The FIELD ARTILLERY Journal

JANUARY, 1946

ARMS AND POLICY

by Hoffman Nickerson

THE brilliant author of *The Armed Horde* surveys the tactical and strategical lessons World War II has taught us. He begins with a chapter on Mass Warfare, explains the military background of 1939, and then gives us a summary of the military strategy employed in the world theater from 1939 through 1944. He shows us the development of larger tactical units, the increased use of artillery with great range and power, the lightning victories that the team of planes and tanks made possible in the early years of the war, the increased use of bombing, and the military problems that Germany faced when Russia was attacked. With Pearl Harbor the author turns his attention to the strategical difficulties that confronted the British-American Allies, explains the campaigns in French North Africa, and carries on his narrative through the European campaigns that followed D-Day.

ONE of the most interesting features of *Arms and Policy* in Major Nickerson's discussion of the postwar military policy of the United States in terms of geography and recruitment and our unique strategic strength. This brings him, in a final chapter, to a sober and informed discussion of the chances of a tolerable degree of future peace.

HOFFMAN NICKERSON is the author of several books and a frequent contributor to both general and Service publications. He wrote the article on *War* in the Encyclopedia Britannica, and the *Field Artillery Journal* has said that he "is considered by many to be the foremost American writer on the higher theory of war." Until 1944 he served as a Major in a section of the General Staff in Washington.

CONTENTS

MAPS

$3.50

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The FIELD ARTILLERY JOURNAL

PUBLISHED MONTHLY 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.

COVER

The 8″ gun and wintry scene, somewhere in Belgium, is reminiscent of the violent and decisive "Battle of the Bulge," fought and won last year at this season.

CONTENTS

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JANUARY 19 46

Volume 36, Number 1

How About Some *Real* Peacetime Training?

By Capt. Lloyd E. Jones Jr., FA

There is no panacea for the inevitable sickness in our training program which will come with peace. Nothing can produce a really trained army but the total effort that comes with war, or the willingness on the part of a nation to live with a gun in its hand. Human nature being what it is,

"It's Tommy this and Tommy that and Tommy 'ow's your pride, But it's thin red line of 'eroes when the troopship's on the tide."

And yet there are ways in which we can avoid falling again into the well worn pitfalls of military backwardness. It is possible for a people to be military without being militarized and the discipline and technical proficiency which comes to a people trained to guard its own security is a healthy thing. The program outlined in this article is designed to correct some of the deficiencies inherent in any peacetime training program.

We need an opponent. The concept of *enemy* must exist in any training program. The end product of the program must be to take the field and defeat the enemy in operations either real or simulated. It is the contention of the author that the history of simulated operations in the United States Army has been rather dismal and that we must begin to overhaul the military machine at that point. Otherwise the processes of the intermediate stages of training will be left dangling in the limbo of unapplied technique. Old fashioned maneuvers taught some people a lot. We thought it taught troops to live in the field but in this we were deluded, for troops spent much time in the field before they ever went on maneuvers. The value of the conventional maneuver to the small unit commander is dubious after the first day or so. The biggest thing in the life of a dough is the presence of the enemy and he doesn't get that on maneuvers. The weaknesses on the maneuver are within the experience of most officers today and should call for no further comment.

It is proposed to create our own *enemy*. This opponent for the United States Army would actually be an army within an army—a deliberately created small army of a different nature existing within the framework of the American military establishment—a Maneuver Army. The end product of the training of the basic military establishment would be to defeat the Maneuver Army in simulated operations. The purpose of the Maneuver Army would be to engage the Regular Army in such simulated operations, embarrass its efforts, harass it, and defeat it if possible. The criterion of success in the Maneuver Army would be just how difficult things could be made for the Regulars. The Regulars on the other hand would gain more from a maneuver lost than they would ever learn by winning a canned problem. To win against the Maneuver Army would be a real achievement.

The technique of employment of the Maneuver Army in operations cannot be discussed at length here. Many of the restraints of the old time maneuver would have to be applied; it would take careful umpiring and elements would have to be fed into the fray under controlled conditions depending upon the result desired.

The composition of the Maneuver Army would present

HQ AND HQ CO—MANEUVER ARMY

DIVISIONAL TROOPS	NON-DIVISIONAL TROOPS	AIR CONTINGENT	AIRBORNE CONTINGENT
Infantry Division	Nine Light FA Bns	One Pursuit Group	1 Pcht Inf Bn
Infantry Division (Amphibious)	Four Med FA Bns	One Med Bomb Group	1 Pcht Arty Btry
Armored Division	Two Hvy FA Bns	One Hvy Bomb Sqdn	1 Glider Inf Bn
	SP Gun Bn	One Liaison Sqdn	1 Glider FA Btry
	Mechzd Rcn Squadron	One Composite Air Gp	1 Composite A/B Force
	Mortar Bn		
	Chem Warfare Co		
	Engineer Regt (G/S)		
	Special Service Bn		
	Two QM Truck Cos		
	Eng, QM, Ord Maint & Depot Echelons		

some very real problems since it depends in part upon what the composition of the Regular Army is going to be and that is a very real problem. The Maneuver Army would have all the combat elements represented. Its administration would proceed along the same lines as the Regular Army and it would be serviced by the same elements. Here is a possible composition. The reader can think up other solutions.

In addition to the force shown on the chart special research and administrative units could operate with the Maneuver Army. Internal T/O's would be regulated by current policy. Full strength of the Maneuver Army would be about 65,000 officers and men.

It is proposed to equip the Maneuver Army with weapons of foreign design. Initially this would mean Jap and German equipment of which there are enormous quantities on hand. Later, foreign and domestic developments could be rung into the picture. The Maneuver Army could test the feasibility of new weapons, and, based on tests of the weapons conducted at proving grounds, umpires could weight their tactical effect when they are sprung on the Regulars. Insofar as possible all equippage would be different from that used by the Regulars. Field uniforms could be either foreign or American Class B clothing dyed a distinctive color. Leather pouches and belts of a foreign type would come in handy, as would unfamiliar helmets. A regular system of uniforms and rank insignia would be used. Weapons, aircraft, cargo vehicles, and other combat equipment would be of a foreign nature (or whatever else top planning echelons cared to try). Combat markings and other identification means would be standardized and followed by the Maneuver Army. This would implement intelligence training in the Regulars. Certain matters would, of course, be kept under wraps, changed from time to time, and only part of the cat would be out of the bag.

As far as chow and quarters go the Maneuver Army would be just like any other part of the United States Army. They would be assigned their own training camps and areas. Off duty they would wear the regular U. S. uniform. In fact, only top flight personnel of the Regulars would be assigned to serve in the Maneuver Army.

One of the more complex problems in adoption of such a scheme would be the formulation of a sound tactical doctrine. It could be based on recognized foreign ideas plus new domestic ideas under test. It would necessarily differ from doctrines of the Regulars, and one function of the Maneuver Army would be to change its tactics from time to time for reasons of both research and surprise.

The Maneuver Army would be able to furnish Regular Army units with small "opponent detachments" for their field problems. The composition of these detachments and the tactics used will come as at least a partial surprise to the troops involved. Thus, during a combat team exercise, the U. S. troops might conceivably be attacked by aircraft, paratroopers, or tanks. Every means would be used to harass, surprise, and defeat the U. S. troops. Larger detachments could be furnished for "D" maneuvers or other division exercises and a very large force could take the field against a U. S. Corps. Camouflage, sniping, and infiltration would be the hallmark of the Maneuver Army, and the distinctive uniforms, weapons, and tactics used would give the U. S. troops an utterly new and valuable lesson.

Generally speaking the tactical tenets of the Maneuver Army would stress the offensive. The United States Army would be attacked whenever terrain and other considerations allow. As in actual combat, the Maneuver Army would have to be *forced* to the defensive, not *written* on the defensive in the advance dope. Occasionally, of course, the United States would be roundly trounced in these actions.

Realism would be stressed. In every case the Maneuver Army would simulate the sounds of actual combat. Great amounts of blank ammunition and explosive charges would be needed. A way must be found to simulate the sound obtained when firing all kinds of weapons—also the sounds of projectiles in flight. Small mines could be used—just enough to make a hell of a racket when gone over. The possibilities of development in maneuver realism are manifold and doubtless the reader has thought of dozens more.

Several advantages of the Maneuver Army scheme have not been pointed out in the dicussion. One of these is the training value of service in the Maneuver Army. At all times the troops in the Maneuver Army would be watching our Regulars through enemy eyes—seeing the wages of error. They would gain confidence in American tactical doctrine as they got paid off for their own mistakes. The result on both sides would be an acquisition of toughness, experience, and wariness against surprise.

In tactics we have seen that our own doctrines could be continually put to the test in the field. This also applies to foreign ideas. The Maneuver Army would be adaptable to changing needs—it could change to coincide with different foreign powers regarded as potential enemies at the time. This would be on directives from Washington issued only to Maneuver Army. From maneuver experiences both armies could compile valuable studies. The individual reports of commanders in the field supplemented by scheduled conferences of "enemy" and "friendly" officers would come as close to revealing the unknowns of combat as it is possible to come in time of peace.

There are several disadvantages to the Maneuver Army scheme. Not the least of these is the tremendous problem of keying the umpire system to the new concept of maneuver. This could be worked out with the great new strides in communications paving the way. There are the disadvantages of the cost and the trouble. To these we can only say—some such scheme is the price of a well trained Regular Army capable of cushioning a surprise blow—a rampart behind which to mobilize the remainder of our national power when the nation is threatened.

We better be ready. We came within an ace of losing World War II. The creation of a similar situation again will result in the outright reduction of the United States to the status of a second class power. There is no need to dwell on the technical developments that have served to reorient our strategic situation. Even the layman can see that in modern war *surprise* has become the chief concomitant of victory. An army trained against surprise is the main toll gate on the road to security.

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THE UNITED STATES FIELD ARTILLERY ASSOCIATION
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Turn-of-the-Year Reflections

Men will long remember 1945 — year of stupendous events. Victory, atomic energy, United Nations Organization, the *violent headaches of "peace"* at home and almost everywhere around the world's perimeters—these merely top the list of many great events in a great year that swirl helter-skelter through the mind in retrospect.

Reflecting on this turn-of-the-year, perhaps the most significant characteristic of 1945 was the fact that, during the year, the public mood encompassed a complete emotional cycle—from depression to a peak of optimism and back to something approaching depression again, at year's end. Americans were worried last New Year's Day. Although soldiers on the spot felt that the crisis had passed and were more than hopeful, even then, that a decisive victory was to be wrought in the ice-bound Ardennes, the brutal violence and unexpected power of the German counter-blow had been a real shock. Stunned and alarmed and exhorted by a disturbed leadership, our people hastened to toss overboard all trace of complacency, and came through with an industrial heave that soon produced the munitions essential to final victory, which seeemed far away indeed at the time. From this low ebb, morale and confidence shot up steadily in lock-step with the onward march of our forces.

