off. Within sight of the troops on the ground the pilot engaged in acrobatic maneuvers. Testimony of the witnesses indicated that these maneuvers were performed below the prescribed minimum altitude. In any event, from a spin which was intentionally entered, the aircraft did not fully recover and struck the ground in a near level attitude. The pilot received minor injuries; the passenger received major injuries; and the airplane was wrecked.**

Obviously, low - altitude acrobatics were the primary cause of this accident. There is another factor, however, in the presence of a large number of people watching the flight. Exhibitionism is a weakness to which many pilots have succumbed. There is a strong tendency to show off, and for that reason many aircraft accidents are witnessed by a large number of people. Why was the pilot performing acrobatics with a non-flying passenger?

Case 3: **A pilot on a night cross-country exhausted his fuel supply. He and the passengers jumped by parachute and avoided injuries. The airplane was wrecked. Investigation revealed that the pilot had not been checked out adequately in this airplane. He was not familiar with the symptoms of carburetor ice, which are different in this type aircraft from the symptoms in the types which he had previously flown. He was not familiar with the gasoline consumption rates and the effect of the propeller and manifold-pressure settings upon the rate of consumption.**

It is obvious that the unit commander in this case had not exercised enough supervision over his pilots. A good percentage of airplane accidents happen before the pilot has accumulated 25 hours in that particular type of airplane. The unit commander himself might not be familiar with carburetor ice and the effect of the propeller and pressure settings. He has a light-aviation officer who should be required to supervise the instruction of his pilots.

Case 4: **A newly rated pilot was dispatched on what was apparently a routine mission to assist in a search for property which had been lost. After the search was completed, he attempted to leave the scene by way of a draw between two hills. It was a hot day and the wind was blowing from over the hills down into the draw. The aircraft was not able to climb as fast as the ground rose. It flew into the ground and caught fire. The passenger escaped with major burns; the pilot, apparently pinned in the aircraft, was burned to death.**

The first few months after graduation from flying school are the most dangerous in the life of a pilot. In the first place, during his school flying, he was supervised closely. After completion of the course, supervision is likely to be haphazard. His unit commander expects him to be an expert on flying matters. It is well to remember that a newly rated pilot is technically qualified, but that his independent judgment depends upon experience which only comes with more flying time.

In this particular case, the scene of the accident was examined by a number of experienced pilots. It was obvious that the pilot did not recognize the dangerous situation arising from the wind direction, the temperature, and the formation of the hills. Accidents in similar situations have happened frequently. The draw was a trap which the pilot entered voluntarily and from which he could not escape. The unit commander can hardly be blamed in this case. Except, in general, newly rated pilots should be supervised closely by the unit light-aviation officer during the first months after graduation.

Case 5: **An experienced pilot was dispatched on an extended cross-country with a high-ranking passenger. The weather was bad, but predictions indicated that conditions would improve as the flight proceeded. The ceiling was low and there were scattered showers. On the strength of the predictions of improving conditions, the pilot continued into the area of rain squalls and lowering visibility. He came to the point finally from which it was no longer safe to continue the flight and from which he could not turn back since the weather had closed in behind him. He made a forced landing in the only available area. The airplane was not damaged, not were the passenger or pilot injured. However, it took a week of expensive effort to extricate the airplane.**

The bad weather and the predictions of improving conditions were factors in this accident. On the other hand, human elements also contributed. Since the pilot was carrying a senior passenger,

he felt a certain amount of pressure upon him to complete the flight. This is the dangerous element in weather flying. Both the pilot and his passenger always want to complete the flight according to plan. Sometimes the pressure may be applied intentionally.

Case 6: **Two soldiers without previous flying experience took an L-4 type aircraft from a flying field and took off. Within a very few minutes the airplane dived into the ground, killing both occupants.**

Security of airplanes at the unit landing strip is just as much a problem to a unit commander as the security of his other vehicles. All airplanes tempt a certain type of mentality and this is especially true of light airplanes. Although they are simpler to fly than some of the heavier types, they are capable of being just as permanently fatal.

This is by no means an exhaustive study of the factors in Army aircraft accidents. From these cases it is possible to write a number of comments which a commander should follow in dealing with his light airplanes. If he does follow them, there is no guarantee that he will have no accidents, but if he does not follow them, accidents will be inevitable.

1. Pilots have reputations among other pilots, particularly regarding judgment and common sense. Find out what reputations pilots have and be guided accordingly.

2. Coming events cast their shadows before. Therefore, take prompt action to suppress obvious cases of "hot piloting" and violations of the rules.

3. Prohibit acrobatics on routine missions. These maneuvers are for pilot training and should not be attempted with passengers.

4. Require that the light-aviation officer check out each pilot thoroughly in each type of aircraft. Be especially careful about this when new types are received.

5. Require the light-aviation officer to exercise close supervision over newly rated pilots.

6. Encourage pilots to exercise their own judgment on the weather. Do not allow pressure to be put upon the pilots, directly or indirectly, to proceed into bad weather when their judgment tells them otherwise.

7. Provide adequate security for your airplanes on the ground.

The superstitious element in the prevention of air OP accidents is based upon bitter experience. One division overseas lost six people killed and two seriously injured in air OP accidents which were not associated with enemy action. Not one of these accidents occurred during scheduled or supervised flying training. A record such as this arouses the superstition that accidents do not happen during scheduled training periods.

By present directives, light-aviation pilots are required to log a minimum of 100 hours pilot time per year, including 15 hours of night time. Although 100 hours does not sound like much flying, if a pilot gets behind in his flying time, it becomes difficult to catch up. If he is flying locally an excessive number of hours he is very likely to become bored and decide to do a little unauthorized flying in order to relieve the boredom. In this mental state, trouble is just around the corner.

The unit commander can minimize the likelihood of such unsupervised flying by integrating the flying training schedule with his unit training. Assume the training year to be from September 1st to August 31st, with the peak of the training year in the summer-month maneuvers. During the fall and winter, the flight-training schedule should correspond with the individual training in the unit. During the spring months, flight training will go hand in hand with the small-unit training. During the maneuver period, the light-aviation section will apply the training which has been accomplished during the year.

Elementary flight maneuvers should be reviewed over a period of two weeks with 10 hours of scheduled flying. During this period, pilots should receive dual instruction in elementary maneuvers from the most experienced pilot. The maneuvers should then be practiced by the pilot individually under the supervision of the designated instructor. This review period will serve to sharpen up the pilot's technique and prepare him for the next stage in the training program.

During the next six weeks, the training program should schedule 30 flying hours of flight training in power approaches, short-field techniques, crosswind techniques, and road landings. For this training period, special equipment will be required. Barriers should be constructed from materials available locally and landing strips of increasing difficulty should be marked off. During this phase also, the training will be conducted under the supervision of the light-aviation officer or the most experienced pilot.

Next in the training schedule should come navigational training. Three weeks should be ample for a review of the fundamentals and for practical application in extended cross-country flights. The most elementary forms of pilotage should be reviewed as well as radio navigation. Approximately 20 flying hours should be devoted to this review.

Following the period of daytime navigational training, a two-week period should be devoted to night flying. This should include a night check out, dark-field techniques, the use of flares, and night navigation. Fifteen flying hours should be devoted to this phase.

At about this time in the training year, the unit should be ready to take up the problem of observer training. The program should be put under the light-aviation officer with the use of all pilots as assistant instructors. Following the observer-training period, the air section should accompany the elements of the unit during small-unit exercises. Finally, the maneuver period will provide an adequate test for the training of the pilots.

If a schedule similar to this is followed, each pilot will receive considerably more than the minimum of 100 hours of pilot time during the year and, what is more important, most of this flying will have been done under supervision. The air section will become increasingly effective and it will be integrated in the unit training program.

In conclusion, air OP accident prevention is closely allied to the unit training program. If the unit commander takes an interest in an air section, supervises its flying, and schedules the flying training hand in hand with the unit training, the likelihood of non-routine air OP accidents will be diminished.

Minutes of the Annual Meeting of the United States Field Artillery Association, 13 December 1948

IN ACCORDANCE with the call of the Executive Council, the thirty-ninth annual meeting of the United States Field Artillery Association was held at the Army and Navy Club, Washington, D. C., at 5:30 P.M., 13 December 1948. Lieutenant General Raymond S. McLain, President of the Association, presided at the meeting.

A quorum was present for the transaction of business.

It was moved, seconded, and carried that the reading of the minutes of the 1947 annual meeting be dispensed with, since they had been previously printed in the January-February 1948 issue of the JOURNAL.

The President called upon the Secretary-Editor and Treasurer to present his report.

REPORT OF SECRETARY - EDITOR AND TREASURER

Membership status. There appears a slight decrease, about 250. Most of this is the result of non-renewal of a bulk order for 225 subscriptions from a news agency. These expired with the last issue. We have written the agency and still hope to get the renewal of the order, in whole or in part.

Miss Pedigo's Annuity. In accordance with the recommendations of General Blakeley's special committee, as approved by the Executive Council, the Association purchased Miss Pedigo a deferred annuity (she paying a portion of the cost), to bring her in $25 per month commencing on her 65th birthday. The Association's share of the cost of this "Social Security" was $2,380, which is somewhat lower than the estimated cost, $2,775, given in the committee's report. Miss Pedigo asked that her sincerest thanks and appreciation be expressed to the Association in general and the Executive Council in particular for this award. We feel that this is a well-deserved recognition of her 20 years of faithful and unselfish service to the Association.

Report of the Auditing Committee. The Auditing Committee, consisting of Lt. Col. Douglass P. Quandt and Maj. Michael F. Bavaro, reported as follows:

"The cash-book and certain vouchers and cancelled checks of the Association have been examined and found to be correct and in accordance with the summary statement of the Treasurer for the period ending Nov. 30, 1948.

"A spot check of the paid subscription list was made against the mailing list.

"The attached statement of securities, held by the Washington Loan and Trust Company for the United States Field Artillery Association was examined and found to be in accordance with the summary statement of the Treasurer."

FINANCIAL REPORT

FOR YEAR ENDING 30 NOVEMBER 1948

ASSETS Nov. 30, 1947			
Government appreciation bonds	$14,888.40		
All other bonds and securities	9,954.40	$24,842.80	
Checking balance Nov. 30, 1947		6,293.79	
Inventory: furniture & equipment		3,251.49	
Inventory: books for re-sale		100.00	
Inventory: mailing supplies		150.00	$34,638.08
ASSETS Nov. 30, 1948			
Government appreciation bonds	$15,240.60		
All other bonds and securities	7,050.90	$22,291.50	
Checking balance Nov. 30, 1948		6,324.92	
Inventory: furniture & equipment		2,995.90	
Inventory: books for re-sale		—	
Inventory: mailing supplies		119.00	$31,731.32
Total decrease in assets of Assn. fiscal year 1948			$ 2,906.76
Cash value of securities 11/30/47	$24,842.80		
Cash value of securities 11/30/48	22,291.50		
Net *loss* in value of securities f. yr. '48		$ 2,551.30	
Inventory: furnit. & eqpm. 11/30/47	$ 3,251.49		
Inventory: furnit. & eqpm. 11/30/48	2,995.90		
Net *loss* in value fnit. & eqpm. f. yr. '48		255.59	
Inventory: Books for re-sale 11/30/47	$ 100.00		
Inventory: Books for re-sale 11/30/48	—		
Net *loss* in value of books f. yr. '48		100.00	
Inventory: mailing supplies 11/30/47	$ 150.00		
Inventory: mailing supplies 11/30/48	119.00		
Net *loss* in value of m/s f. yr. '48		31.00	
		$ 2,937.89	
Excess of receipts over disb. f. yr. '48		31.13	
Net loss, fiscal year 1948			$ 2,906.76

COMPARATIVE STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR YEARS ENDED NOVEMBER 30, 1947 AND 1948

	1947	*1948*
Receipts		
Membership dues and subscriptions	$15,676.99	$13,886.57
Book Department sales	10,721.29	9,247.77
Proceeds from sale of securities	—	3,571.50
Proceeds from sale of equipment	49.70	—
Interest received on securities	224.97	747.16
Miscellaneous	436.84	82.33
	$27,109.79	$27,535.33
Disbursements		
Printing & mailing FA JOURNAL	$10,848.05	$ 8,903.16
Authors, artists, and photographers	993.50	1,115.00
Job printing	730.45	158.68
Office equipment	203.49	—
Office supplies	274.33	168.07
Postage	1,028.83	698.18
Book Department puchases	7,793.54	7,538.27
Salaries	4,332.50	3,462.00
Rent	1,500.00	1,500.00
Telephone	260.97	311.78
Refund on dues	61.70	28.00
Insurance and taxes	27.05	2,433.60
Miscellaneous	1,039.88	1,187.46
	$29,094.29	$27,504.20

Comments on Report. Our financial status is on the whole encouraging. The net loss appears as $2,906. This, however, includes the unusual expenditure of the $2,380 for Miss Pedigo's annuity, leaving $526. About half of this is not actually a loss, as over $200 is due us, as of 30 November, from various PX's for books, sport prints, and lighters for which we have already paid the manufacturers. The net loss for last year was over $1,700, which it is seen has been substantially reduced. We hope that next year, with continuing good sales through our Book Department and possibly an increase in membership, we can show once again a figure "in the black." To raise the necessary cash to pay for the annuity, we disposed of most of our less liquid securities, which, to our pleased surprise, brought in about $1,000 more than their listed market value as of 30 November 1947. Of the securities now owned by the Association, valued as of 30 November 1948, at $22,291.50, all except about $1,500 worth consist of US Govt bonds.

The President then invited discussion of or questions about the report. There followed some general discussion of the report, during which various possible ways of increasing the membership were suggested and noted.

It was then moved, seconded, and carried that the report be accepted.

The President next called upon the Nominating Committee (Colonel W. S. Nye and Major M. F. Bavaro) to present their slate, which was as follows:

Maj. Gen. S. LeRoy Irwin vice Maj. Gen. A. C. McAuliffe
Col. John Lemp vice Col. John Lemp
Lt. Col. Lawrence M. Scarborough vice Col. C. H. Swartz

After opportunity had been afforded for further nominations, a vote resulted in the unanimous election of the choices of the Nominating Committee.

The meeting then adjourned.

Immediately after the general meeting the Executive Council met. The following officers were elected:

President — Lt. Gen. Raymond S. McLain
Vice-President — Major General Clift Andrus
Secretary-Editor and Treasurer — Colonel Breckinridge A. Day.

B. A. DAY
Col., FA
Secretary-Editor and Treasurer

Major General Stafford LeRoy Irwin graduated from the Military Academy in June 1915, and was commissioned in the Cavalry, transferring to the Field Artillery in 1920. As a member of the 11th Cavalry, in 1916, he joined the Punative Expedition into Mexico against Pancho Villa. During WW I he served with the 80th FA and as a gunnery instructor at Ft. Sill. During WW II he commanded the 9th Infantry Division Artillery in North Africa, the 5th Infantry Division in France and Luxemburg, and the XII Corps in Germany. He is a graduate of the FAS Battery Officers' and Advance Courses, the C&GSS, and the AWC, and served on the FA Board from 1937 to 1941. Following the war he commanded in turn the FARTC, the R&S Command, and the V Corps at Fort Bragg, N. C. He is now Director of Intelligence, GSUSA, and he and Mrs Irwin have quarters at Ft. Myer, Va. General Irwin is the son of another distinguished Field Artilleryman, the late Major General George LeRoy Irwin.

Lt. Colonel Lawrence M. Scarborough started his Field Artillery career in 1925 in the Virginia National Guard. He entered Federal service in February 1941 as a captain on extended active duty,

eventually reaching the grade of temporary colonel in 1944. He served successively as S-1 of the 111th Field Artillery, Commanding Officer of the 2nd Battalion, 228th Field Artillery, Executive of the 228th Field Artillery Group, Assistant G-4 of the 78th Infantry Division, and G-4 of the Chinese Combat Command. He is a graduate of the FAS Battery Officers' Course and of the C&GSC, and is at present on duty in the FA Branch, CMG, P & A Division, GSUSA. He was integrated into the Regular Army in October 1947 and was appointed a permanent lieutenant colonel in July 1948. Colonel and Mrs. Scarborough and their two sons live in Alexandria.

The Field Artillery Observation Battalion

(concluded)

Prepared in the Department of Observation, The Artillery School

COUNTERBATTERY RADAR

The newest of the three observation elements is radar. It was employed with varying success during World War II, and now, for the first time, is authorized in tables of organization. Radar has logically been placed in the field artillery observation battalion. Each observation battery has one radar platoon of two sections. Each radar section has a SCR-784 radar, with equipment and personnel to operate as an independent unit. All radar sections will normally operate under the centralized control of the observation battalion. They will be deployed across the corps front so as to obtain the maximum effective coverage of possible hostile artillery positions. If required, a platoon or section could be attached to a division operating alone, or be employed with division artillery headquarters or with the medium battalion of division artillery.

Radio energy, of the frequency used in radar, bears resemblance to the light from a flashlight. By using a parabolic reflector, the radio energy can be focussed into a narrow beam. This sharp-beam characteristic makes possible the determination of the direction to the target. A pulse of radio energy of extremely short duration (1/1,000,000 of a second) is transmitted along this beam. If these waves strike any change of medium (ground, metal, water, etc.) reflection will occur and a fraction of the energy will return along the beam to the radar set. Since these radio waves travel with the speed of light, the range to the object causing reflection may be found by timing (electronically) the interval from pulse transmission to echo return. The time interval between pulses is sufficient to permit an echo of one pulse to return from the particular radar set's maximum range before another pulse is transmitted.

The corps counterbattery radar (SCR-784) should not be confused with the divisional countermortar radar (AN/TPQ-3). The latter can only locate enemy mortars and adjust friendly mortar fire. The SCR-784 is far more versatile. It can locate hostile or friendly weapons and adjust friendly weapons, providing the trajectory meets certain conditions that are described later in this article.

The SCR-784 is a modified antiaircraft fire-control set. It consists of a trailer about the size of a light tank with a parabolic reflector mounted on the top. It weighs six and one-half tons but is at least as mobile as medium artillery. Its maximum range for counterbattery use is 28,000 yards. The time required to put the equipment into action is an hour or less. Once in operation it can be maintained in operation seven hours out of eight. The SCR-784 is capable of tracking a projectile in flight.

The individual radar site for the SCR-784 is normally 1500 to 4000 yards behind the front lines. If possible, the radar is located so that it will have a flank view of the projectile to be tracked. This is desirable because the long-side view of a projectile returns a far stronger echo to the radar set than the pointed nose. All objects intercepting the radar beam will return echoes to the radar. The echo strength at a given range will vary with the size and reflecting characteristics of the object. If the relatively strong echoes from ground forms are picked up at the same range as echoes from projectiles in flight, they will conceal the projectile echoes. To prevent this, the radar is sited in shallow defilade. Thus sited the only ground echoes are from the close-in screening mask (Fig. 3), which will not interfere with projectile echoes. Consequently the only objects giving echoes in the target area will be projectiles in the air. The survey requirements for the installation of the SCR-784 are the location of the radar and an orienting direction.

When searching for a hostile weapon the radar beam is depressed until it just clears the screening mask. This is the lowest elevation where an echo from a shell will not be lost in ground echoes (Fig. 3). At this elevation the beam is swept back and forth covering a fan-shaped area. When a shell echo is seen, its range and deflection are noted and the center of the beam is then laid upon that point. Although direction can be determined within one mil, any object within fifty mils of the center line will give an echo. This allows for a margin of error in noting the location of the first shell, or for a change of data on

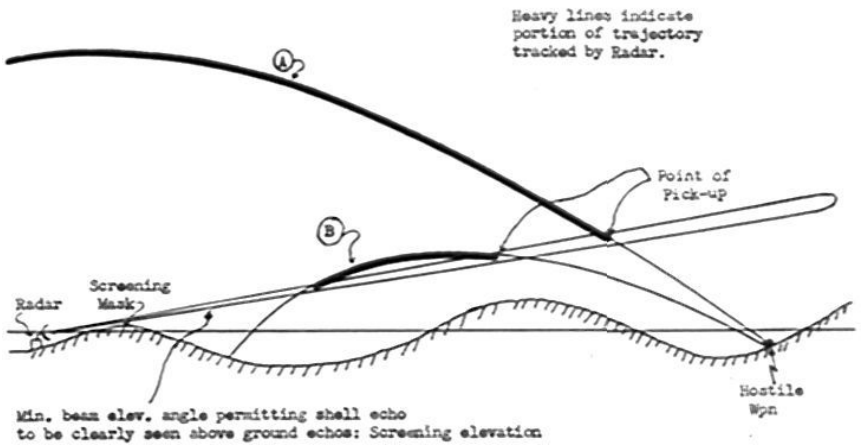


Fig. 3.—Favorable and unfavorable trajectories for accurate location.