Victory in Europe was followed soon—*almost too soon* it sometimes seems, in reflection—by the dramatic surrender of Japan. The President, himself, cautioned us immediately thereafter in prophetic and sobering language. Thanking God for victory and the end of bloodshed, almost in one and the same breath he pointed out that making proper use of victory would be more difficult than winning it.

We soon knew what he was talking about. "Peace" was a little on the disappointing side; it brought so many stubborn problems. Whenceforth, atomic energy? What and where was its political equivalent? Where were the houses and suits and jobs for returning veterans? Why let our military might melt away in a rush of demobilization? With so much work to be done, why all the strikes? Was inflation around the corner? Would we or would we not have conscription? When, if ever, would bureaucracy start to recede and economy again be popular in government? How was trade — so vital to all — to work between private enterprise here and the leftist bloc (newest member, Great Britain) in Europe? Just what was our foreign policy, anyway—not only in Big Three dealings generally but also as regards specific trouble spots extending in all directions around the globe from the East Indies to the Argentine? Why—immediately after winning history's greatest war, together—were the War and Navy Departments in a head-on collision over an organizational concept?

These questions are representative of the many, many things that worry the American people as 1946 arrives. If they are a representative lot, they merit closer analysis. Is there any predominant theme? In other words, what is it, primarily, that now worries our people? Look closer at the list and note that the majority of them relate directly to two of the fundamental urges which have motivated human action since social organization first began a long, long time ago — namely, the *scramble for security* and the *will to power*.

Now, these are ideas that we can get our teeth into; ideas, moreover, with a military ring to them; ideas that we soldiers should appreciate to the full at all times. But, some will ask at once, have our people not always been involved in the scramble for security and been well aware of the universal will to power? Yes, and no. Obviously, men and groups of men have always scrambled here at home for security against want and sickness and worry and old age. Internationally the answer is less simple. True, the first purpose of our foreign policy has always been to manipulate the instruments of power (of which military force is, of course, merely the final and decisive instrument to be employed when the less violent have failed) in a power-conscious world so as to insure our security. Until recent decades, however, the whole problem was relatively simple and our foreign policy was largely negative; that is, there was relatively little need for an aggressively dynamic policy. A vigorous people firmly implanted on a richly endowed continent protected on both flanks by great ocean barriers, plus a continuing friendship for the British (who saw pretty much to the policing of the world for their own, *and*

our, advantage) had been the primary contributing factors in our remarkable security, and almost unbelievably rapid financial and industrial development (which is power—*great power,* or at least so it has always been in the comparatively static past) and the natural *mental* derivative therefrom—isolationism. In view of all this, it is easy to appreciate why the overwhelming majority of our people and our leadership believed, and not without logic, that isolation was our best guarantee for continued peace and prosperity.

But time and technological development are powerful stimulants to change. At first reading, this may sound like a mere truism. The trouble is, however, that this truism links a *constant* (time) with a powerful *variable,* the potency of which has increased in terrifyingly accelerated degree in recent times, and *particularly in 1945*.

Collectively speaking, it takes considerable time for men's thinking to catch up with a lot of technological development. For example, it is clear in hindsight that our people and our leadership had not caught up by World War I. Result, with world leadership ours virtually for the asking, we backed off into an "isolated security," underwritten by our preeminent (financial and industrial) "power." It is not flattering to reflect that we are perhaps the first people in world history to shy back from the responsibilities of greatness. In so doing, we contributed significantly to the circumstance of World War II.

But time and technological development are powerful stimulants to change. The grim thirties shook us, Pearl Harbor was a body blow, and *the bomb* over Hiroshima rid us forever of any lingering confidence in the adequacy of isolationism. The United States is now completely involved in world affairs. This is one of the outstanding realities of the century. What is more to the point here is the related fact that, like all strong currents in the swirling pool of social ideas, this shift of concept has the backing of a clear majority of our people, *who are catching up in their thinking*. This is not to suggest for an instant that our people understand the significance of the atomic age. It does mean, however, that our people are *security conscious* and have manifested—in all probability without even so much as realizing it—a strong *will to power*.

This thesis will come as a bit of a shock to many soldiers, accustomed as we have been for so long to thinking of our people as being unaware in general of the vital importance of adequate defense arrangements. This column parts company, here and now, with this brand of military thinking. As 1946 opens, the American people are security conscious and look eagerly—and not without worry—to the adequacy of their leadership within the framework of the democratic process. Regardless of component, *we soldiers are part and parcel of that leadership and that process*. So, let us have done with the state of mind that thinks in terms of *"selling" adequate national defense to the people*. Our people are ready to buy that, whatever it may be. Frankly, this column doesn't pretend to know what "adequate national defense" even means nowadays, and doesn't think that anyone else does either. Our worried people expect us, the Military, to produce the answer, *in time*. Can any soldier suggest a more appropriate New Year's resolution?

Top of the List

HEADQUARTERS FOURTH INFANTRY DIVISION
Office of the Commanding General

Camp Butner, N. C.
6 November 1945

The Editor
The Field Artillery Journal
Washington, D. C.
Dear Sir:

The 4th Infantry Division has no cause to disagree with the claims of our good friends of the 3d Armored Division that they "fired more 105-mm ammunition between D Day landing in Normandy and VE Day than any other division in the ETO" (*The F. A. Journal,* October, 1945). Just for the record: While their three eighteen-gun battalions were firing 490,021 rounds, our three twelve-gun battalions (20th, 29th and 42nd) were firing 467,230 rounds. So we kept our 105s hot, too. If we add 120,960 fired by our Infantry Cannon Companies, we get a total of 588,190 rounds of assorted 105-mm ammunition fired during the period.

Incidentally, our organic 155-mm battalion (the 20th) fired 81,814 rounds of 155-mm ammunition in the same period.

Yours sincerely,
/s/ H. W. BLAKELEY,
Major General, U. S. A., Commanding.

In publishing General Blakeley's letter, the Editor cannot refrain from lifting an eyebrow and observing that a friendly verbal tilt between the 4th Infantry and the 3d Armored Divisions is certainly a case of the "top of the list" squabbling with the "top of the list"! Few will argue that either division was outclassed in Europe.

From D-day on Utah Beach until V-E day on the Austrian border, the 4th Infantry Division had little rest from heavy fighting. The Editor recalls, with interest, General Blakeley's ironic remark which was made shortly after his division had been withdrawn from a long and bitter slugging match in the Hurtgen Forest for *rest in a quiet sector* near Luxembourg, *just in time to meet and throw back* a southern prong of the great Rundstedt drive in December, 1944: "I guess we didn't need a rest!"

As for the 3d Armored Division, little need be said other than to recall that from the First Army breakthrough at St. Lo until V-E day, the 3d Armored Division spearheaded the VII Corps which spearheaded the First Army which carried the main American effort in virtually every offensive action from the Normandy beaches to the heart of Germany.

Initial Reactions to the Editor's "Call for Help"

Recently, the Editor let out a loud "call for help." It was designed to stir up reader interest and stimulate reader reaction. It did. It was realized that it would probably annoy some readers. It did. It was hoped that it would bring more favorable than unfavorable replies, and more constructive than destructive criticism. It did, judging by the letters thus far received.

Reader reaction to date has varied from the general officer who, among other things, compared it to "* * * the preacher who spends his time lecturing the audience about the absences of many brethren and sisters—message to the wrong people" to the enlisted veteran, now a civilian, who "* * * if agreeable to THE FIELD ARTILLERY JOURNAL, would be glad to send in a small contribution of a little money now and then."

This page will carry more on this subject in the future.

RADAR

By Maj. Sydney Combs, FA

Radar is the well-known device for "seeing" through darkness, fog, and clouds, and beyond the range of the human eye.

In spite of the secrecy which surrounded radar, many were aware that the Army and Navy were making use of a miraculous device for locating hostile ships, planes, and other targets which were invisible to the eye. One of the most important functions of artillery is the location of profitable targets. When the importance of radar as an aid in target location was suggested, Maj. Gen. Orlando Ward, then Commandant of the Field Artillery School, ordered an investigation of the possible uses of radar for field artillery. Within twelve months, radar as applied to artillery has become a regular feature of the School's instruction.

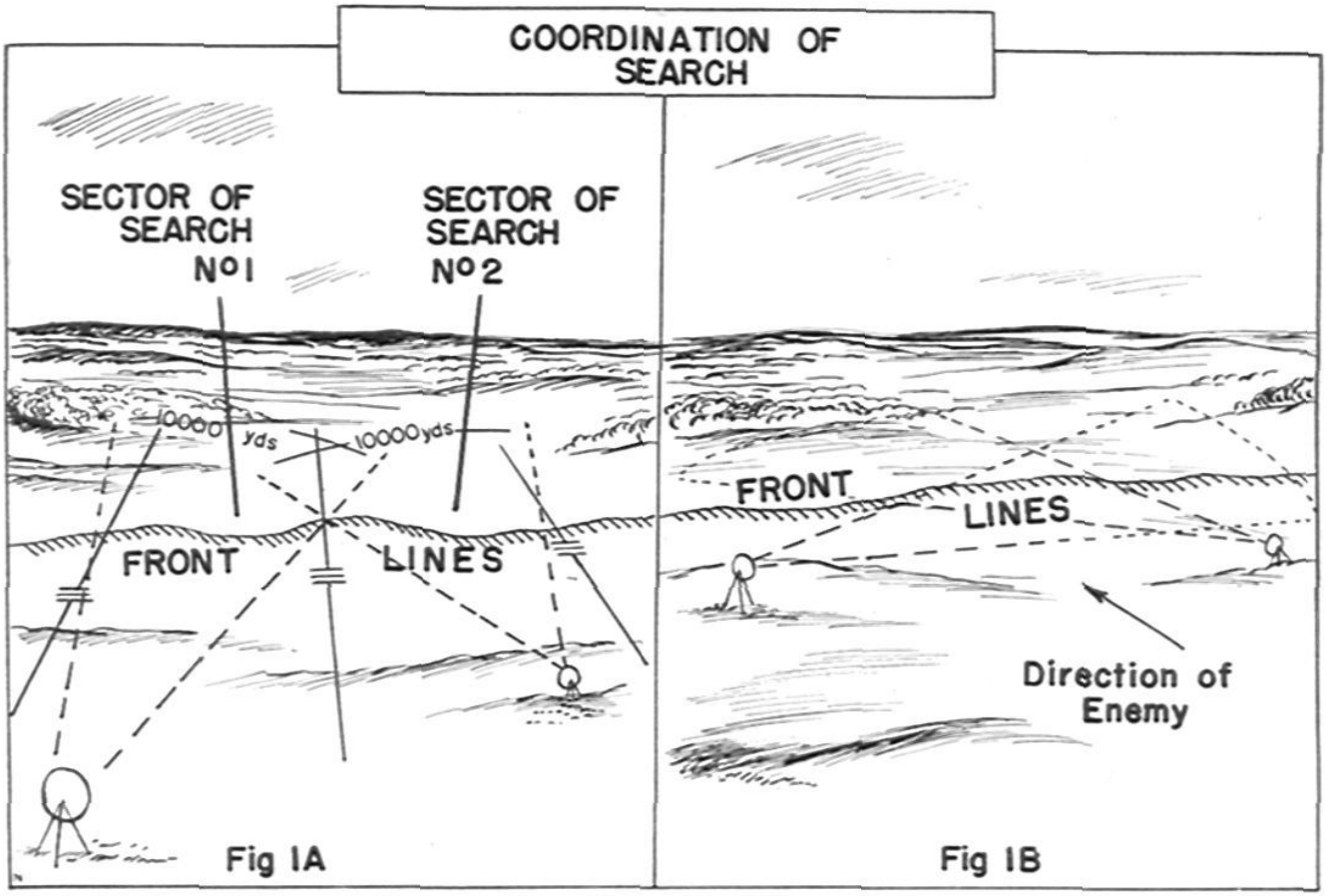
ARTILLERY RADAR

How does radar find the desired targets?

The principle on which radar functions is fairly simple. Think of a searchlight beam moving back and forth over an assigned sector. An airplane or a projectile carrying a mirror enters the beam, and the light is reflected back and centered in a telescope which is mounted on an instrument which has been oriented. The azimuth and elevation to the reflector can thus be read. If the searchlight can be turned on instantaneously and the time interval measured between the light's going out and the reflection's coming back, the range can be determined by multiplying one-half the time interval by the speed of light. Having range, elevation, and azimuth, the target can be fixed or located. If this process is repeated several times, it is quite simple to plot the position of a target or to determine the course of a plane or projectile.

The location of a target can be determined by reading on a plane at the exact time that it passes over the target. The plane can also be guided to specific locations by directions from the radar operator on the ground. Effective bombing can be conducted by a radar operator by guiding the bomber to an accurately located target.

A projectile can be located at several points along its trajectory. Hence it is possible to determine where it came from and where it is going. Therefore enemy guns can be located and friendly fire can be adjusted by radar. Targets can be located on the ground, when they act as a better reflector for the beam than the surrounding countryside.



COUNTERMORTAR

Casualties caused by enemy mortars leave no doubt as to the importance of radar in a countermortar role. The artillery countermortar section works very closely with the countermortar agencies of the infantry through artillery liaison channels. Radar's range allows the most efficient operation from the general position area of the field artillery battalion. The counter-fire potentialities are readily available there, as are the communication and survey facilities of the artillery. A radar officer at division artillery headquarters ensures proper coordination of all radar countermortar agencies through artillery communication channels.

How does radar equipment work in a field artillery battalion? "Sectors of search" are assigned to the radar sets to avoid duplication of effort and to ensure areas of responsibility to various sets. Search sectors may be as large as practicable, but sometimes a normal sector would be subdivided into two sub-sectors for alternate intensive search. A maximum range of 10,000 yards operating range must be considered. A complete coverage should be sought (see Fig. 1A). Some sets will cover a much larger area if they are emplaced on a flank so that the beam crosses the front lines at an angle (see Fig. 1B). This flank emplacement may also help in searching behind hill masses which would otherwise block the search sector. In some cases this must be carefully considered because the size and restricted maneuverability of certain radar sets would prevent their use near the front lines.

Higher command will usually designate a general area in which the radar section may select a position. Proper selection of position for radar sets is quite important. Several considerations must be borne in mind. The set must be sited so that echoes from land masses will not cause clutter in the scope which would prevent the detection of targets in the sector of search. Proper screening will normally ensure a clear scope (see Fig. 2). On occasions it may be impossible to screen out all the derogatory echoes in a certain area of search. This is particularly true when operating in mountainous terrain. Accessibility, defilade, camouflage, proximity of survey control, and communication facilities, are also important factors to be considered when choosing a radar position.

ORIENTATION

Proper orientation is essential. Its direct effect on results cannot be overemphasized. Constant rechecking of survey and orientation is invaluable in obtaining accurate locations of enemy mortars.

The radar set must be accurately surveyed and oriented so that the reported coordinates of targets are correct. This orientation may be accomplished by several methods, just as a gun can be laid for indirect fire: survey of the position area with computed azimuths to known points both near and far; "radar registration" using friendly mortars or bazookas fired vertically from known points; and friendly fire adjusted on surveyed targets. Fig. 3 illustrates orientation.

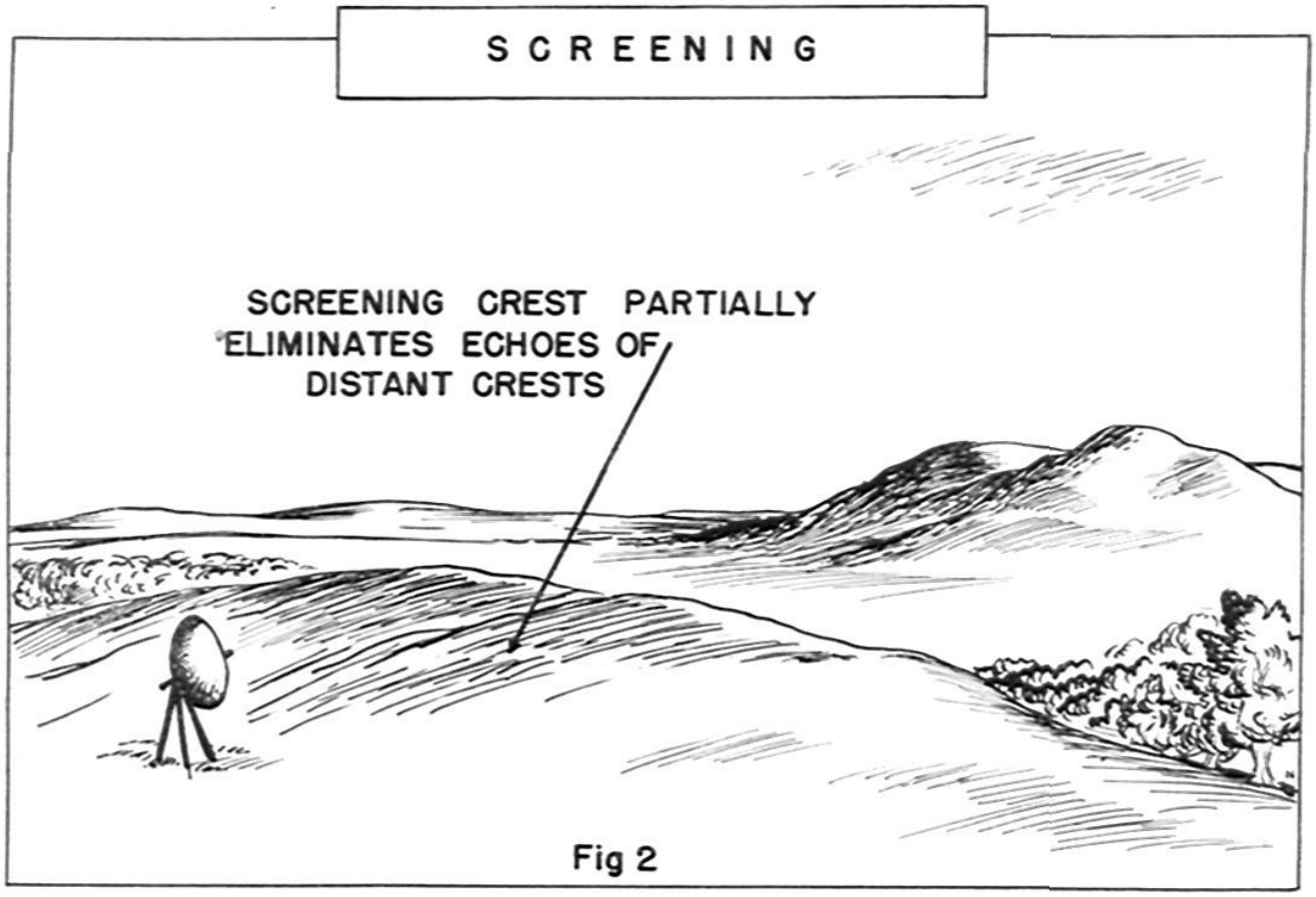
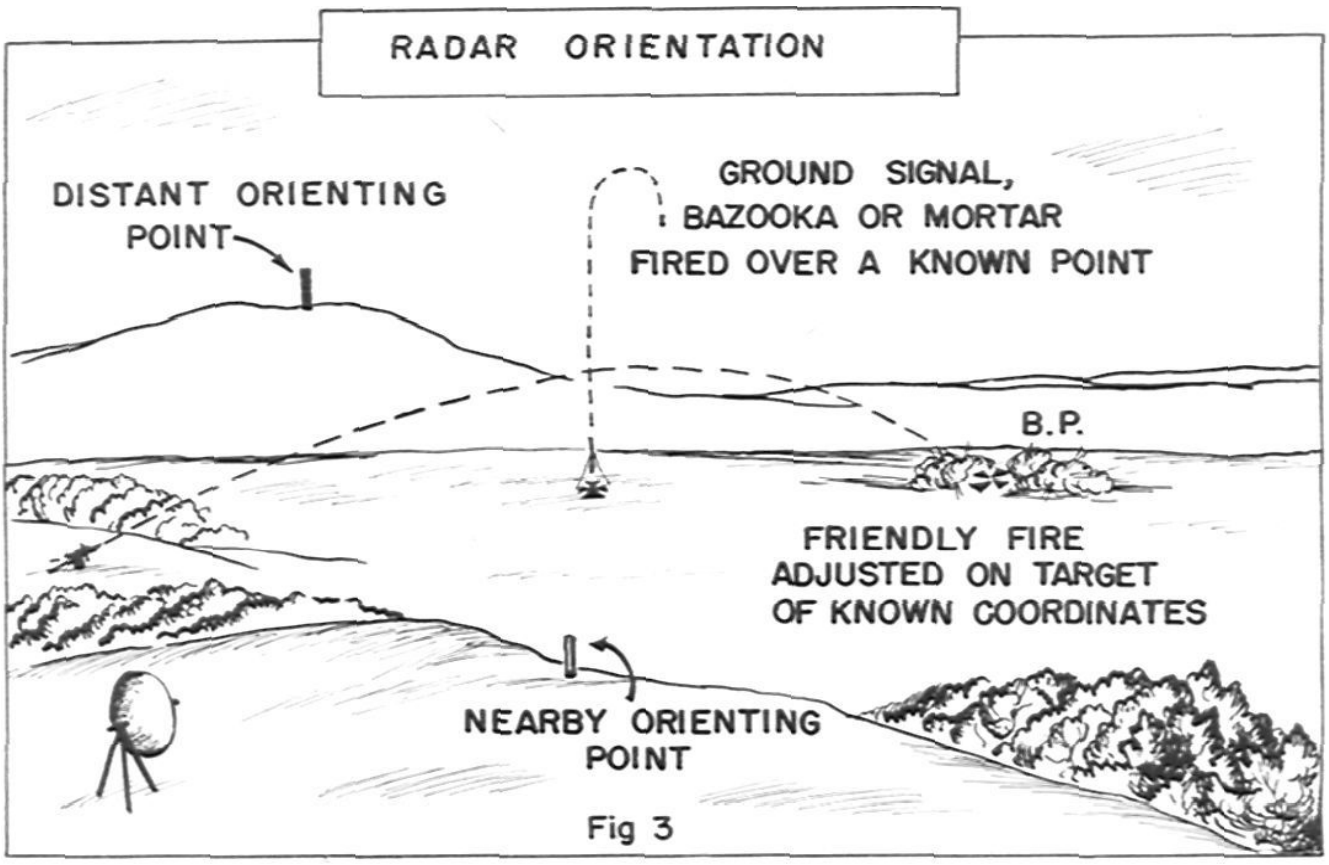