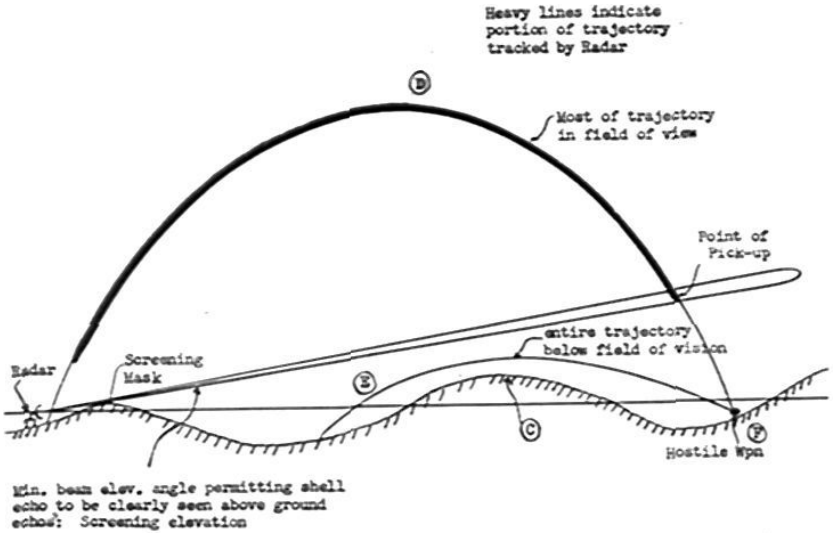


Fig. 4.—Ideal and impossible trajectories for locating hostile gun.

the hostile weapon. Having noted the first shell, rarely will the second not be picked up. When an echo appears from the second round, the radar is switched into "Automatic" and it automatically tracks the second shell throughout that part of its trajectory that is visible to the radar set. As it tracks the shell, the radar feeds data to the RC-308 plotter, which plots projectile height, slant range (radar to projectile), and azimuth (radar to projectile), all against time. A sketch representing a typical record made by the RC-308 is shown in Figure 5.

The projectile was detected at a point in the air (Fig. 4). From the record in Figure 5 the range and azimuth to the pick-up point can be determined; however, the range and azimuth to the weapon, or the point from which the projectile left the ground, are needed. Assuming that the weapon and the radar are at the same altitude, this would be the range and azimuth at the time the projectile's height was zero. Fortunately, the *height - versus - time curve* (not the trajectory) for any field artillery weapon or mortar is approximately the same parabola. Increasing the maximum ordinate merely increases the amount of the parabola plotted. Thus, a 75-mm gun firing at 6000 yards with a maximum ordinate of 3000 feet, and an 81-mm mortar firing at 2000 yards with a maximum ordinate of 3000 feet would produce the same shape curve on the time plot. Therefore a plastic parabola cut to the shape of this universal height-versus-time parabola can be used. To interpret the record as obtained from the RC-308 plotter (Fig. 5), this plastic parabola is fitted against the upward branch of the height curve (solid lines) and the height curve is extended to the line of zero height by tracing along the edge of the plastic parabola (dotted line). This is called extrapolating. We have now determined the time of zero height (or zero time). The azimuth and slant-range curves are extended (extrapolated) by use of a straight edge or French curve. Having extended these curves, we may now read the azimuth or range at zero time; these readings are used to polar plot the weapon from the radar position. Correction can be readily made for difference in altitude between the radar set and the weapon.

Using these methods, the SCR-784

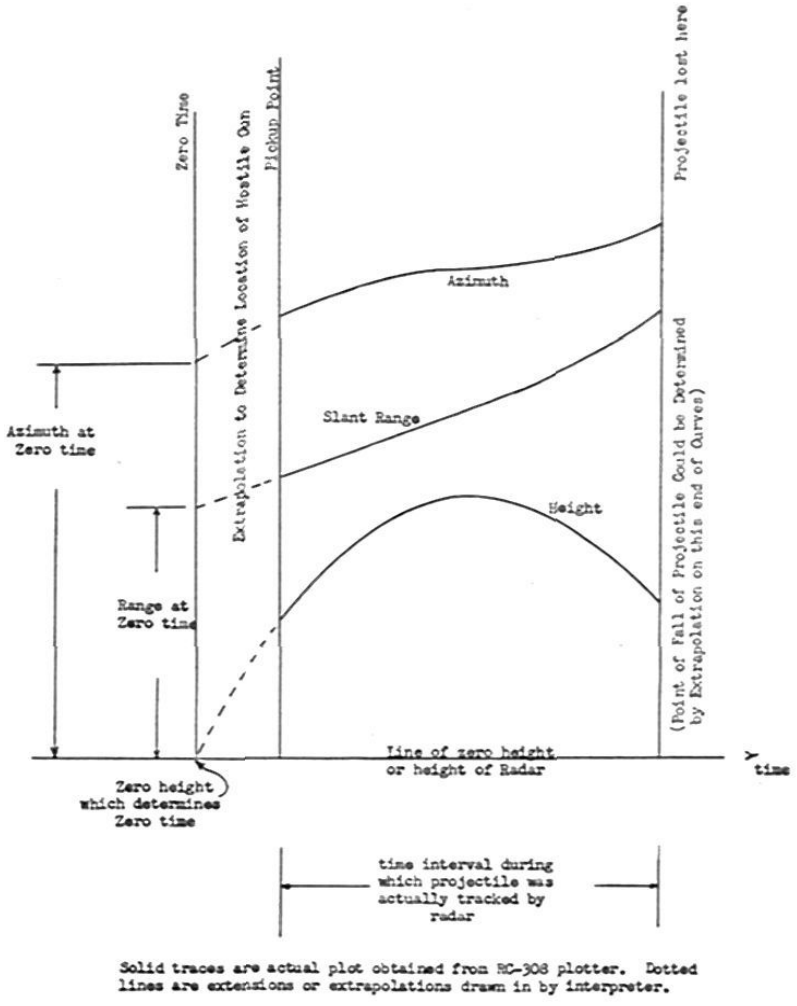


Fig. 5.—Record from RC-308 plotter with extrapolation.

radar can perform three useful missions:

(1) Location of hostile artillery or mortars.

(2) Adjustment of friendly artillery fire. This is done in exactly the same manner as hostile weapon location except that the opposite end or the descending branch of the trajectory is extrapolated to locate the burst. This capability is of great advantage during times of low visibility or when the target cannot be seen from ground observation posts.

(3) Perform approximate survey. This may be done by several different methods. One method is to locate the friendly guns with respect to the radar set just as a hostile weapon is located. Again, this could be done under conditions of zero visibility. The resulting survey could be tied into map control or used with assumed coordinates of the radar set.

The technique of weapon location by radar has been described in some detail because this technique causes many of the limitations of counterbattery radar. It is readily apparent that most of the location errors will result from faulty extrapolation of the range and azimuth curves. The shapes of these curves vary considerably as conditions are changed (muzzle velocity, elevation, the angle from radar to gunburst, and the range from radar to gun). In order to extrapolate these curves accurately back beyond the pick-up point, a major fraction of the trajectory must be tracked so that the true trend in each curve (range and azimuth) may be seen by inspection. The greater the distance that must be extrapolated, the greater will be the error in location.

With these considerations in mind, examine Figure 3. The weapon firing along trajectory *A* would give a comprehensive track since most of the trajectory is in the field of view. A weapon firing along trajectory *B* could be tracked for only a short distance, the distance to be extrapolated would be great, and it would be difficult to determine the trend of the range and azimuth curves from so short a track. The net result would be location of doubtful accuracy. As a conservative estimate, we can expect accurate locations (within 100 yards or less) when a trajectory's maximum ordinate reaches 3000 feet; this is based on experience in gently rolling terrain with radar - weapon ranges of 4000 to 8000 yards.

Figure 4 shows two extremes. Trajectory *D* would be ideal for radar location. However, a hostile weapon in the same location (F) firing along trajectory *E* could not even be detected. If the beam were depressed sufficiently to intercept trajectory *E*, the shell's echo would very probably be lost in the echo from the hill *C*.

The trajectory *B* in Figure 3 could provide some information. Knowing the projectile's height and its range and azimuth from the radar for a part of its trajectory, the ground trace of that part of the trajectory could be plotted. Extending the ground trace would give a ray passing within 20 to 50 yards of the weapon. By extrapolation we could get a location along this ray which would be certainly within 400 yards of the weapon. This information coupled with photo interpretation, a ray from a flash observation post, or a doubtful sound location might accurately locate the weapon.

The other limitations are not so complex. Mountainous terrain normally will increase the screening elevation, giving a higher pick-up point and allowing a smaller fraction of the trajectory to be tracked. A heavy rain will prevent the reception of echoes; any rain will weaken the echoes. Thunderheads may return echoes, thus interrupting or blocking a trajectory track. Since the nose of a shell is a poor reflector a weaker echo is returned from a shell coming directly at the radar. The radar can be jammed; however, owing to the extremely directional characteristic of the beam, the jamming station must virtually look down the radio beam.

It should be noted that in general the limitations of counterbattery radar do not apply to sound or flash. Also, the converse is true — the limitations of sound and flash do not apply to radar. This leads to the conclusion that radar is a complementary addition to previously existing weapon-locating agents. The addition of radar will fill in blank spots that have existed in the past and greatly increase the overall efficiency of counterbattery intelligence.

There are several immediately apparent advantages of this complementary action. During large-scale coordinated attacks in World War II, unlocated or newly arrived enemy batteries often caused serious difficulties. The tremendous volume of our own fire on enemy front lines and rear areas during the initial phases of such attacks rendered it difficult for sound, flash, and organic aircraft to locate these batteries. Radar has no such limitation; by merely noting the direction in which the range of the echo is changing a shell may be identified as incoming or outgoing. Another advantage of radar is its ability to determine both range and azimuth from a single position. Sound and flash both require the surveying of fairly long bases, for coordinate locations. This is not only time-consuming (three to eight hours) but presupposes a fairly long line of enemy contact. In a pursuit or rapid exploitation, neither the time nor the broad front of contact exist. Hence, radar lends itself far more readily than sound or flash to task force or divisional attachments for a pursuit action. These two capabilities, hostile battery location during heavy friendly fire and the adaptability to task-force attachment, are among the most striking improvements in weapon location offered by radar.

Figure 6 shows a theoretical tactical installation of the flash, sound, and radar elements of an observation battery. The battery should cover about one-third of the corps front. The reader should note that the flash observation posts are on the hills in the extreme background. Radar positions are located near sound microphones M_1 and M_6.

SURVEY

The observation battalion has as its main survey mission the coordination of survey of all artillery with the corps. All corps artillery is established on common control by planning and executing the highest order of survey within the field artillery. All sound microphones, flash observation posts, and radar installations must be located by precise survey. The survey information center of the battalion is an agency for the central collection and dissemination of all survey data in the corps zone. Stations are established to be used for instrument

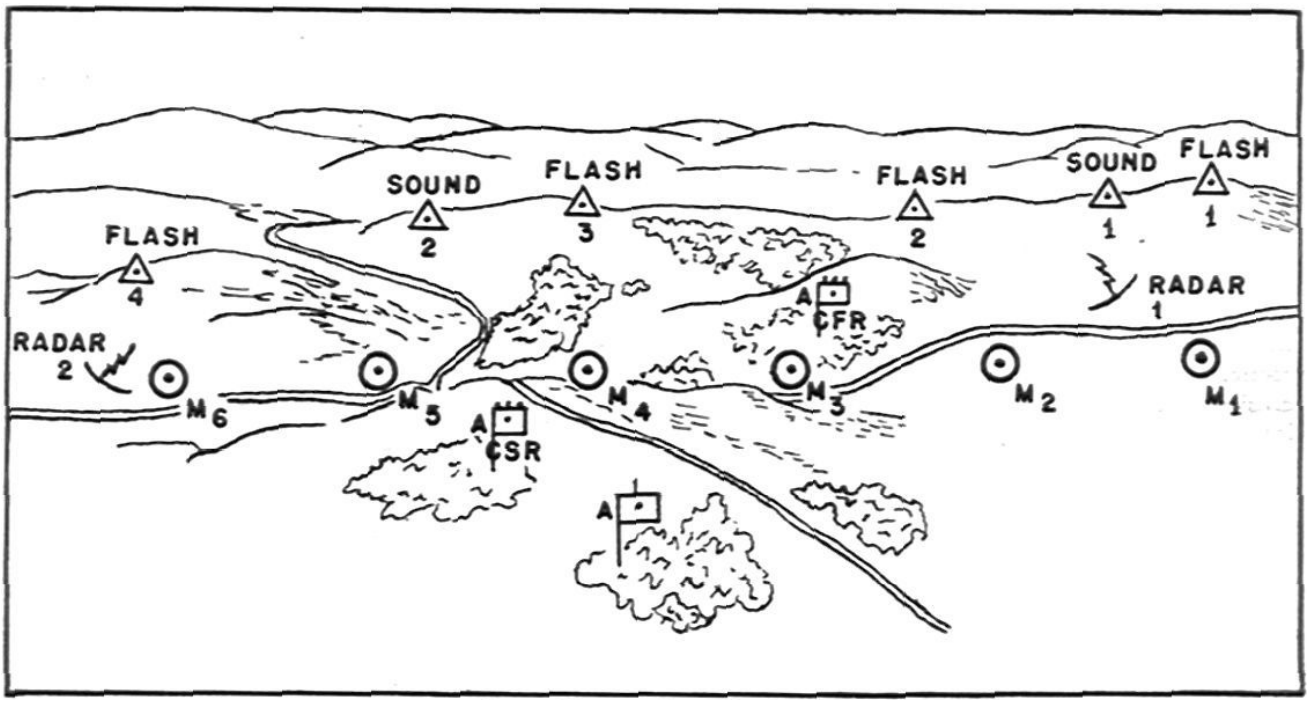


Fig. 6.—Observation battery installation.

declination within the corps.

The field artillery observation battalion is organized to provide sixteen complete survey parties. Four of these are included in the topographic platoon in headquarters battery. Each sound platoon and each flash platoon have a topographic section of two survey parties, or a total of four parties in each of the three observation batteries.

Normally, the headquarters battery survey parties execute the necessary survey to establish all corps artillery units on common control, while the observation battery survey parties are primarily concerned with the survey required to establish the battalion installations. This survey consists of locating sound microphones, flash observation posts, and radar positions on common control. However, the battalion survey officer may use any or all of the sixteen parties in any manner that will best accomplish the survey mission.

When an observation battery is detached from its battalion and attached to a division, it should be prepared to execute the same survey for the division as the battalion does for the corps. The battery survey parties may be required to provide the necessary survey control to place all artillery units with the division on common control, as well as perform the survey of sound, flash, and radar installations.

The observation battalion commander is the corps artillery survey officer. However, the new tables of organization provide for a battalion survey officer in the grade of major. This officer will be responsible to the observation battalion commander for the execution of the corps artillery survey. In that capacity his duties include extensive survey planning and the coordination of all survey done in the corps zone. He supervises the survey performed by attached engineer survey parties and all observation battalion parties. In addition he directs the establishment and supervises operation of the survey information center which has a survey warrant officer in charge. The observation battalion is responsible for establishing suitable survey control points to permit all artillery units with the corps to utilize a common control. Once common control is established within the corps, the relative locations of all artillery pieces and enemy targets can be determined. When this situation exists, the corps fire-direction center is able accurately and effectively to mass the fires of the artillery within the corps.

The corps topographic engineers are responsible for the extension of survey control from known points in the army area to points readily accessible to the observation battalion. However, when engineer survey control is not provided, the observation battalion adopts an arbitrary grid system and ties all artillery position areas, the target area, and the observation battalion installations to this common grid.

Three methods of survey are commonly employed by the observation battalion to carry survey control. These methods are traverse, triangulation, and resection—all adequately described in pertinent field manuals. Traverse is a method of extending survey control by means of a series of lines of measured length and angles. In triangulation, survey control is extended by means of a system of triangles starting from a line of known length. Triangulation is superior to traverse where the terrain offers many obstacles. On the other hand, where the terrain does not afford intervisible vantage points for triangulation, traverse methods are more practical. Another advantage of triangulation over traverse is that a minimum amount of linear measurements are necessary. This is particularly important for extending survey control over a large area such as a corps zone of action. The main disadvantage is the greater amount of computations required. Resection is particularly advantageous where time is a limiting factor.

It requires only a minimum of personnel, equipment, and work. It can be done by graphic or semi-graphic methods. However, resection is not used in preference to triangulation or traverse methods since it does not afford a satisfactory check on its accuracy. Usually the main network of corps survey control points is established by the observation battalion using triangulation methods. This network is further intensified using traverse methods to carry control for relatively short distances to division artillery, corps artillery battalions, and sound and flash bases.

The method used in survey for extending vertical control is trigonometric leveling. The difference in elevation between points is determined mathematically from the measured or computed distance and the vertical angle. This method is used almost exclusively, since the distance between the points is usually known, and the computations for determining the difference in elevation are very simple.

Astronomic observations are frequently employed by the observation battalion to obtain direction in survey situations when control is not available and to check direction during a survey. Such observations are also frequently used by other artillery units to provide precise orientation. By means of an astronomic observation, the direction of any line on the earth's surface may be determined. The azimuth of a line is established by angular observations from a reference point on the line to a celestial body (the sun during the day, and Polaris or any other identifiable star at night).

Astronomic observations provide directions accurate to within one minute or three-tenths of a mil. The actual observations with the transit can be accomplished in a few minutes and computations are relatively simple for properly trained personnel.

Since the observation battalion extends survey over large areas in establishing the survey control for corps artillery, it must execute this survey with a comparatively high degree of accuracy. The control points furnished to the artillery units must be of sufficient accuracy to permit effective massing of fires. Generally, the survey must be performed so that the ratio between the error in location and the distance covered is not more than 1 to 3000, and the azimuth is correct to within one half mil. To obtain this accuracy, certain procedures must be followed to verify the field work. Angles are measured by repetition with a 20″ transit and are checked and adjusted by closing the horizon. In triangulation, the number of repetitions is six—three with the telescope in the direct position and three in the reverse position. In traverse, the angles are measured twice with the telescope in direct position and twice in the reverse position, or a total of four cumulative readings. Horizontal distances are determined by taping distances twice, except in the survey of the battalion installations, where a single taping may be used. In long traverses, azimuth is checked approximately every 20 traverse stations by astronomic observations. Accuracy in triangulation is dependent to a large degree upon the shape of the triangles. All angles used in computations should be between 30° and 150.° As a final check of surveys, traverses are closed on known points and triangulation schemes are tied to known points if they are available. All surveys are closed when time and other factors permit.

The survey information center, now authorized in the field artillery observation battalion, gathers and disseminates the artillery survey information available within a corps sector. The field artillery observation battalion, the agency responsible for artillery survey within the corps, is the logical unit to operate the corps survey information center. During World War II, improvised survey information centers collected survey control data from army and corps topographic engineers, planned the survey for artillery use, computed and checked the survey of the field artillery observation battalion, set up declination stations, and gave the desired survey information to the artillery units.

Most information from survey information centers was given out through personal contact. This method provided a security measure in that the proper persons received the desired information. Since the survey information center has a complete picture of the ground control within its sector, it has proved itself invaluable in suggesting methods and procedures to artillery survey officers.

BALLISTIC METEOROLOGY

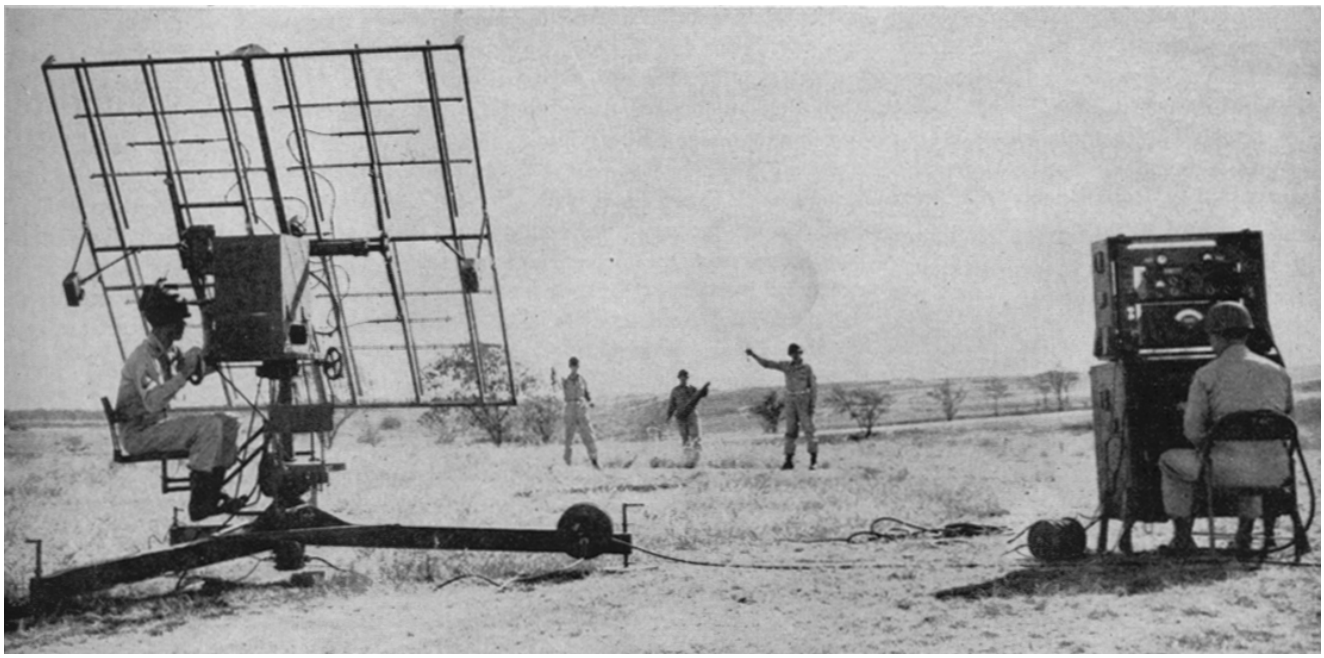
The fifth principal element of the observation battalion to be considered is the meteorological section. This important agency is part of the operations platoon of headquarters battery. It consists of a warrant officer and thirteen enlisted men trained to operate the modern electronic equipment now authorized the section.