Fig 2



Fire Adjustment

Fire Adjustment is accomplished by radar, by tracking the projectile of the adjusting pieces. Echoes returned by artillery projectiles in flight are generally weaker than those from mortar projectiles. This is attributed to a phenomenon known as "aspect," which is the angle formed between the reflecting surfaces of a projectile and the axis of the radar beam. Naturally, one would not expect the same strength of reflected signal from the nose of a projectile as from the side. By the same token a mortar projectile presents its side to the radar set, whereas the artillery shell usually presents only a nose or tail aspect to the radar (see Fig. 4).

Communication

Communication must be maintained between the radar set and the fire-direction center at all times. The supported unit must supply the necessary wire communication personnel and equipment. As many channels as possible must be functioning at all times. Fig. 5 shows the minimum communication net necessary for efficient operation.

Notice the radar listening post, which is a kind of a forward observation post used to inform the radar set when there is mortar activity and the area has to be searched. The listening post permits the operation of the set only when there is mortar activity and prevents the set from operating on a 24-hour basis, which would be impossible. It is anticipated that the radar set will be operated only about an average of eight hours per day.

Limiting Factors

There are several factors which can prevent proper operation of a radar set. The most significant of these is improper maintenance. The radar personnel must be skilled in checking and repairing the equipment as well as in operating it. Replacement units, spare parts, and test equipment must be available at all times. One burned-out tube, condenser, resistor, or other part will probably incapacitate the whole radar section.

Weather has a pronounced effect on radar detection ranges. The effect of weather on radar detection range capabilities varies with different types of radar sets. Sets with a high transmitter frequency are affected more by weather conditions than those with lower frequencies. Heavy rain will interfere with most sets.

Physical obstructions will always present problems to radar. Radar waves will not penetrate mountains, hills, land masses, forests, or such man-made obstructions as concrete, metal roofs, or wire screening. The area on the opposite side of the obstruction is invisible to radar detection.

In general radar countermeasures only affect the set in a small area, which would clearly indicate the location of the jamming station. A jamming station would not jam the set in all directions to the same degree that it would affect ordinary radio equipment. Certain small particles of tinfoil (known as "window") dissipated into the air in the sector of search would interfere with the operation of the radar set, but these particles would soon float to earth.

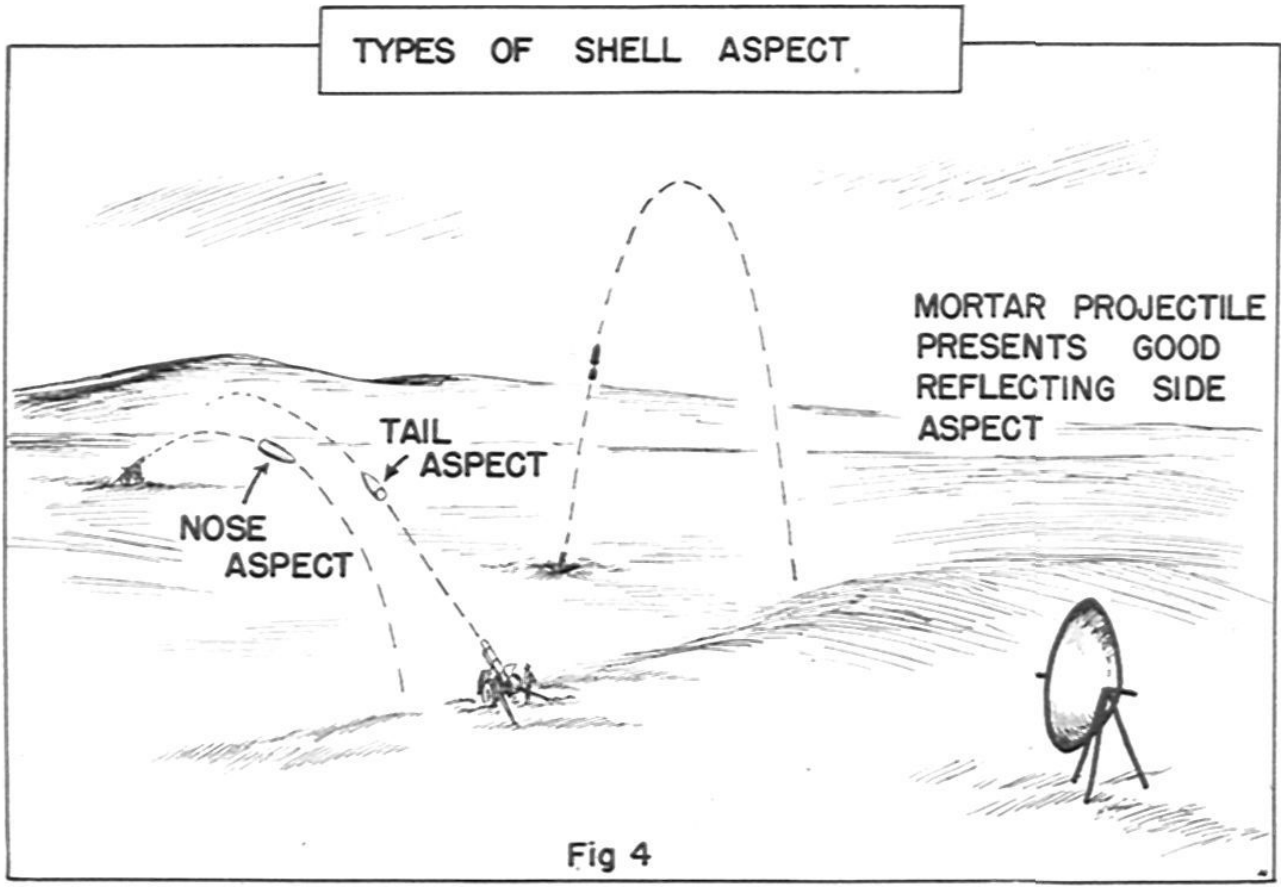

TYPES OF SHELL ASPECT
MORTAR PROJECTILE PRESENTS GOOD REFLECTING SIDE ASPECT
TAIL ASPECT
NOSE ASPECT

Fig 4

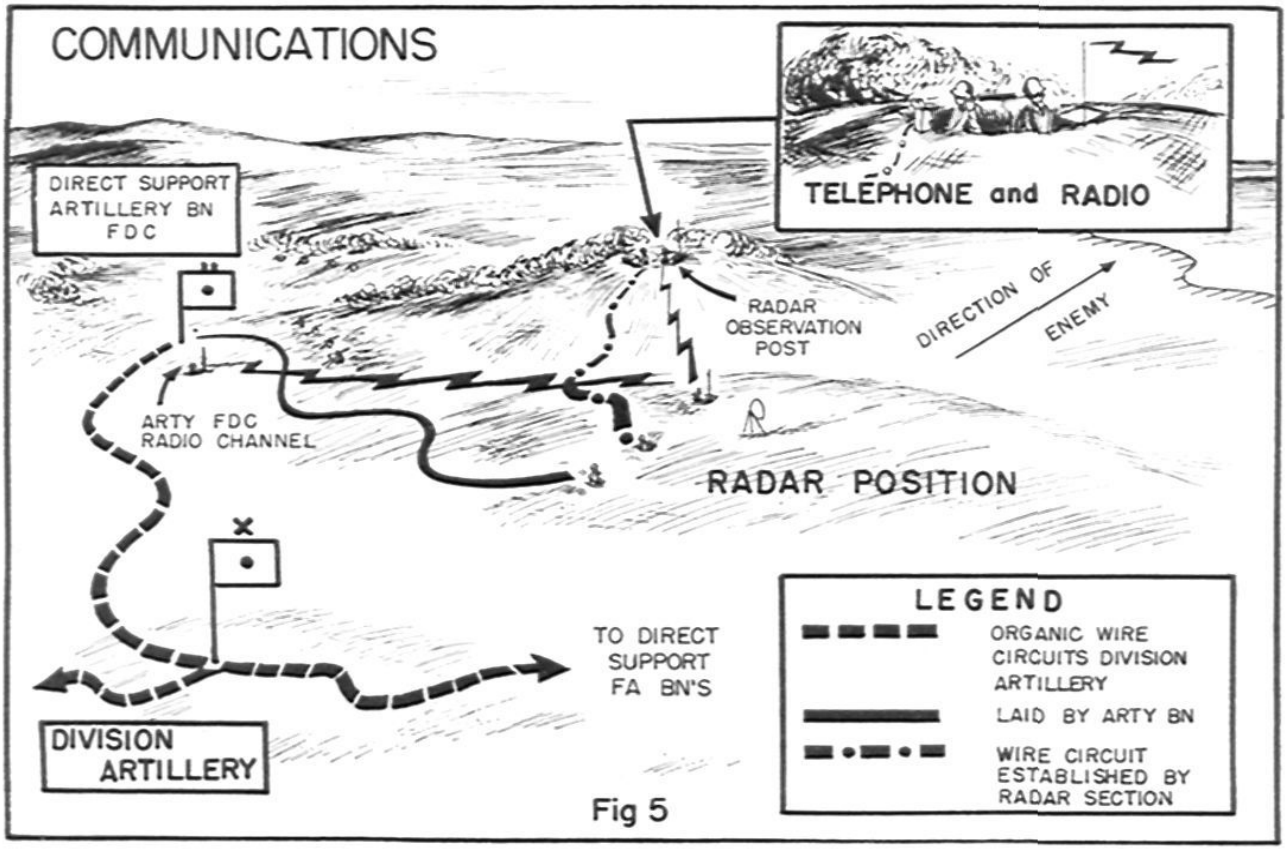

COMMUNICATIONS
TELEPHONE and RADIO
DIRECT SUPPORT ARTILLERY BN FDC
RADAR OBSERVATION POST
DIRECTION OF ENEMY
ARTY FDC RADIO CHANNEL
RADAR POSITION
TO DIRECT SUPPORT FA BN'S
DIVISION ARTILLERY
LEGEND
ORGANIC WIRE CIRCUITS DIVISION ARTILLERY
LAID BY ARTY BN
WIRE CIRCUIT ESTABLISHED BY RADAR SECTION