The meteorological section is responsible for providing ballistic meteorological data for all corps artillery, and augments the metro data obtained with the visual equipment of the division artillery metro sections. It must also furnish wind and temperature data to the three sound-ranging platoons of the observation battalion. The meteorology section furnishes information to the Air Force upon request, but is not responsible for weather forecasting.

Metro data is required for accurate fire with the larger-caliber weapons at long ranges, and is of great value under normal weather conditions in firing the first rounds of observed fires at all but the shortest ranges with light weapons. The greatest need, of course, exists when visibility is limited by the weather or darkness, or when registration is limited. At such times the fires of several battalions are readily and effectively massed if the firing battalions are accurately located and have accurate metro data.

During World War II, observation battalion metro sections were organically equipped to determine metro data by visual means only. For that reason metro messages were, in many cases, prepared using data obtained from Air Force weather sections. These were often located at a great distance from the area where the metro message was needed. To be of most value metro data must be obtained in the area where it is to be used.

The new electronic equipment makes information available which cannot be obtained by visual means, and provides a means of obtaining metro data in any kind of weather. This additional information includes pressure, temperature, and humidity actually measured (by a radiosonde) at various levels of the atmosphere,



Electronic meteorological equipment.

from the ground to an altitude well above the maximum ordinate of the trajectories of our present artillery.

The meteorological station is as mobile as a truck-drawn 105-mm howitzer. It requires about fifty minutes to set up the equipment after moving to a new position, and requires about the same amount of time to prepare for movement. The equipment includes radiosondes, a radio direction finder, and a radiosonde receptor.

The radiosonde is a small instrument that measures weather conditions in the upper air and automatically transmits the information by radio to a meteorological receiving station. As the radiosonde is carried aloft by a free balloon filled with hydrogen gas, it transmits signals which are a function of the barometric pressure, temperature, and relative humidity of the atmosphere.

The radio direction finder is used to track the radiosonde throughout its flight in order to determine the speed and direction of the wind.

The radiosonde receptor receives the radiosonde weather information through a cable from the radio direction finder, and automatically prints a graph of the incoming frequencies representing pressure, temperature, and humidity on a continuously moving roll of chart paper.

By a temperature-and-pressure-ratio relationship, the altitude of the balloon at various times during its flight is determined, and using these altitudes in conjunction with the measured angles of elevation and azimuth from the radio direction finder, the wind directions and speeds for different altitudes are computed. These directions and speeds are then weighted according to the effect each will have on the projectile of the particular type of gun firing, and entered on the metro message as the ballistic wind data.

The printed graph of frequencies from the radiosonde receptor is evaluated by means of a circular slide rule and charts, and converted to usable values of temperature, pressure, and relative humidity aloft. These data are then plotted and weighted in a manner similar to that used for wind data, and the resulting ballistic densities and temperatures are entered to complete the metro message. All operations to obtain the necessary data and prepare a metro message of nine lines may be completed in about forty-five minutes. Such a message is adequate for all present artillery weapons, except at extreme ranges.

Normally, an artillery metro message is furnished every four hours and a message for sound ranging every two hours; no inflexible time limit can be set on how long a message may be valid. The metro warrant officer must recognize rapidly changing weather conditions and determine and deliver data more frequently under such conditions. Special messages for particularly important missions are prepared at the request of an artillery unit. The proper use of accurate ballistic meteorological messages made available in any weather by the observation battalion's meteorological station will result in improved fires of our artillery.

NEW DEVELOPMENTS

The basic principles employed in sound, flash, and survey operations have changed very little since 1939, when the first observation battalion was organized. However, there has been a gradual development of the equipment used and a continuous improvement in the techniques employed. Research continues and all agencies interested in future development of this type of unit and equipment are working assiduously towards better equipment, increased accuracy, and greater flexibility of employment.

The sound-ranging set GR-3-C used during World War II has been replaced by the GR-8 sound set. The latter is much lighter, more compact, waterproof, easier to maintain and operate, and provides a "dry" recording

process instead of the old photographic process. During the war several improvements were made in plotting equipment and the graphical correction charts. Further improvements in equipment and techniques are under study and may be adopted in due course of time. A radio link for use in lieu of field wire between the sound central and the microphones was tested in combat in Europe. The equipment was faulty, indicating a need for further development. A radio link, when available, will provide for much more rapid installation of sound bases, and improved technique of employment.

A new flash-ranging switchboard has been developed and tested, and may soon be available. Several new electronic devices utilizing principles of infra-red and television are now being tested or are under consideration and may provide many radical changes in this agency.

The basic principles of artillery survey are well established, and will probably not change for some time to come. The future trend is to provide means for more rapid execution of survey without loss of accuracy. Toward this end, the development of new equipment is being stressed. Surveying by electronic devices may produce the desired results.

Although the metro station is now equipped with the latest electronic equipment, efforts to improve both equipment and techniques in this field go forward continuously.

The radar set SCR-784 now authorized is considered as interim equipment, since it was primarily designed for another purpose and modified to provide for operation as a counterbattery set. It is anticipated that this set will be replaced by one designed especially for field artillery counterbattery use when such a set becomes available. Tactics and technique of counterbattery radar are in their infancy, but are being studied and developed. With the inclusion of the radar platoon organically in the observation battery, there remains only the issue of equipment and the assignment and training of personnel to permit a study of the problems inherent in the tactical employment of this new weapon.

Most of the field artillery observation battalions produced enviable records as "target-getting" agencies during World War II. By successful location of hostile artillery, adjustment of fire, vast survey operations, and other accomplishments, they have become an indispensable part of corps artillery. Unless ground warfare undergoes many radical changes, the observation battalion may be expected to play an even greater role in any future conflict. *It is incumbent on all artillerymen to acquaint themselves with the missions that can be performed by this battalion, as well as its capabilities and limitations, to the end that they may understand how to properly direct its employment, and what valuable information can be obtained from it on request*. It is hoped that this article may provide useful information about this valuable field artillery intelligence agency, and be a stepping stone for future study by many artillerymen.

The Delayed Telegram That Saved the Union Fleet

By Jerome Kearful

"THE war is lost. Nothing can save us but a miracle!" These were the words of Stanton, Lincoln's Secretary of War, on the morning of March 9, 1862. Stanton had good reason for his gloomy forebodings, for the Confederate ironclad *Merrimac* had hove into Hampton Roads the day before and had proceeded to wreak havoc on the wooden ships of the Union navy that she could get within range. Stanton and the Union cause needed a miracle. They got it, but only because a telegram was not delivered promptly. It all happened this way.

Both the Federals and the Confederates had started experimental building of ironclads soon after the start of the Civil War. But the Confederates, who had refitted the hull of the captured Union vessel *Merrimac*, were first to float the new metal-armored warship. They renamed the *Merrimac* the *Virginia*, made her into an ironclad ram, and, on March 8, 1862, turned their floating fortress loose against the helpless Union fleet off the shores of Virginia. Nothing could stop the Confederate ironclad!

Meanwhile, Ericsson's *Monitor*, in spite of many delays and handicaps, had been completed in New York. Some of the admirals were quite skeptical of the ironclad's ability, and determined that the *Monitor* would need a rigid inspection before she could be admitted to the navy. Consequently, just about the time that the Confederates' *Virginia* was putting into Hampton Roads, the U. S. Navy Department sent a telegram to New York with instructions for the *Monitor* to report to Navy inspectors in Washington. That telegram was delayed two hours before it was delivered!

During these two hours, the ships of the Union Navy in New York were hurriedly weighing anchor for Hampton Roads. They had received word of the *Merrimac's* appearance, and were hastening to be of help, or, more likely, to their own destruction. The *Monitor* had been launched several weeks earlier, but was not yet ready to pass inspection. Had the telegram from the Navy Department been delivered promptly, she would have never joined the flight. But the telegram was delayed, and the *Monitor* put out for Hampton Roads with the rest of the Union fleet!

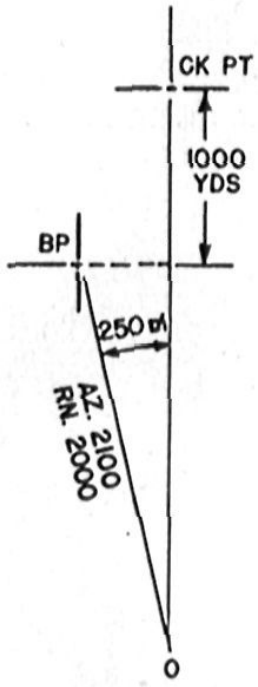
Several times on the voyage to Virginia, the crew of the *Monitor* was afraid she would sink. However, the Union ironclad eventually arrived to give battle to the powerful Confederate ram. What happened on March 9, 1862, in this historic naval conflict, has been told and retold. Neither ironclad was the decisive victor, but the *Monitor* saved the rest of the Union fleet and thereby the Federal cause. It happened because of a delayed telegram!

TYPE PROBLEMS — OBSERVED-FIRE PROCEDURE USING TARGET GRID

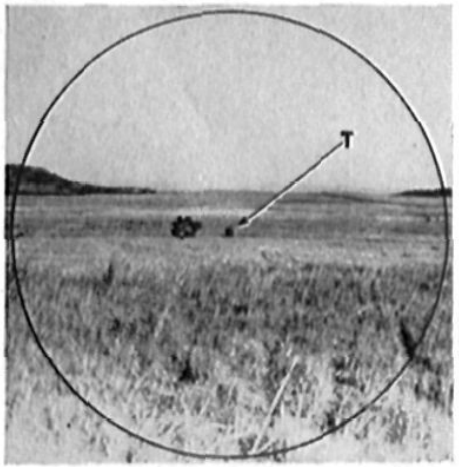
(The Sept-Oct 1948 JOURNAL, in an article entitled "Shooting Without Factors," described a newly developed method of adjusting observed fire. More data on this method appeared in the Nov-Dec JOURNAL. It is now referred to at TAS as "Observed-Fire Procedure Using Target Grid," and these type problems are presented as examples of its operation.)

PROBLEM 1. — *Precision fire mission*

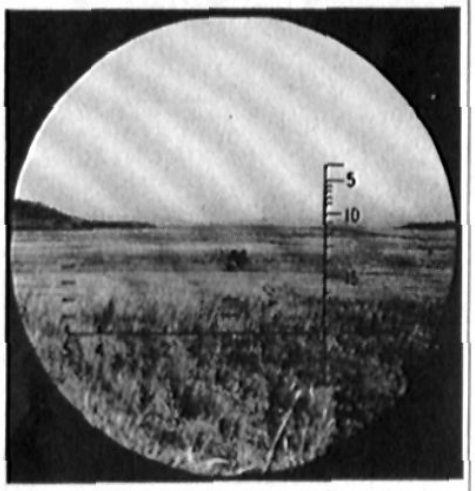
Target, check point; mission, registration; materiel, 105-mm howitzer; ammunition, HE shell, fuze quick.



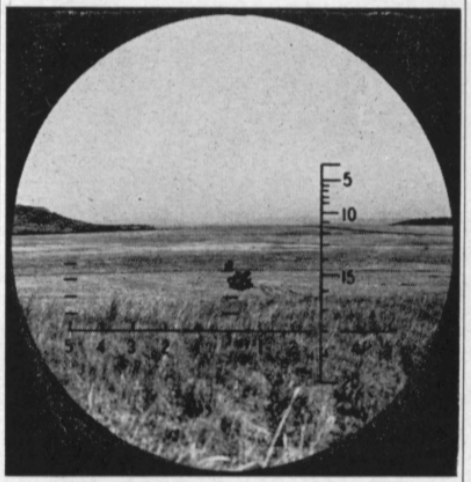
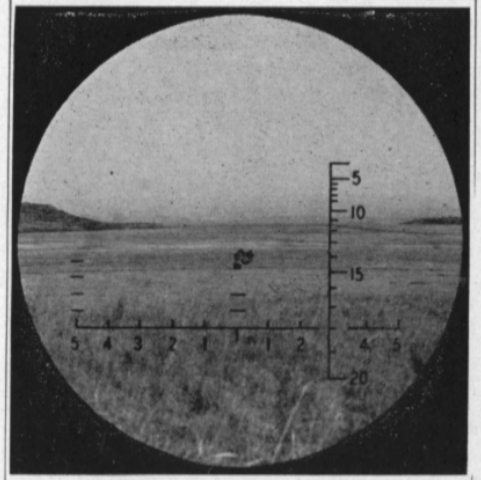
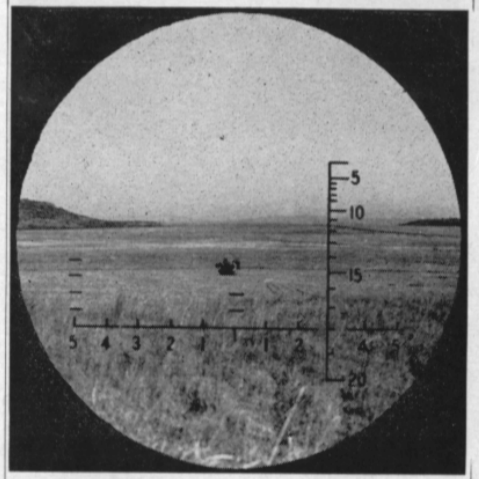
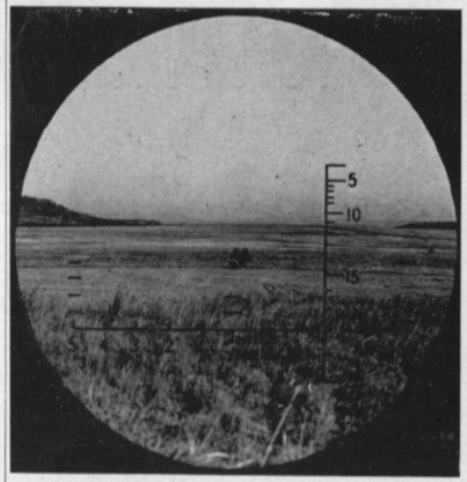
Sketch of observer-target relationship.

TRANSMISSIONS	RESULTS	SENSINGS RN	SENSINGS DEV
Observer to FDC (Initial fire request): FIRE MISSION, AZIMUTH 2350, FROM BASE POINT, RIGHT 500, ADD 1000, CHECK POINT, PRECISION REGISTRATION, WILL ADJUST. FDC to Observer: *BAKER, FUZE QUICK, CHECK POINT, PRECISION REGISTRATION, WHEN READY ... ON THE WAY.*	① 	?	*15L*

Remarks: Estimated *OT* distance = 3000 yds. Observer measures deviation of burst 15 mils left of *OT* line. Observed deviation = 45 yds (15 × 3.0). No range sensing is obtained. Observer determines shift of right 45(50) to bring burst to *OT* line.

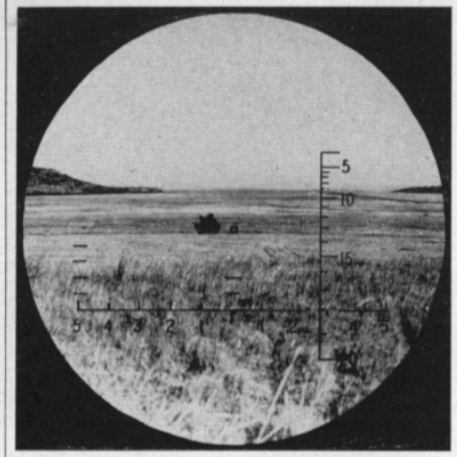
Observer to FDC: RIGHT 45(50), REPEAT RANGE. FDC to Observer: *ON THE WAY.*	② 	+	*Line*

Remarks: The burst has been brought to the *OT* line. From this sensing of *over*, the observer decides to make a range change of 200 yds.

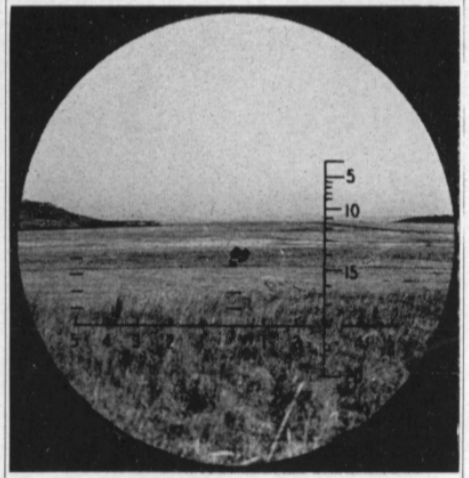
TRANSMISSIONS	RESULTS	SENSINGS RN	SENSINGS DEV
Observer to FDC: DROP 200.	③ 		
FDC to Observer: *ON THE WAY.*		—	*Line*
Observer to FDC: ADD 100.	④ 		
FDC to Observer: *ON THE WAY.*		+	*Line*
Observer to FDC: OVER, LINE.	⑤ 		
FDC to Observer: *ON THE WAY.*		—	*Line*
Observer to FDC: SHORT, LINE.	⑥ 		
FDC to Observer: *ON THE WAY.*		+	*Line*

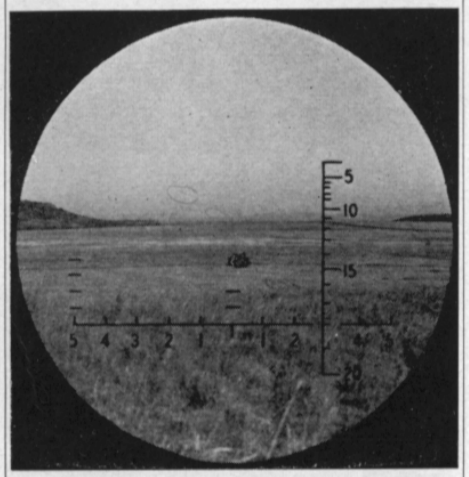
Remarks: A 100-yd bracket has now been obtained along the *OT* line. With the next round, the observer will request a change of 50 yds, which will be the first round in fire for effect.

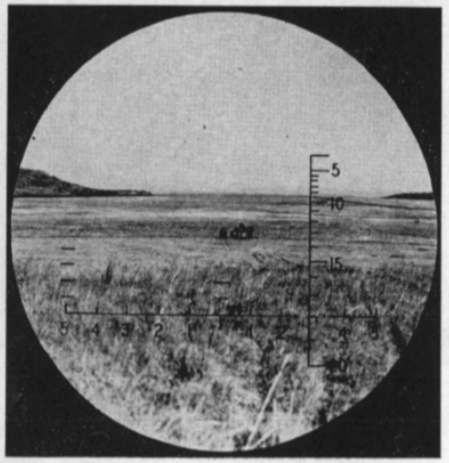
Remarks: No further corrections by the observer are given. FDC continues the mission until they have sufficient sensings from which to compute an adjusted elevation. The observer reports only his sensings.

TRANSMISSIONS	RESULTS	SENSINGS RN	SENSINGS DEV
FDC to Observer: *ON THE WAY.*	⑦ 	?	*Left*
Observer to FDC: DOUBTFUL, LEFT.			

Remarks: This round appears slightly off the *OT* line. The observer is unable to sense the range, and therefore reports the round as DOUBTFUL, LEFT.

TRANSMISSIONS	RESULTS	SENSINGS RN	SENSINGS DEV
FDC to Observer: *ON THE WAY.*	⑧ 	+	*Line*
Observer to FDC: OVER, LINE.			

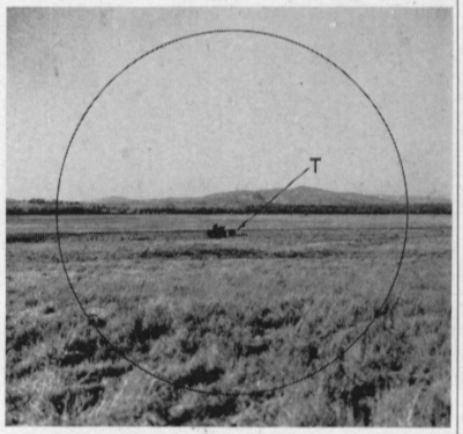
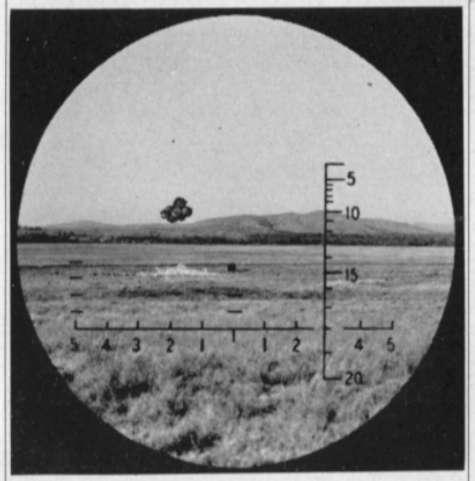
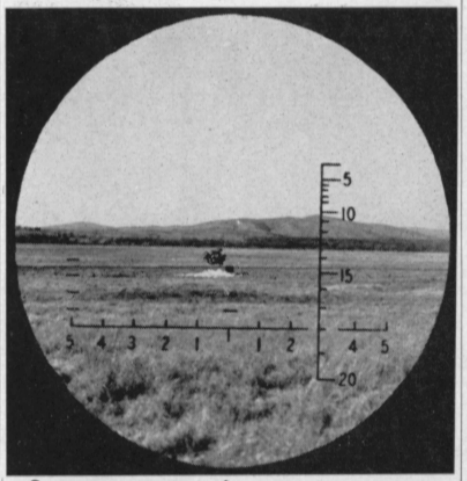
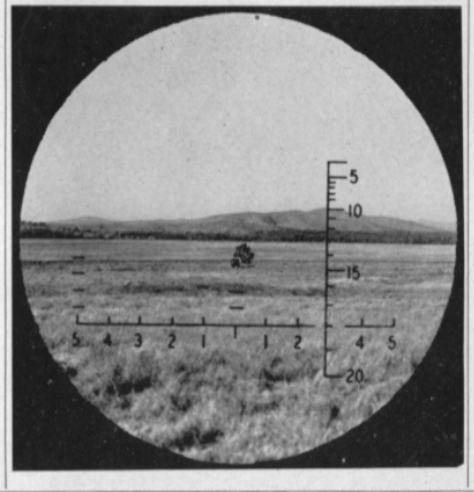
TRANSMISSIONS	RESULTS	SENSINGS RN	SENSINGS DEV
FDC to Observer: *ON THE WAY.*	⑨ 	—	*Line*
Observer to FDC: SHORT, LINE.			

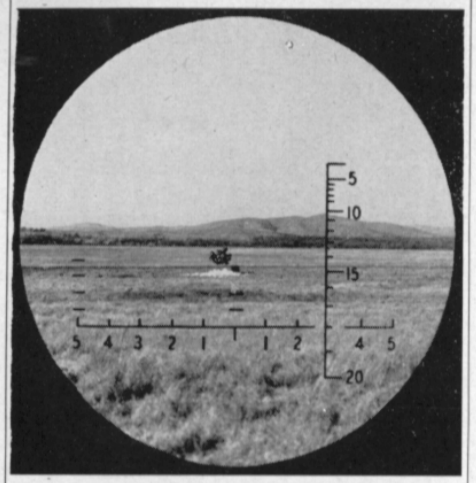
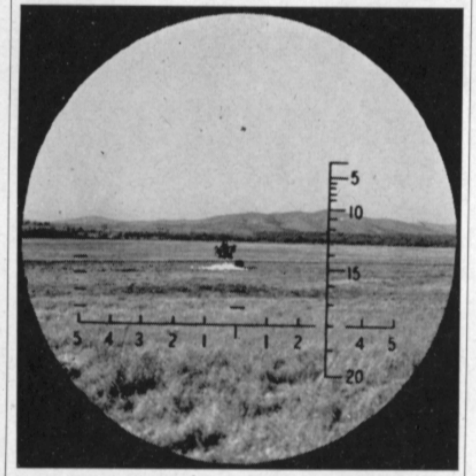
TRANSMISSIONS	RESULTS	SENSINGS RN	SENSINGS DEV
FDC to Observer: *ON THE WAY.*	⑩ 	?	*Right*
Observer to FDC: DOUBTFUL, RIGHT.			

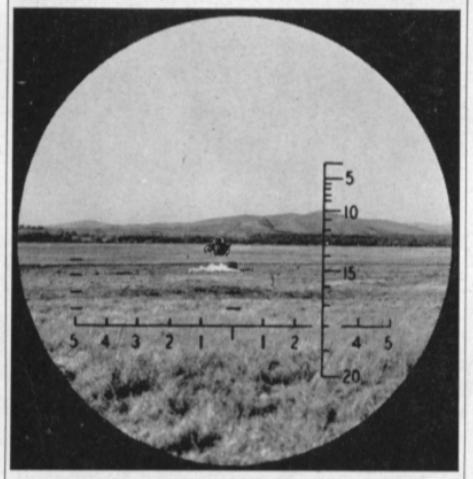
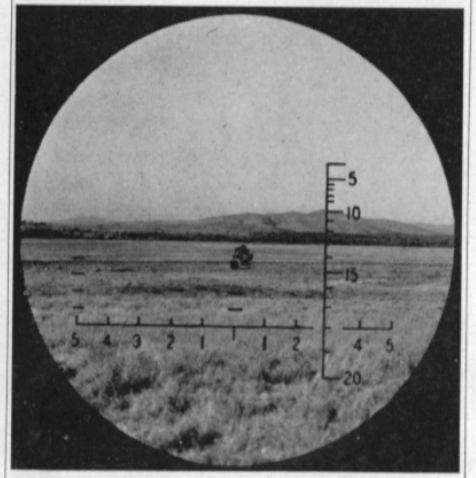
Remarks: FDC has now obtained six sensings and therefore notifies the observer *END OF MISSION.*

PROBLEM 2. — *Time registration*

Target, check point; mission, time registration (it is assumed that the observer has just completed a precision registration on the check point, using time-fuzed shell on impact); materiel, 105-mm howitzer; ammunition, HE shell, fuze M55.

TRANSMISSIONS	RESULTS	SENSINGS
FDC to Observer: *OBSERVE TIME REGISTRATION, ONE ROUND, ON THE WAY* Observer to FDC: GRAZE.	① 	*G*
FDC to Observer: *ON THE WAY.* Observer to FDC: AIR.	② 	*A*
FDC to Observer: *3 ROUNDS, ON THE WAY.* Observer to FDC: AIR.	③ 	*A*
  Observer to FDC: GRAZE.	④ 	*G*

TRANSMISSIONS	RESULTS	SENSINGS
Observer to FDC: AIR.	⑤ 	*A*
Remarks: Three more rounds will be fired at the same time setting to obtain six time sensings.		
FDC to Observer: *3 ROUNDS, ON THE WAY.*	⑥	
Observer to FDC: AIR.		*A*

TRANSMISSIONS	RESULTS	SENSINGS
Observer to FDC: AIR.	⑦ 	*A*
Observer to FDC: GRAZE.	⑧ 	*G*
Remarks: Six time sensings have been reported to FDC. Registration is now complete. Observer will be notified *TIME REGISTRATION COMPLETE, END OF MISSION.*		

Small Unit Action . . .

Adventure at Aywaille

By Capt. Tattnall R. Pritchard, Jr., FA

THE Belgian villages of Aywaille and its little sister Remourchamps lie like two bright and vari-colored jewels in the palm of a giant hand. Hills surround them on all sides. Through the bottom of the "palm" runs the gurgling stream known as the Ambléve, and at right angles to this river-by-courtesy, forming the main street of Aywaille, is a wide black-topped highway. Just as the highway crosses the Ambléve, at the foot of Aywaille's business district, it turns sharply to the left and climbs the half-mountain overshadowing the town.

Down this road, in mid-afternoon of an end-of-summer day in 1944, came the cautious, probing point of the column which was the 3rd Battalion, 60th Infantry Regiment, Ninth Division. Sheer rock walls hemmed them in; there was no contact, friendly or otherwise, to either side, but in the hard going above the column men scrambled along, searching the boulders and the brush to right and left. For nearly a week they had been sniped upon, sharp vicious blows dealt by desperate men who would not stand but melted away under pressure. The point, angry and edgy, had two missions: to protect the walled-in main body from ambush, and to pin down the quicksilver enemy.

The first blow went to Jerry. Across the palm, from the hills on the other side of Aywaille, a self-propelled gun threw an HE shell at the column. It burst on the black-top just short of the lead tank, and painfully racked the ears in that confining space. The tank backed up on the shoulder, wallowing like a dazed crocodile, and its follower pumped two quick 75's at the flash across the valley. The wary doughs cautiously eased their heads up from among the rocks.

My jeep-mounted 610 chattered importantly. "Love Seven to Love One Three," it said. "I see him, over there behind that haystack. Shall I take him?"

"Take him and welcome," I said. Love Seven was Lt. Harry Link, the air observer, flying cover in an L-4. I caught a glimpse of the westering sun on his wings as he passed over the deep road.

"Love Seven, fire mission!" he chanted to FDC, and gave the coordinates. When the mission was acknowledged, he called me again.

"At the foot of that defile you're in," he reported, "just where the road hits the bank of the river, there's a reception committee waiting for you. Two personnel carriers behind the house on the right, two light tanks on the road, and probably a platoon below the river bank. They're set to catch you in the pants as you turn toward town."

I thanked him, and asked him to keep me posted on his fire mission. If he could knock out the SP, or just immobilize it, we'd be able to take the reception committee.

"Can do," he acknowledged. I couldn't hear FDC on my 610 because of the high rock walls, but in a moment I heard Harry correcting the initial burst and calling for three rounds. Then he raised me again.

"I'm on him," he said. "Go ahead, you won't be bothered."

I had sent one of my operators for Lt. Col. Keene Wilson, the 3rd Battalion commander, affectionately known as "Slick." At my urgent request he came back to my jeep, and I explained the situation ahead; together we worked our way down the column to reconnoitre the terrain.

At the foot of the road were two buildings, one on each side; the right-hand one later proved to be an inn. Behind the inn, on our side, was flat ground—a small open field. From Harry's report we judged the jerry platoon to be along the road in front of and to the right of the inn, with the tanks behind them. From where we stood we could just make out the roofs of the buildings, below us.

"Any chance of getting artillery down there?" Slick asked.

I said sure. "Only thing is, I can't adjust because I can't see, and if we wait on Harry we'll be here all afternoon."

"I figured that one for myself," said Slick, with an understanding grin. "Okay, we'll catch them with a surprise pincer, and use the tanks to cover the T at the bottom of the road."

One assault company was set into the open field on the right to work its way around the inn, and the second began the laborious climb over the loose shale to the left, to come down on the road and pocket the Germans. A fire fight broke out on the right almost at once, as elements of that company entered the inn; at the first sound of trouble the Jerry tanks cranked up and high-tailed it for Aywaille. As the lead German tank crossed the T, one of ours hit him in the treads. The second German tank crossed behind his wrecked mate and headed for the rackety wooden bridge into town, with the Sherman in hot pursuit.

In the meantime the small-arms fire had increased in tempo, with the Germans trying to make their way down the road and out of the trap. A little Belgian girl, apparently about fourteen, came bicycling down the road from the east, rounded the curve, and suddenly found herself in the thick of it. Simultaneously with her horrified realization, one of the Gemans jumped from the bank to the road and knocked her off the bicycle. Springing upon the vehicle, he pedalled furiously away down the road. The girl scrambled to her feet and pounded after him, screaming in French, "Return to me the bicycle!"

One of the GI's in the inn, having worked his way to the front of the building, watched through the window as the tragi-comedy unfolded. Opening the front door, he calmly stepped into the road just in time to smash the German in the head with his gun butt as he pedalled by. The American, with a courtly bow, then brushed off the seat of the bicycle with his shirt sleeve, and gallantly held the brave steed for the girl to mount. She rode haughtily away, and he stepped back into the inn and methodically closed the door.

That broke up the ball game. The jerries dashed across the shallow Ambléve in two and threes, and those of them to make it disappeared into the town. The Sherman in pursuit of the German tank rounded the curve and took a flying shot, which caught the enemy as he reached the center of the wooden bridge, and set him afire. The tank crew boiled out of the turret and ran for shelter. Realizing at once the seriousness of the matter should the burning tank set the bridge afire, the Sherman waddled up on the planking and pushed the German into the water. The GI's, still chuckling over the girl and her bicycle, laughed again and ran over the bridge in a tide of elation.

"That did it," I said to my radio operator. "I'll lay a buck we sleep in a good bed tonight."

He grinned, and gestured toward the excited civilians lining the sidewalks in blissful unconsciousness of any danger. "That's no bet," he protested. "The gallery will wine and dine the performers after the show."

Several of the civilians, letting off steam after years of repression, were having a fine time running out into the street to kick the dead and wounded Germans. Then they would return to the relative safety of the sidewalk, beaming, to soak up the cheers and laughter of their friends and neighbors.

The tanks and riflemen had disappeared up the street, so my driver started up the jeep, preparing to move on. At this juncture Col. Jesse Gibney, commander of the 60th Regiment, came into town and hailed me to ask how things were going. I was still talking to him when Col. Wilson returned from the forward companies. Dusk had fallen, and night was not far away.

"The tanks are out of gas," Slick announced. "Once we secure the town, this would be a good chance to give the boys a break."

"Okay," agreed Col. Gibney. "You hold up here, and I'll have 1st Battalion leap-frog you first thing in the morning. Should be easy to find billets for the night."

"Sure," said Slick, and threw himself flat on the paving. Col. Gibney and I were a split second behind him; we'd both heard the *screoo, wap!* of a brace of 88's coming in, right down the center of the street. The shells burst over the bridge a block behind us, and when the noise had died away the 300 radio on Col. Wilson's jeep burst into speech.

"Is Big Noise (artillery liaison) with you?"

"Yes," said Slick. "What's the trouble?"

"We need him. A couple of Sugar Peters with boy scouts up ahead looking down our throats. Little Noise is pooped and his Six Ten smashed. Can Big Noise sit in on this round?"

I nodded to Slick's questioning look, feeling considerably depressed. The forward observer was a good friend, and I hoped he wasn't too badly hurt.

I Company's position on the map indicated I could take my jeep fairly close to them, so I started out. The gasless tanks were lined up in the main street, as cold and lifeless as so many hunks of iron, their crews already bedded down in adjacent houses. It was almost dark, and the good burghers — creatures of habit — had shuttered their houses against the unfriendly night.

The company CP was not too far ahead of the lead tank, in the last house on the road. From a second story window I had to look up to see the fast-fading horizon; we were still in the valley.

"Slick's orders were to take the crest," said Lt. 'Mike" Gatto, I Company's commander, "but I'll lose a lot of joes stumbling against those SP's. Can you knock 'em out so we can get up there?"

I couldn't even see them. It was then almost night, the valley was in shadow, and the guns were below our side of the horizon. I finally found the darker patch Mike said was the gun position; luckily, the guns fired again into the town just as I focussed my glasses on the spot.

From then on it was easy. I got my second round on the horizon, where the flash was quite clear, then came down a couple of hundred yards and poured on the coal. I stayed with Mike until the crest had been taken, a defense perimeter established, and my request for another forward observer answered. Then I went back to town to find the battalion CP, where I belonged.

The streets were deserted. From behind blacked-out doors in every block came the sound of carefree roistering, and occasionally a door would open to spill a flash of light and a tipsy celebrant, but the only soldier I could find was standing on the sidewalk near where I'd left Slick and Col. Gibney some hours before. I asked him for the location of Nutmeg Blue CP.

"Beats me, Lieutenant," he hiccuped. "I'm kinda lost myself."

This annoyed me into muttering a French expletive I'd picked up. A passer-by, hearing the oath, stopped and addressed me respectfully.

"Pardon me," he said, "but is it that you speak French?"

"A very little. Speak slowly, that I may understand you."

"Perhaps I may be of some assistance. What is it you seek?"

"I desire," I explained, "the American commander. He is somewhere about?"

"But yes!" he exclaimed, with a chuckle. "He is in his headquarters, the hotel there, the door behind you."

"In a hotel?"

"Of a certainty." My informant seemed to find this most amusing. "You understand, the hotel during the occupation was used to shelter the Boche while on leave, and naturally the proprietor was a collaborator. When your commander expressed the wish for a place to rest, we of the Resistance shot the proprietor."

I looked up at the sign over the hotel door. In the moonlight the words were just visible: "Hotel d'Allemagne." In spite of the name, the beds were very comfortable.

JUMP SCHOOL

By Major Taylor Culbert, FA-Res.

"STAND in the door," "Ready," "Go" — These are jump commands, but before you execute them, you must undergo arduous training. Jump training is conducted by The Infantry School, Fort Benning, Georgia. Jumping from airplanes sounds like frightening business, and, to tell the truth, it is. No matter how certain you may be that your chute will open, no matter how many successful jumps you have witnessed, you'll shake and quake when it's your turn to jump. You can become quite philosophical when watching others jump; you can say, "But the chutes always open." When, however, you are in the plane, when you stand in the door and see the ground far below, philosophy flees, and you sweat, but plenty. Lots of other people, though, have leaped out of the door, and more surprising, have safely reached the ground; in fact, it's being done daily, so why not by you also.

For those who do jump, there are many tangible advantages. For the Reserve Officer who is fortunate enough to be able to knock off work for six weeks, the school offers an exciting change from his occupation. Less glamorous but not to be overlooked is the little matter of full army pay and allowances, not to mention the added attraction of jump pay. Department of the Army Circular 201, 1948, provides further financial benefits for those who complete the course. For the Regular Army, the advantages are apparent: jump pay and service with jump units. For all, there is the benefit that accrues from added military proficiency in an up-and-coming branch of the army, and in one that, from the looks of things, is becoming more important each day.

About the course and the training—altogether it takes six weeks. The first week is sheer gravy: you merely report in, draw equipment, receive instructions, and listen to many tales, mostly tall, from the "veterans" of two or three weeks' experience.

Monday of the first week of your training finds you in the glider area. There you are shown the various gliders used, the characteristics of the planes used to tow the gliders, and the methods of loading both. You are taught how to compute the proper location of equipment in planes and gliders so that the total load will be balanced. The methods of lashing equipment in place, both by rope and various mechanical devices, are learned. Ample practice is furnished in the actual loading and lashing of equipment in mock gliders and mock planes. Of special interest to Field Artillerymen is the loading of such equipment as jeeps, 2½-ton trucks, 105's, 155's, etc. This phase of the school concludes with a brief but exciting glider ride.

In the second week of work, the preliminary jump training commences. At this time, you meet most of the apparatus you will use during the following two weeks. You are introduced to, and expected to jump from, the 35-foot tower. From this awesome contraption, an invention of the devil, you leap, fully expecting to be dashed to bits on the ground, but fortunately, you are caught safely by harness and ropes after falling fifteen feet. This training is devised so that you can practice the proper exit from the plane, body position while in the air, counting while falling, etc. All in all, many found this the hardest part of the training. Thirty-five feet looks very far from the ground, and experience shows that if you jump from the tower, you will jump from the plane. Whereas some thirty students in our class refused to jump from the tower — and hence washed out — not a single one refused to jump from the plane. Training is given in Parachute Landing Falls (PLF's) by jumping an inordinate number of times from a platform about five feet high into a sawdust pit. During this week, you practice the various methods of collapsing a parachute when you have reached the ground. In a mock airplane you learn by actual practice the execution of the jump commands normally given to get a jumper from his seat in the plane to his exit from the door. While this phase of the training seems excessively monotonous and tedious, its value is easily apparent on the first few jumps from the plane, when most people are too excited to do anything other than those actions which come automatically from frequent repetition.

The next week consists of, briefly, more of the same. The new element in the training is parachute packing. Half of each training day is given to instruction

Instructors inspecting equipment prior to a jump.

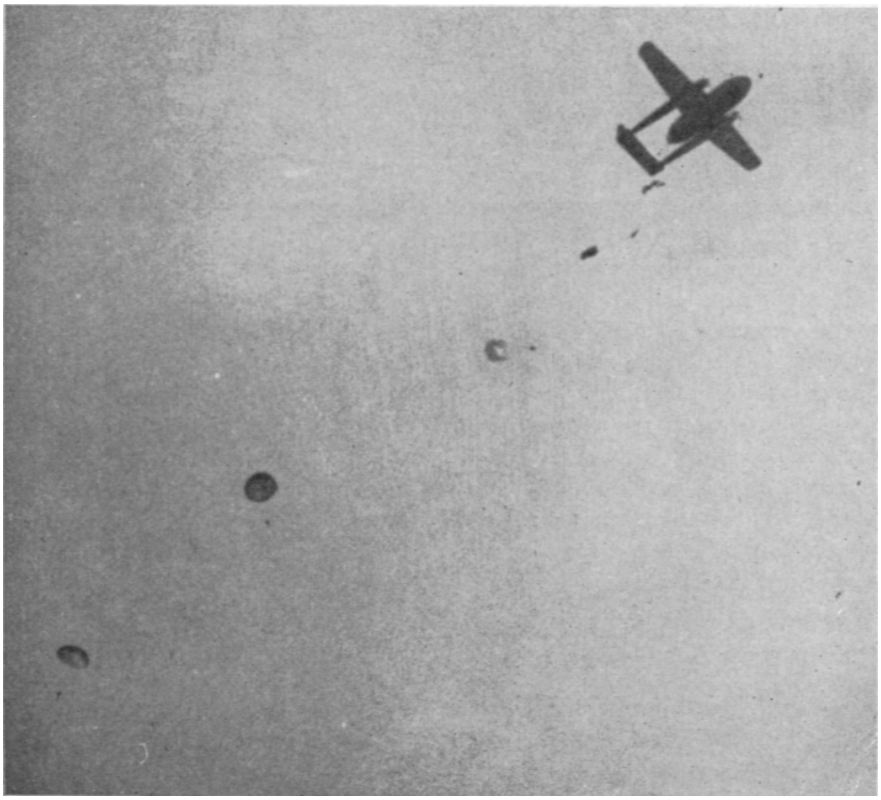
in this subject. Interest generally zooms in parachute packing when the students learn they are to pack the chutes with which they jump. Nothing makes you more careful, more solicitous over each fold, each wrinkle, than the knowledge that a few days hence you will be jumping that particular parachute.