Fig 5

Deceptive countermeasures may be utilized to confuse operators, such as specially designed jamming stations, certain uses of "window," and multiple salvo and volley fire from enemy guns. Well trained operators, however, are quick to recognize these measures and can usually deal with them effectively by careful scope interpretation.

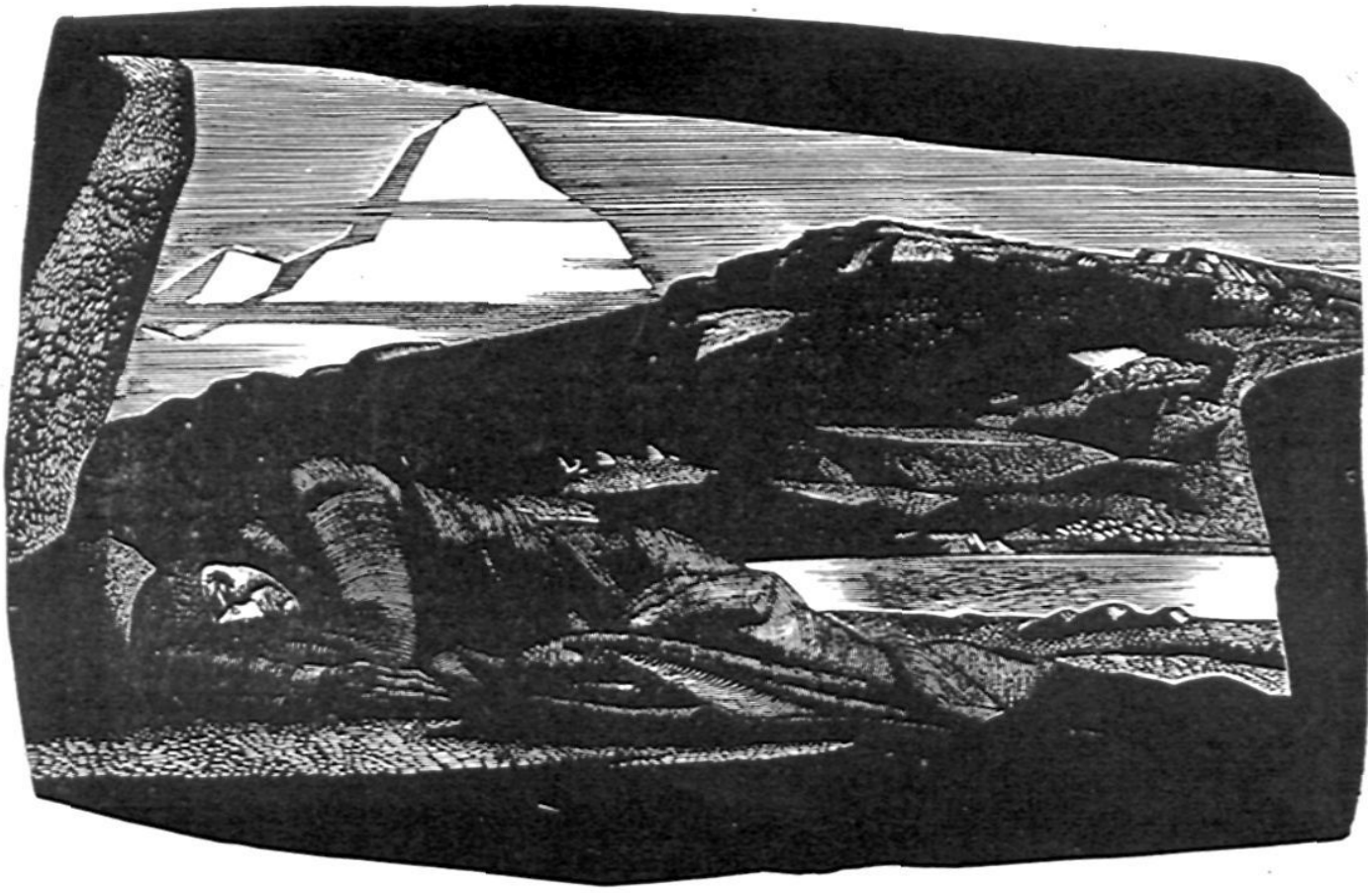
Check List of Important Points

An officers' radar check list includes some important facts concerning the operation of radar. This check list should be used as a guide only.

1. Are all radar personnel oriented as to mission, plan of action, situation (friendly and enemy)?
2. Have plans and arrangements been made for messing, refueling, supply, repairs, water supply, survey, communications, wire, radio, changes in SOI, special instructions, pyrotechnics?
3. What is the location of and route to the supported unit?
4. What is the mission and sector of search?
5. What radar position areas are available?
6. Has a preliminary map reconnaissance been made for all possible sites?
7. Has personal reconnaissance considered all possible radar positions for proper screening and characteristics for efficient operation?
8. Have all routes of access and egress been considered for mobility, defilade, clearance, bridges, obstacles, traffic restrictions, etc.?
9. How about security of the radar position?
10. Are there radios in the immediate vicinity with which the radar will interfere?
11. Is the set accurately surveyed in and oriented in azimuth, range, and elevation?
12. Do the radar scopes indicate as complete a coverage of the entire sectors of search as possible?
13. Does the site chosen furnish the proper screening with the lowest beam possible which will still eliminate the maximum clutter from the search sector?
14. Has proper relief been arranged for all personnel?
15. Have plans been made and instructions been given to meet any eventuality which may arise?

Conclusion

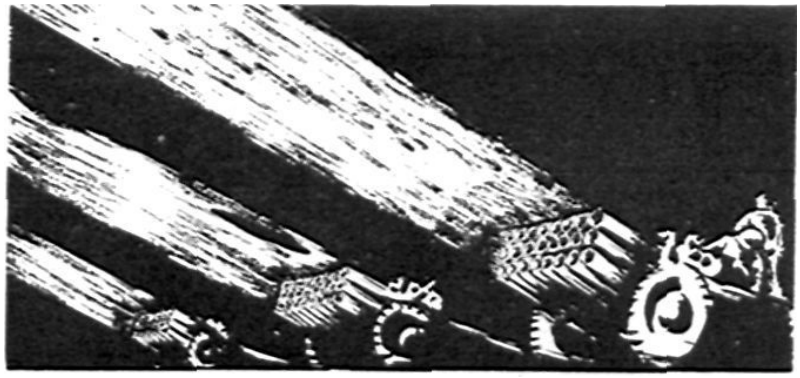
It must be remembered that radar is an important branch of the technical or scientific aspect of modern warfare. It takes time and extensive schooling to prepare men to handle these specialized equipments properly. We must also be prepared to deal with the enemy if he should be so equipped. To take full advantage of radar, research must be continuous to improve present equipment and techniques and to develop new uses.



Northern Night *Rockwell Kent*

ROCKET FIRE DIRECTION

By Capt. J. L. Goodnow, FA



The advent of Rocket Battalions in the Field Artillery family introduces new problems in fire direction, which have been solved to some extent by the principles laid down in TC 19, 1945. This circular, which was born of the labor pains of the original rocket battalions at Fort Sill during the late winter and spring of 1945, was developed by the Rocket Board and tested by the new battalions. It answers many of the problems of fire direction, but leaves enough questions unanswered to put rocket battalion fire direction in the same class with that of conventional artillery during the late thirties. TC 19 does give the battalion the necessary technique for massing its fires effectively upon a target, but the time element involved is so great that rockets would not be able to fire on targets of opportunity with any degree of timeliness. In order to speed up fire direction in the rocket battalion certain methods were devised by the 422d Rocket Field Artillery Battalion which will facilitate bringing effective and timely fire upon any target designated by higher headquarters.

For a full understanding of these methods, however, an understanding of the capabilities of a rocket battalion is necessary. The rocket battalion should not be used for point targets. The great dispersion of rockets at their present stage of development limits the weapon to use against area targets. The tremendous fire power of the battalion, or even of the individual platoon, makes it ideal for attack of area targets. In a demonstration at Fort Sill one rocket platoon neutralized an area in twelve seconds with approximately the same effectiveness as five battalions of 105s firing battalion two volleys. The 105s put a total of 120 rounds in the area. The rocket platoon fired a total of 107. And there are six such platoons in a battalion. The maximum possible coverage of a 4.5″ rocket battalion (firing one battalion ripple of 24 rounds per launcher, figuring 16 rounds per hundred-yard square as necessary for neutralization, and considering only the 68% dispersion rectangle as being effective) is an area 630 yards wide and 580 yards deep, into which a total of 864 rounds could be dropped in 12 seconds, TOT.

Rocket battalion fire direction differs from that of conventional artillery in its level of application. The rocket battery consists of two platoons, each of which fires as a unit; the battery contains a fire-direction center similar to that of the conventional artillery battalion, with the battery executive as gunnery officer, a combination horizontal-vertical control operator, and a computer for each platoon. The battalion fire direction center, consisting of the S-3 and two operations sergeants, is analagous to the field artillery group fire direction center and is principally concerned with assignment of missions.