These same training devices and subjects are carried over to the fourth week of training, with the addition of one new device: the 250-foot tower. This is sheer fun. It requires no special effort by you, no will to make yourself jump from an unnatural height. You climb into a harness and, before you are fully aware of what is happening, you are whisked two hundred and fifty feet in the air. At the top of the tower, you are released and float to the ground in the already opened parachute. Directions and instructions for guiding the chute are shouted to you over a public address system, so that you don't drift into the tower itself. It's lots of fun, and unanimously the class wished for more of these jumps than the four or five which most of us got.

Also, during this week you take, and must successfully pass, the physical efficiency test. This consists of five events: pull-ups, squat jumps, pushups, sit-ups, and a 300-yard run. Each event is scored on the basis of how many executions of each exercise can be done with proper form. A score of 250 points is required. The physical condition of each student has been built up by at least one hour's physical exercise each day, commencing with the first day. Part of each hour of PT is spent in running, the length of the runs being gradually increased as the student's stamina increases. The other portion of the PT period is devoted to exercises, with special emphasis on those which appear on the PT test. Furthermore, push-ups are given as disciplinary measures at the slightest provocation, so that everyone becomes horribly proficient in this one exercise at least.

In the last week come the five novice parachute jumps. Weather permitting, a jump is made early each morning, and part of the afternoon is spent in packing the chute for the next day's jump. These are the only training activities scheduled for this week, but they are ample. It's hard to know what to say about the jumps themselves. It is not difficult to get out of the plane—your previous training has so conditioned you psychologically that, I believe, you'd jump with or without a chute when you received the command "Go." You seem to be impelled out of the door without either volition on your part or a shove from the jump-master. After leaving the plane, the first thing you experience is the shock of the chute's opening. This shakes you up considerably, but no one ever complains about its severity; you'd rather be jarred till your teeth rattle than not get that opening shock at all. When the chute is open, you discover why men become jump-happy. Everything is serene and quiet; you feel utterly safe and comfortable. The descent is not marred by any sensation of falling, as in an elevator; rather, it is as if you were suspended motionless in the air. The five jumps are made from different altitudes, working gradually down to eight hundred feet. The drop zone is ideal, a large ploughed field with no obstructions. Every precaution for your safety is taken—you are checked and initialed with chalk by inspectors several times before entering the plane; and, naturally, you are very careful about putting on your own harness, main chute, and reserve chute. Once the jumpers are airborne, observers from the ground give instructions over a PA system to warn of possible collisions, to check the canopy, and to alert the jumpers for the approaching landing.

Well, this is it. It's a tough course, there's no doubt about that. Many times you will wish that you had never embarked upon it. At other times you will ask yourself what evil spirit prompted you to fill out an application blank for jump school. But when it's all over, and that is really the part that counts, you will be glad that you started it and even more glad that you stuck with it and finished—all in one piece.



Parachutes in various stages of opening as jumpers leave a C-82.

ILLUSTRATION CREDITS

(If not listed, unsigned illustrations are from authors, by the Journal staff, or from special sources. Reference numbers are pages.)

U. S. Army: Frontispiece. 13. 39
U. S. Air Force: Cover. 7

PERIMETERS in PARAGRAPHS

By Col. Conrad H. Lanza, Ret.

THE COLD WAR

Prepared by a widely-known military scholar and writer, PERIMETERS IN PARAGRAPHS is a recurring feature dealing with the military, political and economic realities in world affairs. Whereas an understanding of these realities is deemed essential to the American soldier, it is emphasized that PERIMETERS IN PARAGRAPHS reflects the opinions of the author. alone. This installment covers the period 1 November - 31 December 1948.

THE outstanding factor in the World strategical situation at the close of 1948 is the "Cold War" between the Anglo-Saxon nations and Russia. *Cold War* is a term which has not heretofore appeared in military text books. Yet a Cold War is of great military importance. It needs to be defined and discussed, in order that it may be so controlled that it will not necessarily lead to a new war.

Definition. A Cold War consists of:

The maneuvers of hostile Powers who are preparing for a probable eventual war, and who in the meantime are seeking to secure other nation's support, either as allies; and/or for their resources; and/or for bases within their territories. Both sides explain that such maneuvers are precautionary and limited entirely to defense measures. Each side accuses such maneuvers of the other as aggressions. Both sides refrain from military operations against the other; but minor military operations against other nations are not excluded.

This is a long definition, but necessary to discuss a complicated subject intelligently.

METHODS EMPLOYED

1. *Loans and Gifts*. The major method employed by the United States. Up to 30 June, 1948, and since the end of World War II, about $15 billion had been issued to west Europe and $2 billion to China. These amounts exclude disbursements under the Marshall Plan, estimated at over $5 billion to date, with a probable expenditure of somewhat lesser amounts per annum during at least three more years. Russia operates loans and gifts in reverse. For same period up to 30 June last, she had taken *out* of Europe about $12 billion and out of Manchuria $1 billion.

2. *Promises and Ideals*. The major method employed by Russia, which predicts for its communistic system a better life than elsewhere possible. The cost of this is mainly for propaganda, and is relatively low.

3. *Minor Military Operations*. Three kinds are in use:

a. Conducted openly;
b. Conducted secretly;
c. Consolidations.

Open military operations have been aided and financed by the United States in Greece and China against the communists; and by Russia for them.

Secret military operations have been conducted only by Russia through its 5th Column activities throughout the World.

Consolidations involving occasional minor military operations have been, or are, in progress by Russia in Outer Mongolia, North Korea, Bulgaria, Albania, Romania, Poland and the Baltic States. These states are consolidated, or nearly so. Only a partial success has been secured in Yugoslavia and Finland, and has but just started in Sinkiang. The Anglo-Saxon Powers have engaged in consolidations in Greece and Turkey.

COMPARISON OF METHODS USED

Loans and Gifts. Nations receiving these, other than Great Britain, have done so with misgiving. They fear that they may be committing themselves to becoming allies in a World War III which they might otherwise escape; and/or that their countries might become future theaters of operation with great devastation; and/or that their leaders may become liable to execution as collaborators should an enemy be able to occupy their countries.

Sympathies may indeed be with the Anglo-Saxon Powers. But west Europe is far from certain that it will be possible, if war comes, to prevent Russian occupations. A substantial percent of their citizens prefer such an occupation to having their cities and inhabitants destroyed in new battles. Add to the people of that opinion the 5th Column Communist Parties, which are large and powerful in west Europe, and there is a possible majority against aid to the Anglo-Saxons.

This situation might result in desertions from the Anglo-Saxon cause at a critical moment, resulting in arms and equipment furnished mainly by the United States being handed over to an enemy. This is now happening in China, where American arms are being delivered to communist armies. In 1940 France similarly handed over to Germany its vast stock of war supplies.

Seldom will a nation go to war for another in gratitude for favors received. Nations enter a war because they are attacked, or because they believe at the time they will secure some benefit from doing so. They will change from one side to another if sufficient inducements are in sight. History is full of such examples, and World War II was no exception.

Loans and gifts are not a sure way to secure loyal allies. They may secure bases and/or resources. These should be obtained in advance of war.

Promises and Ideals. Russia lacks the

industrial development to provide a standard of life equal to that of the Anglo-Saxon Powers. Assuming that there will be no war before 1960, and that Russian 5-Year Plans succeed, at that date Russian production will probably not exceed 60% of that of the United States in 1939, and for a substantially larger population.

The $13 billion of property taken out of Europe and Manchuria was to further Russian industrial development and help to make good on promises that communism will provide the highest possible standard of life. For the same reason, resources of satellite states are being integrated into the Russian economy. All together does not suffice and Russia seeks still other resources. The main immediate objective is the Ruhr and as much of Germany as practicable.

The promises of communism are attractive to those who have not felt the Russian rule. Those who have felt it become disillusioned and dissatisfied, and form an element of military weakness. This is further discussed in following paragraphs.

Minor Military Operations. (a) Those conducted *openly* have been regularly discussed in PERIMETERS. The latest developments will be covered below.

(b) *Secret* military operations are those of the 5th Column variety, or Underground Movements. The former are usually in favor of communism, the latter against it.

Marx predicted that wars between capitalist and communist states would have their origin in revolts of the workers of the capitalist states. He did not believe that these would occur in any particular order, much less simultaneously in all capitalist countries. More important, he thought such revolts would by no means come automatically; on the contrary, they would have to be provoked, armed, and guided by the first organized communist state. This duty has been assumed by the Cominform, agent for the Polit Bureau.

There have been, and are being, maintained in Russia schools for training 5th Column agitators and leaders. Every Communist Party, everywhere, sends students to these schools, where all receive uniform training as to general principles and special training for each country throughout the world. Communist Parties are universally in liaison with a head office in Russia, and receive instructions from it. The ultimate aim is to provoke revolts of workers. Under present policies, revolts are not to be sustained directly by Russian military forces until, and if, the revolts become firmly established.

Examples of this type of operation were the communist strikes in France in November 1947 and in Italy in April 1948. Both failed and neither received direct Russian support. Other examples are support which has been given to communist attacks against the governments of Greece and China.

Fifth Column activities are dangerous and may lead to important changes in the world strategical situation. They can not safely be ignored. American efforts to stop communist advances in west Europe were successful; in Greece it has been a stalemate; in China it has been unsuccessful.

Marx did not require that revolts of workers should be provoked only where a majority of the workers favored such a policy. Communism has nowhere required a majority to justify taking over a state. Not even in Russia has a majority been had. Active efforts to provoke chaos in a great many areas, with the hope that this would lead to opportunities to establish communist states, is a great danger to world peace.

While 5th Column activities have to be provoked, Underground Movements are habitually automatically started. Their basis is a desire for freedom, and for emancipation from a cruel dictatorship. At this date they occur only in Russia and its satellite states. Little reliable information is available as to the Underground but it will be reported upon by PERIMETERS from time to time.

(c) *Consolidations*. Russia has not and can not make good on promises that communism results in a better life than the Western Powers have. This fact is becoming evident to millions throughout the vast Russian territories. Russian soldiers who have been in contact with Western civilization have spread information about it to their fellow citizens. Russians at home now know, better than most people here suspect, that their government does not tell them the truth and that their standard of life is below that of the West. Neither the Russian peoples, nor those of the satellite states, are dumb. They may be temporarily helpless under a dictatorial government, but they are not satisfied. For example: Poland is required to sell her coal to Russia for about $1.50 a ton. The same coal could be exported to the West for $12.00 a ton. Poland is forced to buy certain necessities, such as food, from Russia at prices in excess of those required to obtain the same from the United States or Canada. The Poles understand that when their products must be sold below world prices, while what they buy must be paid for at more than world prices, their standard of life goes down, not up.

In sub-standard areas, such as Outer Mongolia and North Korea, Russian promises have not as yet seemed impossible of fulfillment.

Under communism man is a tool of the state, without recognized rights, to be used like any other tool, according to the work the state wishes to perform. There is no freedom such as is known in Anglo-Saxon countries. People are regimented and assigned to tasks.

In Russia there never has been freedom. Its absence does not strike the average Russian as unusual. Russians see nothing wrong in dictatorships. Many prefer the communist government to the preceding ones under the Tsars, as the present government at least professes to be working for the benefit of humanity. By no means are all Russians against their government.

In the satellite countries, the people have known freedom. Acquiescence to the Russian dictatorship is opposed. The people note that the forcibly installed communist governments are not fulfilling promises as to a better life. Unrest and Underground Movements are growing. Communism meets this situation by claiming that existing poor conditions are entirely due to foreign plots and threats of attack. This stage is current throughout the east Europe satellite states. Usually the United States is accused of war mongering, and of plotting against the alleged peaceloving democracies of the Red banner. Propaganda stresses the need of preparing to fight in order to emancipate

the alleged free workers of Russia, of its satellites, and of the whole world.

Since it is obvious to all that the Anglo-Saxon Powers have not been, and are not, attacking, it is necessary to produce "evidence" of plots. Hardly a month goes by without arrests, trials, and convictions, behind the Iron Curtain, of leading men charged with collaborating with the United States to overthrow Russia and its satellites.

The highest Government officials lead in this false campaign. For example: On 6 November Foreign Minister Molotov in a speech at Moscow stated: **"All this talk about Western Unions, Atlantic Unions, Mediterranean Unions, etc., hides behind declarations of defense that mislead only those who are too gullible. In fact these Unions are to prepare new aggressions and the unleashing of new wars"** and, on 7 November, the Russian Minister of War Marshal Bulganin stated: **"The peace-loving foreign policy of the Soviet Union meets with opposition on the part of the Anglo-American war instigators. These have disrupted the policy of agreement and cooperation with the Soviet Union and are now striving to unleash a new war."**

COMMUNIST THEORIES

The probable action of a foreign Power can not be correctly evaluated without some knowledge of the theories which form the basis for its intentions and actions.

A major danger for a World War III is Marx's theory that war between communism and capitalism is bound to continue until communism wins. Marx's writings are to his followers a science as valid as any other. They admit no exceptions. Communist leaders are sincerely convinced that there is going to be a World War III and that it is their duty to prepare for it.

Marx predicted no dates for his wars. Neither did he state that all would be won by the communist states. Russian writers now admit that communism might lose some war. To prevent that happening communist leaders are directing their energies.

Part of the prediction was that wars would originate within capitalist states as revolts by the workers against their masters, pictured as heartless, cruel, and bestial individuals. As expressed in 1848, the workers could lose nothing but their chains. It was the prescribed duty of the Dictatorship of the Proletariat (Polit Bureau) to arm, provoke, and guide revolts. It is attempting to do so.

The Communist Party furnishes from its ranks the command and general staff units and officials for military, civil, and industrial direction in Russia and communist parties in liaison with it. The Party is limited in numbers to that necessary to fulfill its function. In Russia about 3% of the population suffices. A greater number can not be used. Members form the top officials; receive high honors and pay. There is never a dearth of applicants. At intervals, purges rid the Party of members rated as below average or unsatisfactory. Purges may result in death, and members are usually fanatically loyal. The 97% of the people who are not members of the Party have only to obey.

Marx prescribed that, in order to start and quicken revolts, differences between communist and capitalist states should be exploited and not compromised. This principle makes it improbable that the tension between Russia and the Anglo-Saxon Powers over Berlin and Germany will be settled, unless new difficulties can be substituted. For example: The differences over Berlin were apparently settled by the ambassadors at Moscow at the end of August 1948, and referred to the Commanding Generals at Berlin for action. Here the Russian commanding general, while agreeing to conditions supposedly settled at Moscow, stipulated new problems which had not been agreed to and thus prevented a peaceful solution.

It is in conformity with this principle that the Chinese communists refuse to entertain any peace proposals. Where governments have been established jointly between communists and non-communists they have resulted in all-communist governments within a relatively short period, as in Poland and Czechoslovakia, for example.

Communism will accept unconditional surrender—its idea of collaboration. It will not compromise unless forced to do so by superior strength.

Communism is atheistic; believes in no future life; proclaims that nothing is above the state—represented by the Polit Bureau, which is a true Command Section directing communism everywhere. The death penalty was abolished in Russia for civil crimes, but not for opposition to the state.

Communist justice is what the state says it is. Liberty, democracy, right and wrong, are whatever the state defines these to be. Thus Russia claims to be, except for its satellites, the only free and democratic state in the world. It has modified the definition of democracy as we know it to cover her form of society. Dictatorships, concentration camps, murder, all are good if they serve the interests of the state. False charges and "confessions" extracted by inhuman tortures are justified if they serve the interests of the state as defined by the Polit Bureau and its subordinates. The alleged mission of communism, which is to better the life of man through a universal and permanent peace, is ample excuse for most revolting acts.

It is useless to charge a communist state with failure to keep promises or abide by treaties. Its rules and principles authorize just that. There is no doubt that communism intends to be, and is, a menace to the other nations of the World.

COMMENTS

The communist desire, exemplified in Russia, to conquer the World in order to spread its theories and government under the pretense that this will in the end be a benefit to humanity is a repetition of history. Egyptians, Persians, Jews, and other eastern nations in ancient times sought to dominate the then-known World, for the same reason. Later the Greeks and Romans tried it. In modern times Spain, Portugal, France, and Great Britain have conquered nations under pretext of benefiting less cultivated races. Russia is following the same trail. History shows no invariable rule which will cover all such cases. Successes and failures have both occurred. Some dominations, such as the Greek, lasted but a few years; others have lasted for centuries.

Nations seeking to dominate others always meet opposition, and war. Those mentioned in the preceding paragraph had to fight bitter wars; some of them for hundreds of years. All except the modern nations listed were finally overcome

and either destroyed or reduced to small states. The modern nations mentioned still exist but all have declined from their zenith. At this time Russia is on the ascendant, but confronted with growing resistance. It is unlikely that new wars will arise from workers revolting in favor of communism in order to benefit humanity. This has never happened. It is more probable that new wars will be the reaction of states desiring to maintain their independence.

Russia isolates countries within its power. This has been appropriately described as placing them behind the Iron Curtain. They are then subjected to a consolidation process, which is a mixture of propaganda and terrorism, to turn the people into reliable communists. To provide against this failing, special attention is directed to indoctrinating the children with communism, by prohibiting all other teachings and religions. Minimum time for this program is 15 years, and it can not be completed in the satellite states before 1960.

Conquering states have repeatedly sought to assimilate occupied nations. In general, such attempts succeed only when the occupied state is small enough to be exterminated. Russia knows this rule. Thus the Baltic states, being small, are in process of extermination. Many have been put to death; others die of forced destitution or malnutrition. Large numbers are transported and scattered to distant regions. In a few years the nation disappears and is replaced by new immigrants.

This plan can not be applied in large satellite states whose people are needed to exploit industries and resources. Here propaganda and terrorism are the rule. History indicates that the occupying state is more likely to be ruined by suppression movements than is the occupied state. Such satellites are a military weakness. They will revolt whenever the opportunity presents itself. The cry of *Liberty* forms the rallying point as well as a reminder of ancient freedom and revered institutions.

The will to liberty does not disappear even if the occupying state has ruled justly and benefited an occupied area. India, Egypt, and the Philippines wanted independence notwithstanding the admitted benefits which the occupying states had brought about. The ideal of liberty never departs from the minds and hearts of occupied nations. Time does not weaken this ideal; on the contrary it may strengthen it.

CONCLUSIONS

Consolidation of occupied states, by the methods described, is the primary mission of Russia at this time. If all goes as planned, it will take until about 1960 to complete. History, however, shows that the plan is not likely to succeed.

In the meantime Russia desires peace, but continuation of the Cold War to keep her people under training for a real war. A forcible advance into west Europe will depend on whether 5th Columns can provoke chaos and the installation of communist governments. Stopped during the past two years, this plan is not dead. Further activities along this line must be looked for.

Cold War is a new name for an old condition. The United States conducted a cold war against Japan and Germany prior to entering World War II, and against Germany prior to engaging in World War I. It has led to war in the past, and may do so in the future unless very carefully directed.

In the present Cold War the two sides are using different methods. History points to none of these leading to peaceful solutions. Neither the ideal, promises, and consolidations of Russia, nor the loans and gifts of the United States, are likely to ensure loyal allies. This leaves the current Cold War in a situation where tactics and methods may have to be changed.

CHINA

THE GENERAL SITUATION

The preceding issue of PERIMETERS closed with the loss to the communists of Manchuria in the north, and of Tsinan at the west entrance of Shangtung in the central theater of operations. These events divided China into two new theaters, divided roughly by the Yellow River—North, communist and South, Kuomintang. The latter is the Government recognized by the United States as the lawful one for all of China.

North China is mostly flat and treeless. It has roads, extraordinarily dusty in summer and muddy in spring and autumn. They are fair when frozen. Armies can operate readily throughout. People eat meat, wheat, and millet, and are about self supporting as to food when stocks are not consumed by occupying troops. Communism was heretofore favored in this area because of the promises of farmers' getting land for nothing. Several years of communist rule has by now disillusioned the inhabitants, who are turning towards the Kuomintang.

South China has next to no roads, the main lines of communication being canals and rivers. It is a difficult country to move armies over. This is a rice country, without meat (except pork and poultry), wheat, and millet. A different language from that of the north is spoken, and customs also vary. Inhabitants dislike the Kuomintang on account of excessive corruption and gross incompetence. At the moment they largely prefer communism on account of its rosy promises. For example, Shanghai officials ask for communist rule.

Everywhere the mass of the people are dissatisfied with the prevailing governments. They do not care who wins the current civil war and, as 80% to 90% are illiterate, have no conception of either democracy or communism. What they do know is that ruin, death, and starvation are prevalent and they attribute this to the war. They are prepared to favor any party and accept any rule which will insure peace, law, and reasonable taxation. Chinese dislike foreigners, but there is an influential body who would accept foreign rule if it brought peace to a worn-out country. If the Western Powers will not fill this rule, they will look towards Russia.

Patriotism in China is usually limited to the family, not to the state. Only a small number think of the state first. Even educated persons corruptly sell the interests of the state regardless of the result to their own country.

Since there is no patriotic sentiment for the state, and no interest as to who wins the war, but a universal desire to have the war over with, there is no hatred in ranks between the contending forces. When replacements are required, the Chinese equivalent for the recruiting service grabs anybody who has insufficient funds to secure a release. These "volunteers" seek opportunities to desert and to avoid fighting. For all China, the contending armies are pests, who seize the young men, the food, and the clothing, destroy homes, and spread starvation and misery over what was once a fair land.

Military Conditions. Operations are limited to areas which have sufficient resources to maintain the warring factions. This is particularly true of the communists, who habitually live off of the country. There are large areas where there are no troops of either side.

In the exterior provinces, Ninghsia is Moslem and theoretically favors the Kuomintang. In Sinkiang a communist army, reported as having 50,000 men, has appeared in the west. It is understood to have been armed, equipped, and trained by Russia. Tibet is nominally part of Kuomintang China.

The Government has air and naval forces, both American trained and using American equipment. Communists have neither air nor naval forces, and next to no antiaircraft troops. The Government air force of 8 Groups is supplemented by a civilian air-transport system under Major General Chennault, USA, Ret. Notwithstanding that this large air force meets no opposition, it is below standard. Its main missions are bombing and dropping supplies to its own troops. Both are undertaken from such high altitudes and so inefficiently that a large part of supplies dropped fall within enemy lines, and bombs rarely hit the enemy. No flying is done at night. Consequently, communists march by night, when they are neither bombed nor observed.

Government intelligence service is unsatisfactory. The Air Force seldom reports anything important, while ground troops habitually fail to reconnoiter to even short distances beyond their lines. For example, the Tsinan and Puchow RR guard has for months failed to reconnoiter hills on the flanks, which are only some 5 miles away. The enemy crosses the hills by night and interrupts the railroad. The RR guard spends the next day repairing the break, and then sits around doing nothing until the next enemy raid. Communist intelligence is better. They have a 5th Column throughout Government-controlled China which transmits information with considerable rapidity. Government GHQ sends out orders by phone and radio in the clear, messages being picked up by the enemy. Individuals at GHQ can be bribed to hand over carbon copies, etc. Neither side seeks intelligence by combat operations.

Government materiel is not maintained efficiently. This particularly affects the Air Force and armored troops. There is a lack of spare parts, and plain incompetence. For example, over 200 British fighters were obtained from Canada, but it was possible to assemble only 40. There are no tank trucks. Armored vehicles are limited in radius of operation to what gasoline they can carry for a round trip from source of supply. The Government representatives have shown a tendency to blame the United States for this unsatisfactory condition. Their basis for this is that since most of the materiel is American supplied, it is up to the United States to maintain it. As far as this writer can ascertain, out of the large credits given to China there have been ample funds available for maintenance. Communist maintenance is provided by mobile repair units, Russian trained. The communists use Japanese materiel, obtained from stores which Russia left in Manchuria when she evacuated that province. This has been supplemented by large amounts of American materiel. Not all American-furnished materiel sent for Government armies is issued to troops. Some has been sold directly by front-line units to communist forces, who send negotiators across the lines to bargain whenever a new supply is received. Still other weapons and ammunition have been identified in IndoChina.

Government divisions are full of unarmed men. In some, 90% have no weapons. Pay is furnished in bulk to the division commanders, based upon number of men reported present. It is common to report a greater number than are in ranks, the pay drawn for nonexistent men being appropriated to commanders to eke out insufficient pay.*

Morale on both sides is low; more so now on the Government side as it has been losing. The private soldier sees no sense in fighting, doesn't do it if he can avoid it, and is ready to surrender or withdraw from a contest the merits of which interest him not at all. It is not dishonorable for troops to shift from one side to another, and they do so whenever they think they can thereby better themselves. Most Chinese generals are incompetent, and will avoid fighting when possible. When surrounded, and escape is impracticable, some generals have shown considerable courage and have fought to the end.

Communist Policies. For several years the communists have received a good press in the United States. This has changed as information of outrages and close connection with Moscow has become known. In May 1948, a new directive was issued regarding religious persecutions. This prescribed:

1. In territories seized recently, or about to be seized—full religious freedom is to be permitted. (Example—the Hsuchow area).
2. For areas recently consolidated—as prescribed in (1), except that gradually and secretly measures are to be taken to insure disappearance of individuals, to weaken religious sects. (Example—areas outside Peiping).
3. For areas fully consolidated—religion is to be destroyed. (Example—Manchuria).

On 6 November, the communist radio broadcast a statement of unity with Russia and of hostility to the United States. It accused the United States and its "running dogs" of preparing a World War III, and predicted that this would come and would result in the extinction of the capitalist world. It defined the mission of the China communists as to drive out of China American

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*This type of graft started during the medieval ages. It led to Articles of War which provided that before troops could be paid their number and equipment must first be verified by a disinterested mustering officer. Severe penalties were prescribed for anyone who knowingly presented to a mustering officer, as a soldier, anyone who was not a soldier. In the United States these Articles of War were not repealed until 1901.

imperialism, to overthrow the Kuomintang, and to establish a single People's Party for all China. No compromise or modification of this program would be permitted. In compliance with this, the communists have turned a deaf ear to various peace proposals involving a joint government with the Kuomintang. Instead, on 25 December a new broadcast announced a list of Kuomintang leaders, which included President and Madame Chiang Kai-shek, as war criminals under international law, and who would be condemned as soon as they could be seized.

Kuomintang Policies. In the early part of November, President Chiang Kai-shek admitted the great defeats of his troops, and appealed to the United States for additional support. This letter had not been released when these lines were written, nor the American reply of 13 November. However, it is reliably reported that the latter was friendly in tone, but declined to commit the United States to do anything more than to speed supplies for which appropriations had been made and which were still unexpended.

MILITARY OPERATIONS

North Theater. During the first week of November the Government evacuated about 6 divisions from Yingkow and Hulutao by sea to central China. Transports were horribly overcrowded, and materiel was abandoned with the ports to the enemy. Two transports were lost with about 6,000 casualties.

The commander for North China is General Fu Tso-yi, with CP at Peiping. On 1 November he held the cities of Kalgan, Peiping, Tientsin and its port of Taku, Tsingyuan, and Taiyuan. Garrisons in all cases held areas from 10 to 30 miles outwards. All places were under siege, mostly by inferior forces on blockade.

On I November General Fu had a column engaged in relieving Tsingyuan (Paoting on some maps). It met little opposition and advanced south as far as Chengtien, where the enemy was found on the south side of a river covering Shihkiachwang Junction. The advance thereupon stopped.

Taiyuan had been under siege for three months. The siege was not very effective, for supplies arrived for the arsenal, which was operating, manufacturing infantry arms and ammunition and 75-mm guns. Air communication was functioning.

On 8 November Kalgan reported that the railroad had reopened as far as Tatung.

The next day General Fu received orders from GHQ to prepare to evacuate north China. This, on becoming generally known, led to a panic and a flight of civilians who were able to flee, and to large desertions by soldiers. The garrison at Tsingyuan was withdrawn on 22 November and arrived at Peiping without incident. On the 24th, the China Air Force moved its Peiping base to Tsingtao, although the Peiping base was not immediately threatened. The garrison at Tientsin in early December evacuated the undamaged Tangshan coal mines and had already withdrawn from Chingwangtao. The coal mines used to furnish 50% of the coal for all of China. This loss is a serious blow to Chinese (Government) economy. On 24 December, Kalgan surrendered to the enemy, all property being turned over to the victors on regular invoices and receipts.

The communist commander is General Lin Piao. He closed in in a leisurely manner and had Peiping and Tientsin blockaded by 18 December. His troops showed no intent to attack. General Fu was reported as having 100,000 troops at Peiping and 80,000 at Tientsin. He also showed no intent to assume the initiative.

South Theater. There has been only one campaign. This has been about Hsuchow, a large city where the east and west Lung Hai RR crosses the north and south Tientsin and Pukow RR. (*Note*: the correct name for this town is Tungshan. Hsuchow is a former name. The press usually spells it Suchow.)

On 1 November, Government GHQ assigned General Tu Yu-ming to command all forces in the area, and to defend Hsuchow against an expected enemy attack. This general had been the commander-in-chief in Manchuria, where he had been thoroughly defeated during September by inferior forces. He understood that the enemy was coming from Tsinan and consequently would have to cross the Yun River, a formidable obstacle. He adopted the following plan.

He would defend that river by a T formation. The head of the T would extend for 50 miles on the southwest side of the river covering Hsuchow. He was not certain that he would succeed and after his experience in Manchuria, where he had lost most of his troops, was now desirous of maintaining an escape route. This would be a corridor, 30 miles wide with the axis following the RR from Hsuchow to Pengpu, where a bridgehead over the Yellow River was to be prepared. He disposed his troop as follows:

2nd Army Group, with 3 armies, to defend the left half of the head of the T.

7th Army Group, with 4 armies, to defend the right half of the head of the T.

13th Army Group, with 2 armies, to form the reserve, posted at Hsuchow.

5th Army Group, with 2 armies, coming from Manchuria, to debark at Lienyunkang. (These troops had abandoned their equipment in Manchuria, and if landed as ordered would be in rear of the enemy.)

12th Army Group, with 4 armies, en route overland from Hankow, to join at Hsuchow (date these troops could arrive was not well calculated).

8th Army Group, with 3 armies, to guard the east side of the corridor.

16th Army Group, with 3 armies, to guard the west side of the corridor.

6th Army Group to assemble at Pengpu and defend that bridgehead (the last three Army Groups mentioned consisted largely of "volunteers" hastily raised, and untrained).

(NOTE: A Chinese Army corresponds to our corps; normally has 4 divisions. An Army Group may have any number of armies. The average army has about 20,000 combat strength on paper. Total force was perhaps 400,000 men. Front to defend was 250 miles, counting both sides of the corridor as separate fronts, facing outwards.)

The communist C-in-C is General Chu Teh. About the last of October he ordered his troops to attack as follows:

Army Group of General Chen Yi, with 7 armies, to proceed from Tsinan area and drive in the right of the Government forces along the Yun River.

Army Group of General Liu Pocheng, with 3 armies, from Kiangsu to cover the left of General Chen's attack and at the same time break in the east front of the Government corridor.

Army Group of General Chen Keng, with 5 armies, to proceed from the Kaifeng area and break in the west front of the corridor.

The total force was 15 armies, or about 300,000 men probably present. It was to be reinforced by divisions from Manchuria as fast as these could be brought forward.

Contact between opposing forces came on 7 November, when General Chen arrived on the Yun River, having made a 160-mile advance within 10 days. He established liaison with General Liu. On the 9th the two Army Groups commenced to cross the Yun River below the defended government line. General Tu decided not to oppose the enemy's river crossing. Instead, he planned to allow them to cross and then proposed to encircle them and crush them. The communists thereupon crossed and with 13 armies fell upon the Government's 7th Army Group of only 4 armies. The latter was badly mauled, and General Fu attempted to reinforce it by sending the 5th Army from the 2nd Army Group on his left. This Army had had 3 divisions but during September, while en route to Hsuchow, 1 division had deserted to the enemy. The remaining 2 divisions, not desiring to fight, now did likewise.

The communists discontinued their attack against the 7th Army Group on the 13th after driving it in close to Hsuchow. At the same time General Liu's troops attacked the east face of the corridor, while those of General Chen, coming up from the west, attacked that face. The corridor was pierced and the two communist forces joined at Suhsien, midway between Hsuchow and Pengpu, on the 16th.

At this time the Government's 12th Army Group from Hankow arrived west of Suhsein. It was ordered to proceed to Hsuchow. Finding the enemy in between, it refused to fight, and occupied a position for defense. The 110th Division deserted to the enemy.

On the 22nd the attack against the remnants of the 7th Army Group was renewed. The 7th, unsupported except by fragments of the 13th Army Group, collapsed, and its commander committed suicide. The communists thereupon gradually closed in on Hsuchow. Seeing that he would probably soon be encircled, and thousands of his men having deserted, General Tu on the 28th decided to abandon Hsuchow and march south to join the 12th Army Group about 65 miles beyond his lines. By this date the greater part of the 16th Army Group had joined General Tu from corridor duty. The 7th Army Group was broken up.

The evacuation was completed on the 30th. According to their own reports there were 140,000 troops present. The heads of the columns arrived at 20 miles beyond Hsuchow and the rear elements at 10 miles, when the enemy was met. Whereupon the entire command occupied a position for defense. In the meantime the 5th Army Group had debarked at Lienyunkang as ordered, and then had surrendered.

Up to the end of December, when this account closes, no substantial change had occurred in the situation. The 12th Army Group was surrounded, while 40 miles to the north, the combined 2nd, 13th, and 16th Army Group were also encircled. There was little fighting between the two sides. Government troops were supplied by air, but there was no effort made to relieve them, nor any effort on their part to do anything. The Pengpu bridgehead was intact, not having been engaged as yet by the enemy.

COMMENTS

Communist powers are counting upon the Western powers following the same strategical plan as during World War II—major effort in Europe; secondary effort in Asia. At this time, available evidence indicates that the communists have no objection to this and will favor it, during the Cold War period, by feints in Europe while quickly making serious advances through China eventually to absorb all of Asia.

To allow the communists to occupy south China is to allow direct connection with India and Southeast Asia, and risk all of these countries eventually passing to behind the Iron Curtain. To stop this danger, the first requirement is to hold the Yangtze River line. The danger area is not that part close to the sea, but the section extending west from Hankow.

The Yangtze River is a formidable obstacle, averaging in winter in the Nanking-Shanghai sector 1½ miles in width—wider in summer. South of the river the country is not self supporting as to food, which comes from west China. Communist forces live off the country and for them this is a vital matter. Parallel to the Yangtze, and 80 miles beyond, lie the Pai Chi Mountains, which are rough with few passes, and could be defended by inferior forces. This way to south China is about the most unfavorable one possible, especially for a force having neither air or naval forces, and no bridge equipment.

A better route is to advance south from Hankow or west thereof, passing either east or west of Tung Ting Lake, depending on location and strength of opposing forces. This route extends through a region producing a large surplus of food. Its possession by hostile forces would threaten the Nanking-Shanghai area with starvation.

Advancing south from Hankow would split south China in two, separating the defending forces so that they could be attacked separately. This would not be the case if an advance were to be made through eastern China. The route south from Changsha was used by Japan with great success, and there lies the danger of invasion.

Rumor has it that Russia has been training an Air Force for the China communists which will be available during the spring of 1949. This has not been confirmed, but it may be true and it would be an error to overlook its possibility.

To defend the Yangtze line successfully requires a competent defense command, some efficient troops, and above all promptness.

GREECE

GENERAL SITUATION

President Truman's report of 6 December estimates the communist strength in Greece as 22,000. A later Greek report gives 25,000, same number which was reported at the beginning of the year. Greece estimated enemy casualties during 1948 at 33,000. If this is correct the enemy replaced all personnel losses during the year. The Greek army in December had 165,000 men, exclusive of 50,000 National Guard on garrison duty.

The communist strength is probably underestimated. Identifications noted indicate about 10,000 Communists at Mt. Vitsi; about the same number in central and south Greece; and 7,000 along the Bulgar border. This gives 27,000 and does not include men in depots in Albania, Yugoslavia, and Bulgaria. The communists must be counted upon to have at least 35,000 to 40,000 troops available for the coming spring campaign, as against over 200,000 Government troops.

Communists have an advantage in that they have bases within the states north of Greece. These include hospitals, training centers, depots, etc. They retire to these bases as desired and need not return until ready for some operation. On 10 November, the United Nations found Yugoslavia, Albania, and Bulgaria guilty of endangering the peace in the Balkans by supporting these bases. On 27 November an order issued directing those states to cease further aid to the Greek communists. As might have been expected, no attention was given to the UN order.

The US Military Mission in Greece is headed by Lieut. General James A. Van Fleet. On 28 November he stated in a speech at Athens:

"The Greek Army cannot at this time effectively police the entire border. It can drive these criminal bandits to the border as has been done repeatedly during this year, but it cannot pursue them beyond the border or prevent them from returning at some other spot."

The communists have an efficient 5th Column everywhere throughout Greece. This is not mentioned in official reports. The most recent elections indicate that about 2/3 of the Greeks favor the present Government. One-third are in opposition, less than the usual percentage in the United States. However, Greek history shows that the minority is seldom willing to be governed by the majority. From earliest known times civil wars have been common. The most peaceful periods have been when Greece was dominated by the Romans, and later by the Turks. The present civil war is not unusual. It is a standard weakness of Greek governments.

There is ill feeling against the United States. This is due to disappointment at not having ended the war, and to the financial strain of going on with it. Greeks are looking for an alibi for not having defeated the enemy, after a two-year campaign. They find it convenient to blame the United States. Principal growls are failure to furnish sufficient mountain artillery and planes and refusal of the American mission to accept suggestions as to how to run a campaign against communists. Greeks claim they know a lot about that and the Americans very little, with resultant unsatisfactory results.

MILITARY OPERATIONS

Nothing has been done to reduce the main enemy stronghold around Mt. Vitsi.

On 12 December a communist combat group estimated as 3,000 men, coming from the west and 100 miles from the border, attacked and captured Karditsa. According to Government reports, reinforcements, which included armor, artillery, and air force, drove the enemy out next day with a loss to the enemy of 75 killed and 26 POW's. According to communist accounts they withdrew on the 13th after having accomplished their assigned mission, which was to secure replacements. Government reports are that 980 civilians were kidnapped; communist, that that number volunteered. Government loss was 165 casualties, plus 141 civilians killed and wounded.

A study of this operation indicates that Karditsa had a garrison of 1,400 men. Their intelligence was bad, for they were surprised by the attack and were quickly overcome. It is claimed that about 1/3 of the inhabitants were communists, and that their 5th Column furnished guides, blew up bridges to prevent early arrival of Government reinforcements, etc.

On 21 December, a communist force of 2,000 similarly raided and held for a day Edessa and Niaoutsa, adjacent and midway between Mt. Vitsi and Salonika. More replacements were secured. Four days later, on Christmas, a communist force arrived at the outskirts of Salonika and at night fired 20 shells into the city, causing slight losses. This city is the CP of the Greek III Corps. Its garrison includes a brigade of British troops. The latter were alerted, but did not participate in the operation. On the 29th, a reinforced communist brigade raided the vicinity of Kastoria. In all these operations replacements were secured.

Explanation for the series of communist attacks in the north is that the main body of the Greek Army had been concentrated in Peloponnesus with a view to exterminating the communists, estimated at about 4,000 men, in that area, during a proposed winter campaign. As 1948 ended that campaign had reported that the enemy had withdrawn to "inaccessible" positions.

PALESTINE

MILITARY OPERATIONS

On 1 November, in violation of a United Nations' cease-fire order, Israel was conducting an operation to clear Egyptian troops out of Negeb. The line was: El Majdal (Egypt) —El Faluja (Israel) —Bir es Seba (or Beersheba) (I) — Hebron (E) — Bethlehem (E).

On the 5th, Egypt withdrew from El Majdal to Gaza, which Israel then blockaded. Operations then slowed down. On the 13th, Dr. Ralph J. Bunche, UN Mediator, issued a new order directing Israel, which had violated

a truce by starting the current operations on 15 October, to withdraw to positions occupied on 14 October. On 18 November, Israel declined to comply with the UN orders, but stated she would agree to an armistice with Egypt.

On 4 December, Dr. Bunche advised Egypt that Israel would not obey UN orders but was ready to enter into armistice negotiations. Egypt accepted this proposition on the 6th and requested the UN to represent her at the armistice negotiations. On the 19th Israel refused to accept the good offices of the UN and demanded that Egypt sue directly for peace.

In the meantime the Israel offensive had been resumed on the 16th, using armor and the air force to attack Egyptian positions just south of El Faluja. This failed, as did an attack started next day against Gaza. However, Israel troops penetrated without difficulty between these posts, and by the end of December, with no fighting other than patrol actions, had cleared Negeb, less the coastal road, and had raided 30 miles into Egypt.

THE POLITICAL SITUATION

The Arab League, on 8 November, rejected a proposal for a single C-in-C for their forces. That decision has led to the disintegration of the Arab League.