According to TC 19, a mission for a rocket battalion would be handled in this manner. The field artillery unit to which the battalion is attached assigns the mission, giving the coordinates and altitude of the center of the target, the width and depth of the approximate area to be covered, the nature of the target, and any special information concerning the nature of the mission—neutralization, harassing, interdiction, as the case may be. The battalion S-3 then determines the amount of ammunition necessary to accomplish the mission (16 rounds plus fifty per cent for each hundred-yard square for neutralization); the number of launchers which will be necessary to cover the target, taking into consideration the size of the 68% rectangle covered by an individual launcher; and the number of platoons or batteries which must be used. He then decides which portions of the target will be covered by each battery employed and assigns the appropriate portion of the target to each battery. This necessitates rapid calculation on his part using the probable deflection and range errors.

The battery FDC goes through a similar process. The platoon computers send the fire commands to their commanders, who fire the platoons. With reasonably good work on the part of all the teams, the fire might be on its way in anything from five to ten minutes. By that time the target may have disappeared or done its damage. The method will work well for schedule fires, when time is not at a premium, but is inadequate for fleeting targets of opportunity.

In order to shorten the time lag between the assignment of the mission and the delivery of fire, the 422d Rocket FA Bn prepared a set of tables for the S-3 and the battery executives which speed up the process to a point where fire can be delivered with rapidity approaching that of conventional artillery battalions. Table I shows the maximum coverage of the 68% dispersion rectangle at various ranges, and the number of rounds necessary to neutralize the area. Considering that one T-66 launcher fires a ripple of 24 rounds (that necessary for neutralization of a 100-yard square—i.e., 16 rounds plus 50%), one platoon of six launchers can cover any of the 68% rectangles as shown in Table I.

TABLE I

NUMBER OF ROUNDS NECESSARY FOR NEUTRALIZATION OF MINIMUM PRACTICAL AREAS (68% DISPERSION RECTANGLE) AT VARIOUS RANGES

	68% Rectangle		*No. of*		*68% Rectangle*		*No. of*
Range	*Width*	*Depth*	*Rounds*	*Range*	*Width*	*Depth*	*Rounds*
1300	72	440	76	3300	172	340	140
1400	76	436	80	3400	176	332	140
1500	80	432	83	3500	180	328	142
1600	84	428	87	3600	188	320	144
1700	88	424	89	3700	192	312	144
1800	96	420	96	3800	196	304	144
1900	100	412	99	3900	204	296	145
2000	104	408	102	4000	208	288	144
2100	108	404	105	4100	212	280	143
2200	116	400	112	4200	220	272	144
2300	120	396	114	4300	224	260	139
2400	124	392	117	4400	228	252	138
2500	128	384	118	4500	236	244	138
2600	136	380	124	4600	240	232	134
2700	140	376	126	4700	244	224	131
2800	144	368	127	4800	252	212	128
2900	152	364	132	4900	256	200	124
3000	156	360	135	5000	260	188	118
3100	160	352	136	5100	264	172	109
3200	164	348	137	5200	268	160	103

Table I in itself is not useful in fire direction, but it does form the basis for Table II, which can be employed efficiently by the S-3 and the battery executive. Table I is also valuable for the battalion commander and liaison officer in demonstrating the fire capabilities of the rocket battalion to the commander of the unit to which the battalion is attached.

Table II consists of approximations evolved from the accurate data of Table I, and indicates the approximate areas which will be covered by one platoon at 500-yard range intervals with various sheafs and range spreads. At ranges other than even five hundred yards, the line of the tables for the nearest five hundred yards is used. This may result in using slightly too little or slightly too much ammunition for the area to be covered, but the gain in speed more than offsets this disadvantage for firing on targets of opportunity.

Forks, rather than c's, are used in defining range spreads, since the tables are based essentially on the probable error. Range spreads are carried up to only ½-fork apart, since at one fork apart two 68% rectangles are contiguous, and the range coverage at center range need only be doubled to determine the range coverage and number of volleys necessary at one fork apart.

For simplicity in determining deflection differences, deflection spread is covered by the sheaf widths of converged, 50-yard, 100-yard, and 200-yard, rather than combinations of probable deflection errors. In no case will two adjacent launchers be firing with a deflection spread of more than four probable errors; therefore, the 68% rectangles will normally overlap.

At first glance Table II may seem complicated and confusing. Examples of its use will help to bring about an understanding of its simplicity.

TABLE II

APPROXIMATE PLATOON COVERAGES AND AMOUNT OF AMMUNITION NECESSARY FOR NEUTRALIZATION

Converged Sheaf

	Center Range			*¼ Fork Apart*		*½ Fork Apart*	
			No. of		*No. of*		*No. of*
Range	*Width*	*Depth*	*Volleys*	*Depth*	*Volleys*	*Depth*	*Volleys*
1500	80	430	14	540	18	650	21
2000	100	410	17	510	21	610	25
2500	130	380	20	480	25	570	30
3000	150	360	22	450	28	540	33
3500	180	330	24	410	30	490	36
4000	210	290	24	360	31	430	37
4500	230	240	22	300	28	360	34
5000	260	180	19	230	24	270	29

50-Yard Sheaf

	Center Range			*¼ Fork Apart*		*½ Fork Apart*	
			No. of		*No. of*		*No. of*
Range	*Width*	*Depth*	*Volleys*	*Depth*	*Volleys*	*Depth*	*Volleys*
1500	130	430	23	540	28	650	33
2000	150	410	25	510	31	610	37
2500	180	380	28	480	35	570	41
3000	200	360	29	450	36	540	44
3500	230	330	31	410	38	490	46
4000	260	290	31	360	38	430	45
4500	280	240	27	300	34	360	41
5000	310	180	23	230	29	270	34

100-Yard Sheaf

	Center Range			*¼ Fork Apart*		*½ Fork Apart*	
			No. of		*No. of*		*No. of*
Range	*Width*	*Depth*	*Volleys*	*Depth*	*Volleys*	*Depth*	*Volleys*
1500	180	430	31	540	39	650	47
2000	200	410	33	510	41	610	49
2500	230	380	35	480	45	570	53
3000	250	360	36	450	46	540	55
3500	280	330	37	410	46	490	55
4000	310	290	36	360	45	430	54
4500	330	240	32	300	40	360	48
5000	360	180	26	230	34	270	39

200-Yard Sheaf

	Center Range			*¼ Fork Apart*		*½ Fork Apart*	
			No. of		*No. of*		*No. of*
Range	*Width*	*Depth*	*Volleys*	*Depth*	*Volleys*	*Depth*	*Volleys*
1500	280	430	48	540	61	650	73
2000	300	410	50	510	62	610	74
2500	330	380	51	480	64	570	76
3000	350	360	51	450	64	540	76
3500	380	330	50	410	63	490	75
4000	410	290	48	360	59	430	71
4500	430	240	42	300	52	360	62
5000	460	180	34	230	43	270	50

EXAMPLE 1

The corps FDC sends down the mission: *Concentration 211; coordinates AM2320; altitude 410; counterattack; 250 yards wide by 400 yards deep*. The operations sergeant plots the target and determines that the approximate range from the battalion area is 4200. By a glance at Table II, the S-3 determines that at a range of 4200 he can cover the target effectively by firing 45 platoon volleys with a 50-yard sheaf ½-fork apart. This is an ideal target for the two

platoons of one battery, and no further computation on the part of the S-3 is necessary. He sends his fire order to the battery: *Concentration 211; coordinates AM2320; altitude 410; counterattack; 250 yards wide by 400 yards deep; when ready*.

At the battery FDC the HVCO plots the target and determines that the accurate range from his battery is 4090. A quick check of Table II indicates to the executive that he must fire both platoons, fuze quick, 50-yard sheaf, ½-fork apart, battery 23 rounds (a total of 46 platoon volleys). He gives his fire order to the computers, who obtain the rest of the necessary data from the HVCO.

EXAMPLE 2

The corps FDC sends down the mission: *Concentration 212, coordinates CP8460; altitude 380; truck assembly; 300 yards wide by 200 yards deep*. The target proves to be at an approximate range of 4900, and the S-3 sees from Table II that it can be covered by a 50-yard sheaf at center range. Since it requires only 23 platoon volleys, it can be handled either by one platoon or by two platoons superimposed on each other, with one platoon firing eleven and the other twelve volleys. In such a case, the determining factor will generally be the distribution of available ammunition between the platoons. The S-3 sends his fire order: *Concentration 212; coordinates CP8460; altitude 380; truck assembly; 300 yards wide by 200 yards deep; when ready*.

The HVCO determines the accurate range to be 4960, and the executive decides to use one platoon, fuze delay, 50-yard sheaf, platoon 23 voleys. He gives his fire order to the platoon computer, who sends the commands to the platoon commander.

EXAMPLE 3

The corps FDC sends down the mission: *Concentration 249; coordinates BQ7643; altitude 390; enemy village; 600 yards wide by 600 yards deep*. The range plots at 4100 yards, and the S-3 determines that he can divide the target into three sections 200 yards wide by 600 yards deep, each battery firing into one of the sections, converged sheaf, one fork apart. Having already divided the target (normally done by the battery executive), he saves time by including this information in his fire order. His order to the center battery is: *Concentration 249; coordinates BQ7643; altitude 390; fuze delay; converged sheaf; one fork apart; AMC; TOT; report when ready to fire*. His fire orders to the other two batteries are the same, except that the announced coordinates are such as to place the right battery 200 yards to the right of the center battery and the left battery 200 yards to the left.

The battery executive repeats the fire order to the computers. Since all the essential information has come from the S-3, it is not necessary for the battery executive to refer to his table or make any computations. He gives his fire order to the computers immediately, while the HVCO is determining the range, shift, and site for each of the platoons.

EXAMPLE 4

The battery has been detached from the battalion and is attached to a division, which has attached it in turn to one of the organic battalions, from which the following mission is received: *Concentration 53; coordinates (86.53-95.68); altitude 170; infantry assembly area in heavy woods; 400 yards wide by 300 yards deep*. The HVCO, after plotting the target, announces the range as 4300. From Table II the battery executive determines that he can cover the target area with a 200-yard sheaf, center range, 48 platoon volleys. By using both platoons, one superimposed on the other, he can neutralize the area with 24 battery volleys. His fire order to the computers: *Fuze delay; 200-yard sheaf; center range; battery 24 rounds*.

* * *

The examples given above explain the use of the tables, but only practice and experience on the part of the battalion and battery FDCs can furnish the familiarity with Table II necessary to make the method effective. Table II is not a cure-all, and is not necessarily the last word in rocket battalion fire direction, but it will speed up the process and allow the rocket battalion to be used effectively on targets of opportunity.