On 13 December, the Trans-Jordan Parliament approved a plan, submitted by the Palestine Arabs, for annexation of that part of Palestine assigned to the Arabs by the UN Partition Plan, with Trans-Jordan. Egypt, Syria, and Saudi Arabia have objected. Up to the end of the year the king of Trans-Jordan had not approved this proposal. However, on 20 December, he appointed Shiek Hussan Jarallah, former Chief Justice for Palestine, as Mufti for Palestine (Arab title for religious leader), vice Haj Amin el Husseini, relieved. The latter is at Gaza heading a rival Government-in-Exile and supported by Egypt.

The military reverses of Egypt, Syria, Iraq, and Lebanon have disappointed and disgusted the peoples of those countries with their inefficient leadership. Also, Trans-Jordan, which has not been defeated, has been convinced that its neighbor Arab states are militarily impotent and may be disregarded. Serious riots have occurred in the defeated Arab states. Developments within the Arab countries can not be predicted. The entire area is seething with discontent and may lead to dangerous consequences.

SOUTHEAST ASIA

INDONESIA

The Indonesia Republic, with capital at Jogjakarta, on 1 November controlled the central part of Java and most of Sumatra. It had just suppressed a communist revolt. It was on bad terms with the Dutch authorities, with whom an armistice existed. This had been signed in January 1948 on the USN *Renville*. The United Nations has had a Committee in Java seeking to arrange peace between Dutch and Indonesians. On 11 December the Netherlands Government notified this Committe that no useful purpose could be served by further talks, and that it had been decided to resort to force. For this purpose it would have available 124,000 troops, using American arms, under Lieut. General S. H. Spoor. His plan was to:

1. Capture important centers to deprive the enemy of his lines of communication.
2. Destroy enemy main bodies and capture leading officials.
3. Prevent any scorched-earth policy.
4. Follow up by an offensive against guerrillas.

The Indonesia Republic had on paper 400,000 troops, but only about 50,000 had modern weapons. It knew about the proposed Dutch offensive, and decided not to oppose main forces but to withdraw into the mountains and jungle and from there conduct a guerrilla war.

The Dutch attacked on 19 December. Parachute troops were dropped on Jogjakarta and the President and leading Indonesian officials were captured. Ground troops were landed at several places or advanced from posts already in Dutch possession. Little resistance was encountered and by the end of December all of Java was in Dutch hands, except mountains and jungle.

Sumatra is a large island, and by the end of the year, although opposition was negligible, Dutch occupation had been limited to important sectors.

On 24 December the United Nations issued a cease-fire order and immediate release by the Dutch of the captured Indonesian officials. The Netherlands made a reply, explaining that this was quite impracticable, and that cease firing would be ordered only after opposition had ended. Some guerrilla warfare had started, but the Dutch censorship prevents information about it from becoming known. Total Dutch casualties to the end of the month were 66 killed and 172 wounded, plus 2 planes allegedly downed by a Japanese-manned battery.

Comments. The Dutch plan is to complete their conquest before anybody

NOT A MEMBER

BY FRANCIS L. FUGATE

PHILIPPINES Civil Affairs Unit No. 4, better known as PCAU 4, was stationed at Antipolo, a few miles outside Manila, preparing to act as a service unit in staging military government units for the impending invasion of Japan.

During the month of August, 1945, planning activities were on a high plane, and the atomic bomb had not yet been dropped. The unit's duties had resolved to the boredom of eating, sleeping, waiting, and looking forward to mail.

One day the Adjutant was seated at his desk idly watching the Mail Orderly sort the day's crop for distribution. Suddenly the orderly began to thumb the personnel file and mumble. The Adjutant peered over his shoulder.

The letter was addressed: "General of the Armies Douglas A. MacArthur, General Headquarters, United States Army Forces Pacific." The notation "personal" was neatly inscribed in the corner.

The adjutant was horrified to see the Mail Orderly just completing an inscription in large block letters: "No RECORD PCAU 4."

can do anything about it. They are willing to risk the displeasure of the United Nations. May have been secretly advised by a Power having a veto that it will block UN efforts to insure compliance with its orders. The Dutch feel that the United States must support the Netherlands, as its country and forces are just now an important factor in the West Europe strategical situation and the United States can not afford to break relations with them.

INDO-CHINA

According to French press accounts, about 100,000 French troops occupy some principal cities with the Viet-Minh ruling the rest of the country, including some ports through which supplies can be reached. Guerrilla warfare is rampant, with neither side being able to obtain a decision. The Viet-Minh use Japanese arms, plus a considerable quantity of American arms which had been issued to China, and have been corruptly diverted. Military authorities are stated to have reported to Paris that there is no hope of winning this war unless very strong reinforcements are provided, which France is unable to do.

Comments. France has a veto in the United Nations, and can use it to prevent action against her. She does not fear American displeasure. She feels that her country, resources, and military forces are absolutely essential to the United States in West Europe, and that the United States will never take forcible measures against her.

GERMANY

From a military standpoint the disposition of Germany may be a decisive event.

At the end of World War II the Allies applied to Germany a policy of severity, the same policy as after World War I but intensified. No government this time as against a prescribed one. Property seized as reparations, cession of territories, population movements, numerous prohibitions, and other measures enormously exceed now what was demanded after the earlier war.

It is evident that the World War I policy did not prevent a new war within a relatively short period. Why was that so? There are two opinions regarding the World War I policy of restrictions on Germany:

1. That they were not sufficiently severe, and that consequently they should be increased now. France is the exponent of that idea.
2. That they were too severe and provoked a reaction of hatred which led to World War II. This opinion is growing within Great Britain and the United States and has already led to modifications of original orders concerning Germany.

What should be done now, in view of a possible World War III?

If Germany is maintained unarmed in a state of semi-slavery, it certainly could not aid the Western Powers in case of a Russian invasion. France is willing to accept this risk, with the understanding that the Anglo-Saxon powers promise to come to her aid as before and protect her if and as needed.

If, on the other hand, German freedom is granted and she re-arms, she might join the Western Powers against Russia, or join Russia against the Western Powers. France does not wish to risk the latter happening, and desires German industry to be severely restricted to prevent a possibility of secret rearming, regardless of the fact that restricting German industry causes economic distress throughout Europe; this, however, again with the understanding that the United States, with loans and gifts, will rectify the situation if and as necessary.

PERIMETERS will not argue this problem at this time. It may have more to say about it later. The problem is submitted to readers for consideration. It is very important.

2D ARMD DIV TROPHY ROOM

The 2d Armored Division, Camp Hood, Texas, has established a trophy room where flags, weapons, and other mementos of its accomplishments in WW II are displayed. A number of donations of trophies have already been received from former members of the division, and there are doubtless others who would submit contributions if they were aware of the project.

Trophies may be contributed outright or sent on a loan basis. The trophy room will be open to the public, but all items will be properly safeguarded.

Each item should be securely packed and addressed to the Commanding General. 2d Armored Division, Camp Hood, Texas, and preferably accompanied by a brief history showing its connection with the division.

ASSN. MEDAL AWARDS

☆ ☆

BOSTON COLLEGE

On 6 December 1948, the Association Medal was awarded to Cadet Walter L. Mayo, Jr. Mr. Mayo was in the Army from August 1943 to December 1945. As a corporal in the 160th Infantry Division, he earned the Combat Infantryman Badge. He was captured during the Battle of the Bulge and spent six months as a prisoner of war.

☆ ☆

HARVARD UNIVERSITY

On 2 December 1948, the Association Medal was awarded to Cadet Herman Page. Prior to entering Harvard Mr. Page was in the Army, serving in the American Theater. His home is Marquette, Michigan.

A good book is the precious life - blood of a master - spirit, embalmed and treasured up on purpose to a life beyond life.

—MILTON

Thunder Over the Pacific

CORAL AND BRASS. By General Holland M. Smith, USMC (Ret.) and Percy Finch. 289 pages. Index. Charles Scribner's Sons. $3.00.

By Dr. John Miller, Jr.

Here is the testimony of an angry man, a man who disagrees with nearly everybody. *Coral and Brass* is General Holland M. Smith's personal account of forty-one years of service in the U. S. Marine Corps. His career had two very significant aspects. He pioneered, often in the face of official apathy or opposition, to develop the techniques of modern amphibious warfare. His career came to a climax during World War II, where as Commanding General of the V Amphibious Corps and later of the Fleet Marine Force, Pacific, he commanded the expeditionary troops employed in the invasions of the Gilberts, Marshalls, and Marianas.

General Smith performs one valuable service in his account by scoffing at the notion, often held by men who should know better, that there are differences between Army and Marine tactical doctrines.

Little is to be gained, in this review, by examining the incident on Saipan which brought General Smith his greatest prominence—his removal of Maj. Gen. Ralph C. Smith. U. S. A., from command of the 27th Infantry Division. The event is described with some heat in *Coral and Brass*, and charges, denials, and refutations have recently appeared in the columns of the newspapers and several national magazines.

The Smith-Smith imbroglio on Saipan and Smith's vendetta with Lt. Gen. Robert C. Richardson, Jr., U. S. A., probably convinced the average soldier that General Smith has little use for the Army. This may be true, but his favorite foes, with whom he disagreed frequently and at length, are flag officers of the U. S. Navy. He is never loath to point out the errors of other men, especially admirals, nor to name the admirals, but admits to no mistakes of his own. General Smith, adducing ample proof to support his indictment, charges that naval officers often possessed little understanding of the problems facing a landing force commander. But nowhere does he display much sympathy for the problems that confronted naval commanders.

General Smith shows little concern for strategic matters, and his analyses do not appear to be complete. He charges that the capture of Tarawa in the Gilberts, taken at great cost by the 2d Marine Division, was a needless waste of life. The Central Pacific forces, he asserts, should have struck directly into the Marshall Islands, 600 miles northwest of Tarawa. He omits the fact that Tarawa was taken to serve as an air base in support of the invasion of the Marshalls.

On the tactical level, there is a disappointing omission. General Smith correctly ascribes part of the success of the invasion of the Marshalls to the landing of field artillery pieces, prior to the main assaults, on small islands close to Roi, Namur, and Kwajalein, the main objectives. The same techniques, used earlier at Tarawa, would no doubt have lessened the 2d Division's casualities, but there is no explanation of why no artillery was landed on a nearby islet.

Written in snappy journalistic style, *Coral and Brass* contains some exciting passages, but the complete absence of maps makes much of the text difficult to comprehend. As is perhaps typical of such books, there are numerous factual errors.

Both the professional military man and the historian will regret that in the discussion of the development of amphibious doctrine, General Smith is concerned more with personalities than with techniques. He has probably done himself a disservice by the stiff-necked, controversial tone of *Coral and Brass*. Here is no calm, judicious appraisal; there is no pretense at objectivity or detachment. His verbal barrages create a pall of smoke that obscures his very real contribution to the art of landing troops on a hostile shore.

Great General and Artilleryman

THOMAS: ROCK OF CHICKAMAUGA. By Richard O'Connor. 378 pages. Index. Appendix. Prentice-Hall. $4.00.

By Robert F. Cocklin

Shortly after the Civil War, General William T. Sherman had this to say about his former West Point classmate: "The day is coming when . . . brave George Thomas will be the idol of the South. I predict it, Gentlemen." General Sherman was indeed far-seeing, for only now, some 84 years after the Civil War, is General George Henry Thomas getting the recognition he so richly deserves. History records that no Civil War general was more important or more influential than Thomas, and yet he has been sadly neglected for all these years.

If General Thomas were alive today, he probably would not be surprised by this seeming neglect, as he experienced much the same thing during his military career. There are a number of contributing causes for his lack of public recognition. George Thomas was aloof from politics and was a quiet, self-contained individual. He refused to be drawn into the intrigue and scheming that catapulted a number of generals

to fame. In addition, George Thomas was a Virginian by birth, who turned his back on his family and friends to remain loyal to the Union. Even this patriotic act, which must have caused him great personal grief, was viewed with considerable suspicion, and no less a personage than President Lincoln entertained doubts as to the loyalty of this outstanding soldier who contributed so heavily to Union victory.

After graduation from West Point, George Thomas spent his time trying to improve himself in his chosen profession. His first military duty was in the Florida Indian fighting against the Seminoles. He later gained his first real recognition as Field Artillery Lieutenant in the Mexican War. The artillery saved the day at Buena Vista, and the splendid work done by Thomas' section during that engagement was included in the official reports forwarded to Washington. This publicity resulted in his being given a beautiful gold and silver steel sabre "suitably inscribed" from the people in his home community. It is interesting to note that Thomas never lost his appreciation of the tremendous value of field artillery, and he became its leading exponent during the Civil War. After he had become a general, he liked personally to choose positions and direct the fire of his artillery units, and his skillful handling of his artillery contributed a major share to the successes which he enjoyed.

During the period which followed the Mexican War, Thomas became a close personal friend of Robert E. Lee. They spent much time together and were part of the little clique of regular officers which Jefferson Davis, as Secretary of War, was using as a nucleus for his southern army in the Civil War that he was sure would come. Thomas was never consulted regarding his southern loyalty, but because of his birth, his family, and his friends, Jefferson Davis and others took it for granted. However, Thomas believed in the Union and cast his lot with it against his birthright.

This study of General Thomas reveals him to be not only an extremely capable and valorous soldier, but an honest and sincere patriot as well. He earned the sobriquet, "Rock of Chickamauga," for his valiant leadership of his small corps at Chickamauga, where he saved the Union army from defeat as he stood alone against great odds while the remainder of the Cumberland Army retreated in disorder. His brilliant leadership and courage have never been contested. We gain an interesting insight into his personal integrity as Mr. O'Connor reveals the substance of a telegram in which Thomas requested the President of the U. S. Senate to withdraw his nomination as brevet general because "my services since the war do not merit such a high compliment, and it is now too late to be regarded as a compliment, if conferred for services during the war."

It has never been possible for a commander to hoodwink his troops for very long. They are the first to know whether or not their commander is courageous and capable. George Thomas was beloved by the Army of the Cumberland, where he was affectionately referred to as "Old Pap." He wasn't given to worrying too much about his uniform during the normal course of events, but came a big battle and he rigged himself in full-dress array with all of the gold braid and stars a-gleaming so that his troops would have no trouble spotting him leading them into battle. He seemed to impart to his troops some of his unruffled courage and steadiness, and his prestige was increased by his constant duty with his foremost elements in battle.

This book will be of particular delight to all who are interested in the Civil War; however, it deserves a wider audience. It is difficult to conceive of a more interesting figure, and in *Thomas: Rock of Chickamauga*, Richard O'Connor has done full justice to his subject.

Vital and Valuable History

THE WAR OF 1812, By Francis F. Beirne. 410 pages, E. P. Dutton & Co., New York 1949. $5.00.

By Dr. R. A. Winnacker

History should not only satisfy people's curiosity about the past but, like a good novel, should broaden their outlook and add to their experience. Few professional historians seem aware of this function. Most of them, absorbed in the competitive business of digging up minute facts unknown to

their predecessors, lose whatever ability they had to communicate the spirit of the past and to make the past significant to their contemporaries. Fortunately we still have a few amateur historians left, like Mr. Beirne, to whom the mere understanding of the past is of vital importance.

The War of 1812 could be criticized on the basis that it adds no new facts to our knowledge, that the reviewer differs with some of the author's interpretations of diplomatic and military events, that the bibliography leaves out significant items. Such criticism, however, would be beside the point. Mr. Beirne had no intention of being exhaustive in his research or of writing a learned monograph on debatable points. He found that no book dealing with the War of 1812 as a whole had been written for eighty years and, being interested in this period, he decided to fill the existing gap in whatever time he could spare from his job as Associate Editor on the *Baltimore Sun*.

The result is the best volume available on the War of 1812—readable, fascinating in parts and, above all, revitalizing a much neglected period in American history. All of us who lived through the last war and are worried about the current international situation will profit from reading how we blundered into an unnecessary war, how despite our unpreparedness we had few doubts about our ability to win a "blitzkreig," how business-as-usual interfered with the war or even became treason. Evidence is furnished for both sides of the perennial debates on civilian or military control of strategy, on the primacy of youth or experience in military leadership, on the proper coordination of the Regular Army and the National Guard and of the Army and the Navy. Few histories published these days offer as much.

Beyond The Call of Duty

THE MEDAL OF HONOR. U. S. Dept. of the Army. 469 pages. Government Printing Office. Fully illustrated. Foreword by President Harry S. Truman. $4.50.

By George C. Groce

This is the story of what the present reviewer believes to be the highest decoration in all the world today. The research and the planning of the volume were done by Thomas W. Huntington, the writing by John F. Kane. Both were aided by many a willing and skillful hand, especially by those at the Government Printing Office. In fact the volume is a beautiful specimen of the book maker's art and craft.

Until 1862 Army medals were awarded for gallant and meritorious service to officers, but, originally, the Medal of Honor went to enlisted men only. This country had no experience in making such awards and so, in the beginning, many serious mistakes were made. For example, a regiment of Maine Volunteers received the Medal by inadvertence, though this fact is not mentioned in the text. Nor did the design of the original medal rise above the prevailing tastes of the period which Mark Twain has called the "Gilded Age."

The long and dramatic progress which has raised the award to its present matchless eminence began with Custer's fateful stand upon the Little Big Horn in 1876. Gallantry in combat, it was said, is always and everywhere to be expected of the American soldier. Only the man whose valor shines out above that of his comrades should receive the award.

The real father of the Medal of Honor as we know it today, was the brilliant Secretary of War, Elihu Root. With the assistance of Gen. Porter, a West Pointer and a Medal of Honor winner, as well as Gen. Gillespie, Chief of Engineers and also a holder of the Medal, there was created a new design, more pleasing and more tasteful than the older Medal. Likewise the requirements for bestowal were raised so that all essential stipulations which were fixed by Root have changed but little since.

The deed for which the award is given must lie above and beyond the call of duty and at the risk of life in conflict with the enemy during war, and be an act which, if left undone would not occasion any justified criticism. More than half the recipients of Medals of Honor have already given "the last, full measure of devotion" to their country.

There follow the stories of soldiers'

deeds from the Civil War through World War II for which this decoration has been awarded. After these come a series of appendices the most important of which are the calendar of manuscripts and the list of published writings. The latter should assure this volume a permanent place in every general reference library worthy of the name. The book will be a valuable and handsome addition to the personal library of anyone interested in the military tradition.

Roosevelt and His Family

F. D. R.: HIS PERSONAL LETTERS, 1905-1928. Edited by Elliott Roosevelt, assisted by James N. Rosenau. 674 pages. Illustrations, index. Duell, Sloan & Pearce. $5.00.

By M. Hamlin Cannon

The second volume of the personal correspondence of Franklin D. Roosevelt is composed for the most part of letters written to either his mother or his wife during the years 1905 to 1928. Many annotations have been necessarily and ably made by the editors both to explain references in the letters and to bridge the intervals during which letters were either not written or not preserved. The collection opens with an engaging and detailed account, in the form of communications from both F. D. R. and his bride, of the European trip taken by the youthful couple in the summer of 1905. Next come letters covering the periods when Roosevelt was beginning his career as a lawyer, followed by his entrance into political life as a State Senator in 1911, and his eight years' service as Assistant Secretary of the Navy which spanned the memorable days of World War I. Then came his unsuccessful campaign for the Vice Presidency in 1920 and the long years of struggle to overcome the effects of the infantile paralysis which struck him down in 1921. The concluding chapter of this volume contains a few letters written to his mother during the campaign year of 1928, when Roosevelt was elected Governor of the State of New York.

In evaluating this collection one should bear in mind the editors' comment that "whether lettered with *The White House. The Governor's Mansion, or The Office of the Assistant Secretary of the Navy*, F. D. R.'s letters are always those of a family man, be it husband, son, or father" (pp. 149-150). The energetic, enthusiastic temperament which was apparent from the letters of the boy Franklin continues to be evident in almost every line written by the young husband and father, and a growing sense of public responsibility can be detected after 1910. The general reader will find much to interest him, although he may not have the patience to read the collection straight through. In the opinion of this reviewer, however, the value of the volume to the historian will not be so great as might have been anticipated, although it will undoubtedly be a necessary supplement to Roosevelt's official papers, if and when the latter are published.

Chinese Side of Burma Campaign

THE BIG CIRCLE. By Dr. Ho Yung-chi. The Exposition Press. $3.

By Riley Sunderland

Former CBI and NCAC soldiers with a firm grip on their tempers and a good sense of humor will enjoy reading the Chinese answer to Fred Eldridge's "Wrath in Burma." Dr. Ho Yung-chi, a friend and comrade of the very capable and gallant General Sun Li-ien, has decided to answer Eldridge and all other disparagers of the Chinese art of war. Discarding all the hampering and crippling notions of scholarship to which he was exposed at Harvard, Dr. Ho lays about him with a vengeance. Unfortunately, the effect is sometimes that of a Chinese opera, for the blows fall in air and in the midst of some of Dr. Ho's most labored passages, one sees the property man calmly re-arranging the scenery to suit the author's taste. Dr. Ho did have access to General Sun's correspondence, and the quotations from it ring true, but the good doctor's interpretations of what he saw and what he reads are often very wide of the mark.