Since ammunition conservation will always be a major consideration in rocket employment, it is believed that *the methods presented here should be used only when rapid delivery of fire is essential*. At other times, the methods laid down in TC 19 should be followed, for they give an accurate determination of the amount of ammunition to be used, instead of the approximations of Table II. In this connection, however, TC 19 prescribes that the actual number of launchers, each firing a full load of 24 rockets, be used on a mission. Our experience, on the other hand, indicates that less complications are involved and better results can be obtained by using the platoon rather than the individual launcher as the fire unit. The total amount of ammunition necessary can be easily broken down for six-launcher units. Thus, if a total of 216 rounds is required for neutralization, we would fire battery 18 rounds, whereas TC 19 would have us fire nine launchers 24 rounds. Since the organization is established at six-launcher platoons, the difficulty of breaking the commands down for nine launchers is apparent.

With further rocket firing drastic revision of the tables may become necessary. As has been pointed out, the tables are based on probable errors, and our experience has been that the probable range and deflction errors are not so great as indicated in the current firing tables. Furthermore, the number of rounds necessary for neutralization of targets is based on the assumption that 24 rounds (16 rounds plus fifty per cent) of 4.5 rocket ammunition are required for neutralization of a hundred-yard square. Experience and further study of effect patterns may change this figure. In either case, it is a matter of only a few hours' work with a slide rule to revise the tables.

Fired on call in support of a patrol, seventeen shells of 60-mm, 81-mm, and 105-mm caliber burst in the Apennines.

BLACK BUFFALO

By Maj. E. A. Raymond, FA

GERMANY'S COUNTEROFFENSIVE on the Western Front filled the world's headlines in December, 1944. Interestingly enough, while that battle raged in the Ardennes the overall situation in Italy suggested a striking parallel. The Fifth and Eighth Armies had drawn close to Bologna on the eastern end of the Italian front. A sudden offensive against the weakly-held western sector of the Allied line might have cut Fifth Army's supply artery, which ran from the port of Leghorn through Pistoia to Florence, or have carried through to Leghorn itself. Even if it failed in these objectives, it would certainly pull in reserves from the east and delay the attack on Bologna. It was known further that the Italian Republican Government desired a more glorious role for its forces than chasing partisans supplied; it needed a boost in prestige.

To the considerable number of Italian divisions which the Germans were able to employ, a sharply increased reserve of front line divisions was added. A Panzer division and a crack infantry division were withdrawn on the east, a mountain division was brought down from Northern Italy, a Panzer Grenadier division in general reserve was moved westward. Definite locations for two further divisions were not known.

Rumors of a combined German-Italian offensive down the Serchio Valley and along the Ligurian Coast thickened. Allied reserves started to move.

By 27 December von Vietinghoff, new commander of Army Group C, would have run into strong Allied forces. He struck at 0400 hours on the 26th. Three infantry battalions of our colored *Black Buffalo Division* (the 92nd Infantry Division) held a 17-mile front across the Serchio Valley. All organic reserves were beyond a rugged mass of mountains 25 miles to the west. The infantry was forced back, but the colored artillerymen of the 598th Field Artillery Battalion (105-mm how), with a medium battery and two infantry cannon companies attached, outposted their own positions and served their guns efficiently in a serious situation until ordered to prepare positions in the rear. One of the forward observer parties showed unbeatable heroism. Proof that colored field artillery can perform well in combat will be viewed by fair-minded members of our branch with more than passing interest.

The showing made in the Serchio Valley was no accident. It reflected vigorous training in the United States. The artillery battalion commanders and the divisional artillery commander were determined that their men must excel in the first things they learned to do. In rifle marksmanship all field artillery battalions nearly doubled the record of the highest-scoring white artillery battalion on each of the three posts at which the division served. 90% qualified with the .30-caliber rifle M1, and nearly 100% with the .30-caliber carbine. In physical fitness tests the artillery made four of the five top scores in the division. Officers worked hard, and were often severe, but the artillery gained extra snap and smartness and acquired esprit de corps.

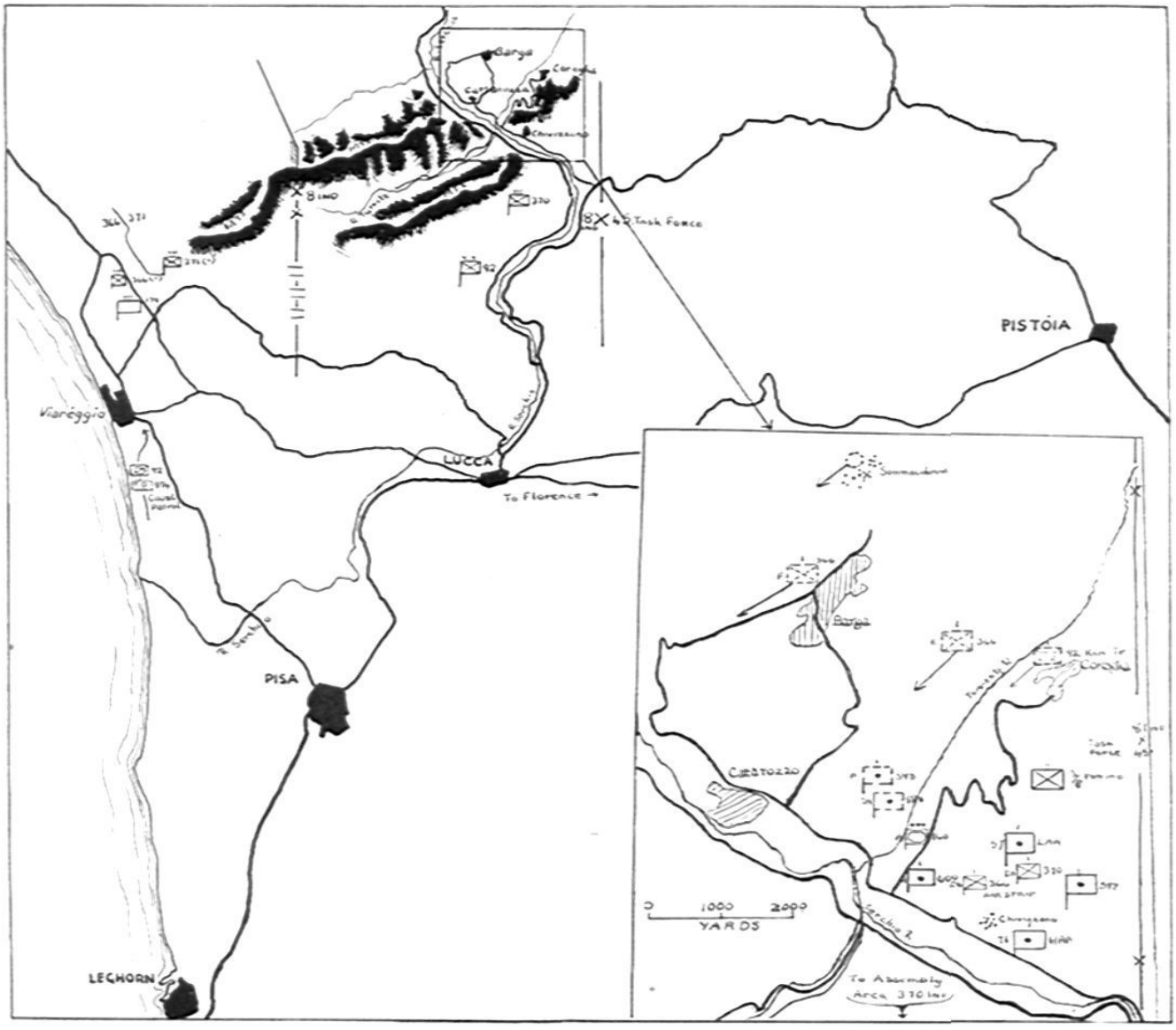
The satisfaction of being able to say "We'se de artillery" spread to the infantry cannon companies which were attached by SOP, each as a fourth battery, to light artillery battalions. At the insistence of their men the company commanders grew ferocious field artillery mustaches.

The 370th Regimental Combat Team, including the 598th FA Bn, preceded the rest of the division overseas and had an advance period of combat. The Appenine Mountains were cold; snow was on the ground and the wind was

freezing, but the weather was clear. Christmas Day in the Serchio Valley was spent in positions which had been occupied for some weeks. The Serchio River runs down a near-canyon. Most of the towns along it have factories in them, some of moderate size. Troops were in houses.

An outpost occupied the little hillside town of Sommacalonia. Just what occurred there is not entirely clear. Apparently the garrison failed to notice a gradual influx, through the night, of enemy soldiers in civilian clothes. By early morning the town was largely in hostile hands. An organized attack by uniformed German formations was launched about 0930 hours. 1st Lt. John R. Fox (colored), Cannon Company, 366th Infantry, was acting as forward observer for the field artillery battalion. Most of our infantry force withdrew from the town at about 1000 hours. Lt. Fox and his party had ample time to pull out. They remained on the second floor of a house directing defensive fires until only a handful of defenders remained. As the enemy closed in, Lt. Fox called for artillery fire increasingly close to his own position. One of his last requests for fire included a target only 60 yards from him. The enemy continued to press forward in large numbers. When the house he occupied was entirely surrounded he called for fire directly on it. He was questioned as to whether the mission was safe to fire. He answered, "Fire it! There's more of them than there are of us!" He was recommended posthumously for the Distinguished Service Cross. The recommendation concluded: "The bodies of Lt. Fox and his party were found in the vicinity of his position when counterattacks later retook the position. This action by Lt. Fox at the cost of his own life inflicted many casualties upon the enemy and delayed his advance until infantry and artillery units could be reorganized to meet the attack."

Following a conference with 370th Infantry's commander, the commander of the 598th FA Bn ordered his CP to close out at Fornaci, after the unit had been rather



severely shelled. The time was 1015 hours. The move was accomplished without interfering with fire missions. Forward and alternate positions for all batteries had previously been surveyed and dug in; rear positions had been surveyed in and digging was nearly completed. 100 rounds per gun were stocked at the rear positions. In addition to its organic batteries, the 598th FA Bn FDC had:

"D Battery"—Cannon Company, 370th Inf.

"E Battery"—Btry A, 600 FA Bn (155 how).

"F Battery"—Cannon Company, 366th Inf.

"G Battery"—A Troop, 71st Heavy AA (3.7″ AA Guns). This was a British outfit with which direct communications were maintained. It was used in general support by transmitting the coordinates of targets. It was registered by Air OP.

1st Platoon, 760th Tank Battalion (75-mm Gun).

In addition, six 40-mm Bofors Guns of the British 57 Battery, Light AA, were available in an AA role and could have been used for direct terrestrial fire.

Artillery dispositions at the beginning and close of 26 December are shown in Fig. 2.