Thus he claims that the First Burma Campaign was the result of a cunning British plot to lure the Japanese into North Burma and away from India. Contemporary documents give the more prosaic reason that the Allies hoped to hold Northern Burma until the last to

cover the trace of a road from Ledo to Myitkyina which would compensate for Rangoon's loss. This policy, need one say, had the heartiest support from Dr. Ho's own government. But in retrospect he sees only a plot. For the North Burma campaign he has a villain, Col. Haydon L. Boatner, then Chief of Staff of Chih Hui Pu. When one notes that Dr. Ho blames Boatner for an order Boatner never framed, and which he sought to have changed, one wonders how much Ho knew of what was going on at the American headquarters. The sad answer must be: "Not much." The value in this book lies in its presenting a foreign point of view. Doctor Ho is downright indignant at the quaint American notion that Chinese troops might perhaps share in the effort to lift the blockade of China (page 41). But then, Americans aren't very good as fighters, (pages 41, 86, 99, and 143) so that effete nation had best use the brave and hardy Chinese in any future war (page 147).

He does have one point which deserves making, and that is that the actual mud-blood-sweat-pain of Northern Burma was largely born by the Chinese, and that the laurels of victory should go in great measure to the Chinese *lao ping*, in his 22d, 38th, 14th, 30th, and 50th Divisions, and to his able commanders Sun and Liao. It would be idle and ungracious to assail Dr. Ho's legitimate pride in the endurance, valor, and tenacity of the Chinese soldiery. All that an American can ask is that a just measure of credit go to the man who had faith in the Chinese soldier, who fed, equipped, trained, inspired, and directed him to the victory that was called "impossible," General Joseph Stilwell.

The Victors Labor Long

MACARTHUR'S JAPAN. By Russell Brines. J. B. Lippincott Co. $3.50.

By Col. Charles R. Hutchison

The arrival of General Douglas MacArthur in Japan on 30 August 1945 was the starting point of a new era for the Japanese. Few Japanese, or members of the occupying victors for that matter, had any real idea what was in store for the succeeding three years of Allied occupation. What actually happened during these first three years is accurately reported by Russell Brines in *MacArthur's Japan*.

The Japanese soon found out that the Americans weren't the barbarians they expected, while the Americans were surprised by the terrific damage and suffering resulting from fire and atomic raids. The Americans were also impressed by the docility and hard working nature of the average Japanese who apparently had little or no say in government affairs. Mr. Brines relates many interesting incidents of the early occupation days, days when the Americans were doing their best to implement broad occupation directives from Washington, in a field where no precedent existed, and at the same time handle the touchy personnel and materiel problems inherent in the mad-scramble demobilization of much of the American forces. Mistakes were made, but steady progress in every field far overshadowed the errors. General MacArthur and his forces put in arduous long hours while the Japanese wondered at the victors working so hard. The Japanese respected MacArthur from the very beginning, first for his power and later for his benevolence. His decisions were well considered, fair, and decisive.

From a consideration of the occupation in its more or less general aspects the author takes up the more specialized phases and problems. The position of the "Puzzled Mikado" and his role both past and present is ably discussed. When MacArthur arrived in Japan, ten main families monopolized more than 75% of Japan's economic life. Mr. Brines capably relates how the Zaibatsu was broken up and how to a large degree control of the economy reverted to a fair cross section of the people. The efforts to restore the economy to normalacy, the rise of Japanese labor unions, the new constitution, the breakup of a centralized bureaucracy into a states-rights system more or less like our own, the political party system with its dogfights, the improvement of the position of women in Japanese society, agricultural reforms, democratization of the schools, the firm but fair treatment of the Soviet representatives in Japan, the control of the Japanese communist threat, and a fine analysis of the status of democratization of the

Japanese people are all covered.

The book ends with a description of the American family life in Japan and an evaluation of the lasting effects the presence of Americans and their families will have on the Japanese. Mr. Brine concludes that "Upon the revival of Japan depends the best gamble for stability in the tumultuous Orient. The situation has become too urgent for complacency or indecision. The United States, upon whom leadership has been thrust, must maintain the practical balance that is vital to keep this vast region within the western orbit" Mr. Brines has given a realistic evaluation of what he has seen; he has not permitted what he considers weak spots and mistakes to lead him to spectacular conclusions which would detract from an occupation job well done.

Chaos or Correction

CHINA: THE LAND AND THE PEOPLE. By Gerald F. Winfield. William Sloane. 437 pages, index, illustrations. $5.00.

By Richard Cordon McCloskey

Recent communist successes in China, and the failure of our policy of arming the Nationalists, have pretty well proved that we must construct a new Chinese policy. Gerald Winfield offers one in this book by analyzing the daily problems of the Chinese farmer, which form the seedbed of Chinese communism.

China's regeneration, the author believes, must come principally in her agricultural life. The incredible overpopulation and low standards of living, which have always been the prime basis of China's woes, can be overcome by the social application of scientific technology. The Chinese communist emphasis on landlordism as the source of the farmer's ills is an economically unsound analysis, the author maintains. To anyone who knows China, this is correct, and though the Communist premise is wrong, the Communists are taking advantage of the peasants' unrest, and are building their political organizations on this dissatisfaction. It is up to the United States, the author insists, to organize the peasants, not with false ideals, but with technical logic.

In Part I the author presents, with an authority based on thirteen years research on the spot, a survey of her culture, geography, agriculture, economy, resources, government, and society. The picture that emerges is of a huge, ancient, and vicious circle of cause and effect, of one problem aggravated by another. Part II, building solidly on the facts surveyed in Part I, outlines a long-range program for China's reconstruction. China's problems cannot be solved by easy political solutions, and Winfield's book will disappoint those who think it can.

Here is a book which gives a basic and invaluable description of the largest single population on the face of the earth and our very real stake in the solution of its grave problems.

Occupation Policy in Japan

JAPAN DIARY. By Mark Gayn. William Sloane, New York, 1948. 517 pages, index. $4.00.

By Richard Cordon McCloskey

In the autumn of 1945 Mark Gayn, an extremely competent reporter, was assigned to Japan. Here is his record of what he found there and in Korea over a period of almost two years. It is a close-focus, eyewitness account of one of the greatest mass experiments on human beings that has ever been undertaken—the attempt by the United States to remake Japan into a democracy.

The picture that emerges is of a nation in ferment, on the edge of starvation; of democratic elements working to take advantage of their apparent new freedoms; of the old powers arrogantly asserting their strength, supremely confident that they will once again rule the Island Empire. It is also a picture of an American occupation that started off with high ideals and wise directives but apparently has gradually come to feel that Japan is more important as a bulwark against outside aggression than as a possible home for democratic institutions as we know them.

Though you may disagree with the intimations and conclusions of this book, you cannot but agree that it is honest reporting. Mr. Gayn is inclined to believe that a glass half full of water is half empty rather than half full, but he has picked up enough facts to bolster his views well.

Japan Diary has some of the inevitable faults characteristic of any diary. Parts of it are dated, and deal with situations and people that have changed. Nevertheless, the book is solid, fascinating, and instructive. Into the somewhat rarified atmosphere breathed by American occupation troops in Japan, this book will bring a welcome breeze of acutely disillusioned good sense.

Communism in Action

THE STRUGGLE BEHIND THE IRON CURTAIN. By Ferenc Nagy, translated by Stephen K. Swift. Macmillan. 471 pages, index. $6.00.

By Alan Otten

The latest volume in the "how the Communists took over our country" series is better than most. It is the lengthy, detailed story of Ferenc Nagy, former premier of Hungary. An expanded version of the series which appeared in the *Saturday Evening Post*, the book is a valuable and important addition to our available information on the techniques of Communist expansion.

Practically the entire book deals with the period between the time when Nagy's Smallholders party organized a coalition government with the Communists and other left-bloc parties and the date when a Communist coup d'etat forced Nagy to submit his resignation. The former peasant leader spotlights all the Communist tricks and devices: the manufactured crisis followed by demands, compromise, and new, bigger and better demands; penetration of labor unions; a subsidized Communist press plus the muzzling, intimidation and censorship of the non-Communist press; control of the state police, along with a private Communist secret police; kidnappings and use of force as soon as that can be done with impunity; even fostering racial hatred and fomenting bloody riots when that suits party policy. And behind it all the very thinly veiled fist of the Red Army. If there are any who still believe that the democratic elements in a country can contain or defeat the Communist elements so long as the Red Army is on the scene or in the background, let him read his answer here.

Nagy himself is, of course, far from blameless. His answer to the demands and crises was always the same: appease, temporize. In this book, he gives his reason for this neo-Chamberlainism. Hungary could not estrange Russia, he says, until the peace treaties had been signed. Hungary was afraid that a strong attitude to the Soviet Union would either have meant a civil war — and the Western powers would not have signed peace with a country in which a civil war was raging—or would have meant that Russia would just flatly impose a peace unfavorable to Hungary. Attempts to depict Hungary's plight to the Western powers got nowhere, according to Nagy.

Somehow it all seems a little naive and ingenuous. One feels that there must have been other factors bringing the decision to appease, factors perhaps tied in with more strictly internal political problems. But in any event, the damage was done, and the handbook of Communist techniques that Nagy has given us here goes far to redeem a lot of past errors. The writing—or at least the translation—is, incidentally, unexpectedly good, setting a high standard which other current political diarists should emulate.

Non-Amphibian Hitler

HITLER AND HIS ADMIRALS, by Anthony K. Martienssen. 275 pages, maps, illustrations, appendices, and index. E. P. Dutton and Co. $4.00.

By Dr. John Miller, Jr.

Hitler and His Admirals is the story of the German Navy in World War II, viewed from the vantage point of three men: Hitler, Grand Admiral Erich Raeder, Commander in Chief of the Navy until 1943, and Admiral Karl Doenitz, Raeder's successor. Mr. Martienssen, a wartime RNVR officer and now Foreign Editor of *The Economist*, derives his information from several high-level sources. The most important of these are the "Fuehrer Conferences on Naval Affairs" (which he edited for publication), and evidence presented at the War Crimes Trials in Nuremberg.

The Germany Navy of 1939, though a compact, efficient force, was not ready for war. This fact was recognized by Raeder, who had been responsible for the Navy's development in the years just prior to the outbreak of war. The

Navy's greatest weakness, a weakness that Raeder recognized but had not been able to overcome, was its lack of aircraft carriers. It possessed neither an integral not an attached air arm. In consequence the High Seas Fleet could not operate on the high seas without aid from Goering's *Luftwaffe*, and the *Reichsmarschall*, with many projects of his own in mind, was usually reluctant to give help. When help was given — notably in Arctic waters in the spring and summer of 1942—German surface operations were effective. Neither the Navy nor the *Luftwaffe* denied the necessity of air power at sea, but they could not agree on the question of command.

German submarine operations, in contrast, were at first extremely effective. U Boats demonstrated their efficiency until 1943, when Allied countermeasures largely vitiated the submarine menace. Hitler was more cautious in this sphere than the Kaiser's government had been. He forbade unrestricted submarine warfare; his submarine commanders were enjoined from attacking neutral shipping.

Some of the complexities of Hitler's personality and strategic abilities are clearly illustrated by Mr. Martienssen. On the basis of available evidence, it seems safe to extend the Fuehrer's famous admission and assert that he was unbelievably rash on land, but needlessly timorous and lacking in comprehension in naval matters. He did not hesitate to attack the Soviet Union in 1941, but, believing that he could defeat the Russians before American aid could become effective, refused to allow his submarines to attack U. S. shipping in the Atlantic. When the British sank the *Bismarck*, he ordered the decommissioning of the operational warships of the High Seas Fleet. (Doenitz later persuaded Hitler to revoke this order.)

According to Mr. Martienssen, the second key figure, Raeder, was an able naval strategist and administrator. Unlike many leading Nazis, he understood the relationship of naval power to foreign policy, and struggled unceasingly but unavailingly for a naval air arm. Doenitz, in naval matters less competent than Raeder, combined the qualities of an able commander of submarines with those of a political intriguer. Unlike his predecessor, he was on friendly terms with Goering, and his political maneuvers brought him the dubious distinction of succeeding Hitler in 1945.

Hitler and His Admirals is extremely interesting. The student of amphibious operations will be disappointed by the lack of tactical detail regarding SEA LION, the somewhat obvious code name for the projected invasion of Britain which Raeder opposed. The American historical scholar will be dismayed at the lack of precise documentation. But these are minor deficiencies. *Hitler and His Admirals* can be used profitably, both by the historian and the professional military reader. For the student who is concerned about the most efficient relationship of air to surface forces in modern war, the book is particularly valuable.

Guide to Intelligence

INTELLIGENCE IS FOR COMMANDERS. By Lieut. Colonels Robert R. Glass and Philip B. Davidson. Military Publishing Co. 189 pages. $3.85.

By Colonel Conrad H. Lanza

This little book is a product of the Fort Leavenworth Command and General Staff College, the authors being Instructors in the G-2 Section. It presents the subject from the bottom up with so many forms and explanations that it would be hard indeed for even a dull student to miss solving his problems.

The book warns particularly against guessing. Either the facts are known or not known. It is not necessarily a reflection for G-2s to lack certain information concerning the enemy, provided that they acknowledge this. It would be very wrong to substitute a guess.

Commanders of high level do not depend upon staffs for estimates. They make their own. G-2's value to them lies in collecting and presenting information. Great comanders interpret these themselves, therein is their greatness.

For officers who are not yet in the great commander series this book should be a handy guide.

BOOKS IN COLUMN

By MAJOR N. L. DRUMMOND. JR., FA

At the outset of this new year, cost of postage for the JOURNAL'S shipping department has nearly doubled. This may require a reduction in the book discount furnished to Association members. During the past year, generally rising costs have been met without cutting the membership discount; we believe this record can be maintained through 1949 if book purchases continue to increase. Volume of business will be the critical factor; thus each member will decide to some degree by his purchases whether all can continue to receive the unusual advantage of a 10-15% discount on any book published.

● ●

No Place to Hide (Little, Brown — $2.00) by David Bradley presents the most interesting and informative account of the Bikini atomic tests yet available to the layman. The author, a young doctor charged with radioactive contamination safety, views the proceedings as one trained in scientific observation but not an atomic expert; his book thereby stresses the dramatic and human implications of Bikini, with an effective minimum of taskforce details and technical terminology. His short narrative (168 pages) moves so easily, marked with humorous and brilliantly sensitive threads, that only toward the end does the reader realize how clearly Bradley's lucid exposition has sketched the Bikini drama and the salient elements of atomic possibilities which it disclosed. As he says of radiation effects, "they are real and impressive enough without investing them in the terrors of the supernatural . . . the question [of their use] is not political so much as biological. It is not the security of the political system but the survival of the race that is at stake. . . ." Humans have long been amused at a popular notion of the ostrich's reaction to possible danger. Anyone who can read and does not ponder this book or a similar one in the near future thereby joins the ostrich line, without benefit of handsome tail plumes to improve the appearance of his attitude.

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Several levels above the normal run of historical novels is Carl Sandburg's *Remembrance Rock* (Harcourt, Brace— $5.00), a panorama which sweeps from the earliest Pilgrims to World War II mainly to trace a fragmented thread of the American dream of liberty and equal justice to all. The past is a gateway to the present and there is need for us today, as Sandburg states, not to forget

those who went before us and to reassay our present fortune in a darkened world in terms of the labor, courage and blood which blended to form it. This the book strives mightily to do, with enough success to justify a reader's time. The many admirers of Sandburg's past work will be gravely disappointed; probably few will follow him carefully or completely along his 1067-page trail where scenery and characters become remarkably repetitious. The author's plan of selectivity discards nearly all except three American epochs — early 17th century New England, the Revolution, and the Civil War—a choice logical from the viewpoint of national drama though not necessarily best illustrative of individual or institutional growth. A prologue and epilogue built around a recent-day supreme court justice and his World War II grandchildren serves effectively to connect early beginnings with the present, but the body of the book becomes three distinct novels. Each one's set of characters is completely abandoned, though subsequently the same types reassert themselves—to an obtrusive degree—in a mystic haze of inheritance. This departure from outright geneological bonds of continuity has a good deal to recommend it but somehow the result becomes duplication rather than extension of the author's theme. His characters are never fully realized, their diction varies from labored vernacular to studied rhetoric, nor is the train of history developed mainly through their thoughts and actions; instead a separate and at times labored compendium of good historical source material runs parallel to their rather uncompelling individual stories. Finally it is difficult to envision the American dream as heavy and humorless as is this evocation of it. The book contains many fine, strong passages; in entirety, however, it seems the flesh and bones of a first-rate epic poem which was clothed, to its surprise and embarrassed confusion, in the garb of a novel.

● ●

Bruce Catton, journalist and former director of information for the War Production Board, angrily depicts our division in top domestic policy during the recent war in *Warlords of Washington* (Harcourt, Brace—$3.00). His main theme is that it was a "people's war"—truly, in the total effort freely given on the battlefield and in the factory, but not so truly in results achieved beyond the immediate goal of defeating our national enemies. He feels that many of our top leaders only partially trusted the people and to a great extent used them so as to restore a status quo which unduly favored the country's "big interests." Catton deals with much the same ideas which led President Truman to state in his recent campaign that many of the interests supporting the Republican organization were the same as those which stood back of Tojo, Hitler, and Mussolini. Many would argue cogently against this concept. Most would nevertheless agree that selfish greed for privilege and power is not unknown in any land. Through the haze of sincerely confused or dishonest dialectic in the world today there emerges the continuity of a basic struggle over the privilege of the few at the expense of the many. Catton feels he has put a finger on one phase of that battle, where it underlay our gigantic national warfare against the fascist-led axis powers. His picture seems too simply in blacks and whites and this reviewer disagrees with his contention that the pressure of war did not require a truce in domestic economic maneuvering; nevertheless the book presents graphically and dramatically wartime Washington's personalities and problems, in terms which largely apply to the basic questions today of how we shall utilize a hard-won military victory, and will form the direct, compelling challenge of national mobilization in the event of another war.

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In fictional form John Dos Passos' *The Grand Design* (Houghton Mifflin—$3.50) parallels a portion of Catton's book, recreating the hectic and hopeful Washington of the New Deal from Roosevelt's first inauguration through the change-over to a compromise war economy. The book has a compactness, a rigorously disciplined development quite different in style and range of content from its author's former all-embracing exuberance. The effect is one of subtler craftsmanship and sharper delineation but less vitality. The characters are not particularly memorable but are adequate to carrying the story; many are clearly based on contemporary political figures. They move in a credible and often engrossing capital setting of high - policy conferences, cocktail parties with tinkling background of phone calls from the White House, daily and nightly gatherings of assorted bigwigs where political maneuvering is always dominant even when below the surface. The book's two main figures—an agricultural expert and a successful Southwestern industrialist—move to Washington to devote faith, energy and ability toward the goal of a more effectively and generously planned economy; through them the surge of conflicting personalities, principles, and politics of the New Deal scene is keenly focused. Seekers clash with self-seekers, under the dangling lure of high office men and women shift allegiance and even inner goals, a barely credible human tragedy is interwoven. Dos Passos' book is hardly profound, although deftly dramatic and enjoyable to read; it recreates in sympathetic human terms a past era which casts much light on the world's turbulent political scene today.

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MacKinlay Kantor's *Wicked Water* (Random House—$2.75) is a stripped-down, racing-model Western — with a carefully throttled roar of drama—concerning the short, sharp career of a professional killer, hired by cattle barons to run off unwanted homesteaders through a campaign of systematic murder. Between bodies he is able to develop a violent love affair with an incandescent local school teacher (why must it always be a schoolmarm?). There is somewhat naive melodrama in the repetitious emphasis on one boyhood episode which froze the man into a killer and in the accidental retribution dealt one of the barons; as a whole, however, the outer and inner presentation of a man dedicated to death is as gripping as is the action in this short novel.

● ●

A delectably sly piece of whimsy for children or adults (political emphasis on latter) is *The Bear Facts*, by Polly Culbertson (Winston—$1.25). Simple prose with a charming bite creates along old-tale lines this fable of our time: the huge old bear who lived alone in a cave behind a heavy iron curtain, finally emerging to "persuade" the other smaller animals that they were really bears and should "share" all food with him. When he finally paddled across the lake toward the tall hives of succulent golden honey — but all of that each reader should find out for himself. Illustrations tickle as deftly as the text.

● ●

Cheaper By the Dozen (Crowell — $3.00) is the story by Frank B. Gilbreth, Jr., and Ernestine Gilbreth Carey of their father and mother, who early in this century decided to have twelve children. They did. Complications were naturally manifold, particularly since both parents carried on brilliant careers as efficiency engineers during the entire process. Nostalgic pieces attempting to persuade the reader of the author's remarkable family memories have become cheap by the dozen, but here is one exceptional in pace, unforced characterization, and high humor. Touches of naïveté and rigged cuteness are effectively submerged in a general flood of laughter. Gilbreth. Sr., with the knowing connivance of his wife, experimented with his own brood and ran the bursting household on the latest of efficiency methods; the book is perhaps monumental in portraying one time when studied efficiency really blended with human warmth and humor.