At 1130 hours, 26 December, an estimated two battalions of German infantry supported by artillery, machine guns, and mortars attacked east of the Serchio River, temporarily cutting off two companies of the 370th Infantry. Infantry elements of the division were withdrawn from the right sector. Some were reorganized later in the day and committed in the sector west of the Serchio River. Positions of the 92nd Division were withdrawn to the Torrente line (see sketch map). Elements of the 8th Indian Division (British), to which the British West Kents and Argyle and Sutherland Highlanders were attached, entered the battle with a minimum of reconnaissance and met withdrawing elements of the 370th Infantry at Piano Della Rocca.

At 1300 hours the Indian Division assumed command of the entire Serchio River Valley Sector. Contact between elements of the 371st Infantry to the west and elements of the 8th Indian Division, was established on the 27th by 92nd Reconnaissance Troop (Reinf.). On the 26th there was considerable fighter bomber activity, which mounted in intensity on the 27th—strafing and bombing enemy positions, troop assembly areas, supply installations, and routes of communications. Visibility dropped from good to fair. Intense cold continued. When in the late afternoon of the 26th the CO, 598th FA Bn, ordered the last elements of his forward CP back, he also ordered C Battery to its rear position—but line communication had been cut by mortar fire and he was not sure that the message had been received. Accordingly he moved up the road to assure himself that their movement was under way. The Germans had reached a factory and were assembling behind it. 1st Lt. Davidson, the battery commander, had no communications except to his guns. 400 rounds remained at the position. With the help of the battalion commander he prepared fixed concentrations. All were for Charge I. The first, for a zone of 1,830-1,930 yards, dislodged a German formation which, despite depleted numbers, started to advance. The next concentration was fired at 1,700 yards and inflicted heavy casualties. The enemy, now numbering little more than a reinforced platoon, turned back. Further concentrations were fired at 1,900 yards, 2,100 yards, and 2,300 yards. At this time the battery was in front of the infantry. Then, with no rounds left in battery, the guns pulled out, retiring to Pieve behind A and B Batteries.

High-water mark of the German advance was Ghivezzano. By midnight 26-27 December, the 8th Indian Division had driven forward to the Torrente Line (see sketch map). Battery A returned to its original position at 0300 hours 27 December and Battery B at 1200 hours. By noon of the 27th the 8th Indian Division, backed up by the 3d Field Regiment (25-pdrs), the 17th Medium Regiment (4.5″ guns), and later the 18th Medium Regiment (5.5″ guns), had entirely restored the situation and regained the excellent defensive positions which had been lost. The 88th Division and the 1st Armored Division were moved into reserve positions to meet further threats in this sector.

During the three days 26-28 December the 598th FA Bn (Reinf.) fired nearly 4,000 rounds of ammunition, mostly in the first day and a half. Almost all of this firing was percussion, as most of the ranges were too short or too great for the mechanical time fuze. Only about 25% of all missions were unobserved; of the remainder, about half were fired with ground observation and the rest from Air OPs. Practically all unobserved fires had been shot-in previously. Despite the low temperature, the light planes were constantly on patrol from daylight to dark. The two planes of the 597th FA Bn were attached to the 598th throughout the period. It was necessary to pack to ground OPs by mule back, especially on the west side of the Serchio River.

Moonlight on the snow-covered ground provided unusually high visibility at night; Batteries D, F and A registered in their rear positions at night using WP shell. Few rounds were used, and check-firing by daylight confirmed the accuracy of the registrations. Angles of site as great as 100 mils in the mountainous terrain ruled out transfers except for observed fires. There was no metro section in the Valley and the metro data obtained on the coast did not apply.

Private Orange King was an ammunition handler in the ammunition train. A shell hit the truck he was in and set it afire. Its load of ammunition exploded sporadically. The two men with Orange were badly hurt; he himself was burned. He carried one down a bank to safety. "Don't go back there, Orange, you'll be killed sure," urged the man he had rescued. Orange did not hesitate. He brought the second man down to safety and received the Silver Star.

A forward observer who did a fine job in this engagement lost an eye. He wrote his battalion commander some months later, from the United States. He said he guessed he hadn't been of much account when he got to the 598th, and all he hoped was that the colonel didn't think too badly of him now. The colonel is rugged, but his eyes were glistening a little as he showed the letter.

"My men were happy in tough going," said the colonel in telling of the fight. "They were working, not worrying. When there was nothing between us and the enemy we put out what security we could spare and kept on shooting. There was no panic. Not a man budged until march order was given. I have always had faith in my colored artillerymen—but I was glad to be proven correct."

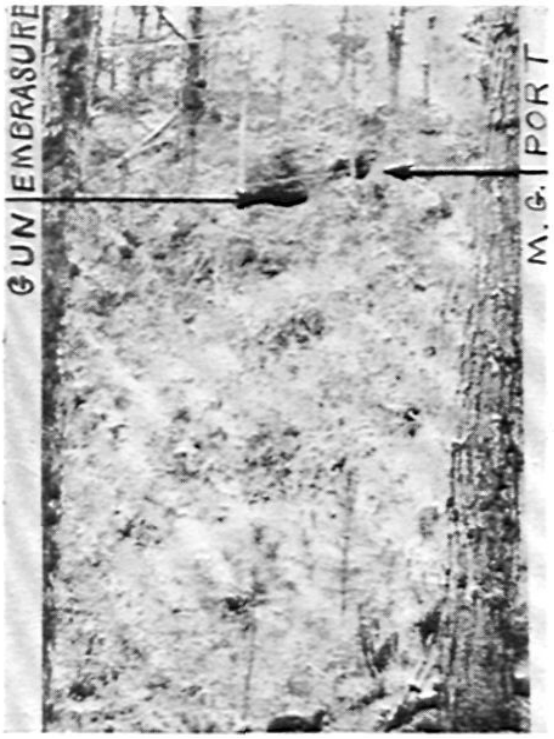
Jap Artillery in Northern Luzon

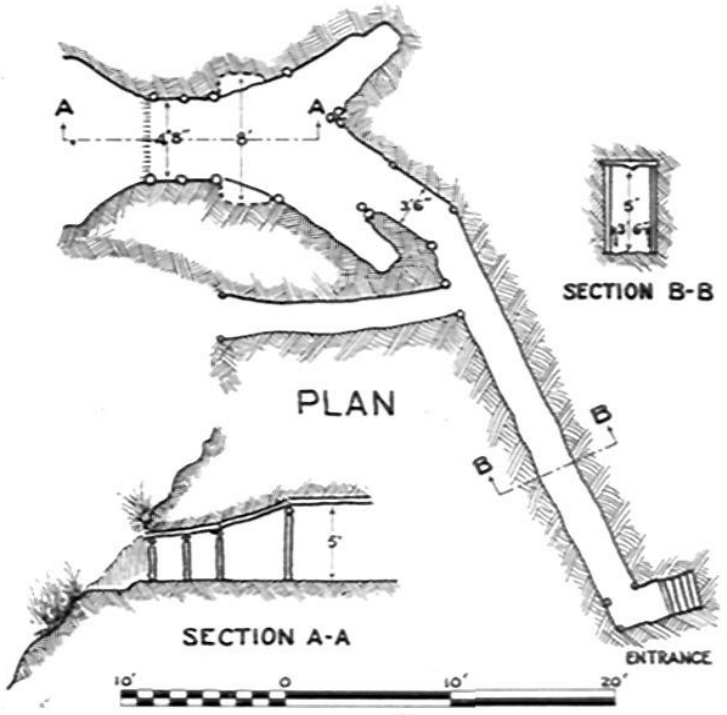
9 January to 30 June 1945

During the campaign in Northern Luzon from 9 January to 30 June 1945 the I Corps encountered Jap artillery under a variety of conditions. Terrain, number and type of forces engaged, and length of time the Jap had had to prepare positions, all varied. As a result, the experience and the opinions of the Corps' divisions varied in some respects. Presented here is an attempt by Headquarters I Corps Artillery to reconcile and consolidate the experiences of the divisions and the corps artillery as to Jap artillery units, organization, technique, and materiel.

JAP ARTILLERY UNITS ENCOUNTERED

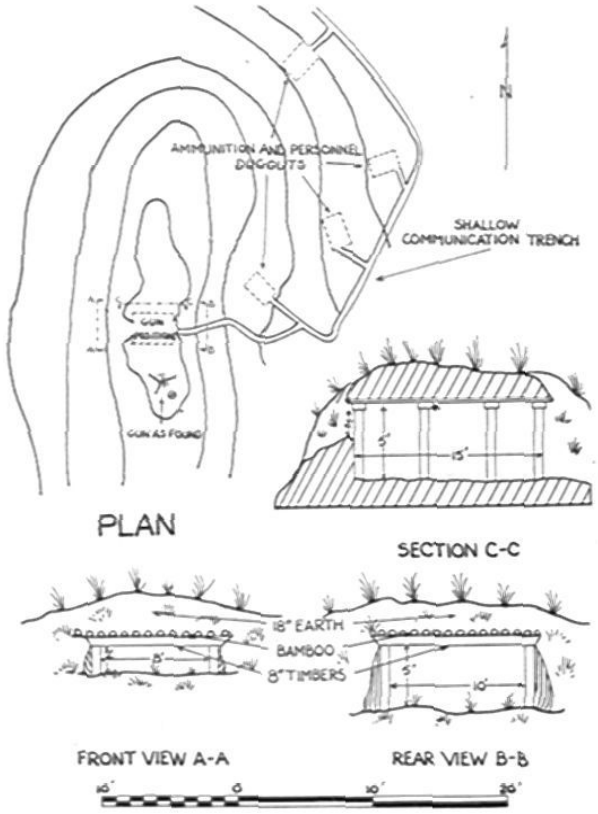
Information on Jap artillery units present in the I Corps zone is somewhat confused. Few units were complete even at the start of the campaign because only portions of some units were sent to Luzon. Of these portions, some were sunk en route and others were not committed in Northern Luzon. Armament of similar units varied, as did that of a particular unit at different times, due to their losses' being made up from any guns available. As losses grew, units were broken up to reinforce other artillery units or to form new units, some of which were infantry. The practice of Jap personnel retaining the identification tags of their old units added to the confusion. In addition, many patients from the units outside the Corps zone were in the Baguio hospitals and on discharge joined units in the vicinity.





A good example of a true tunnel position was this one which commanded the Kennon Road on the southern approach to Baguio. Although found intact, it contained neither gun nor ammunition. Probably the piece was a 75-mm mountain gun, for the tunnel was so small that the gun would have had to be dismantled to get it into the gun chamber.

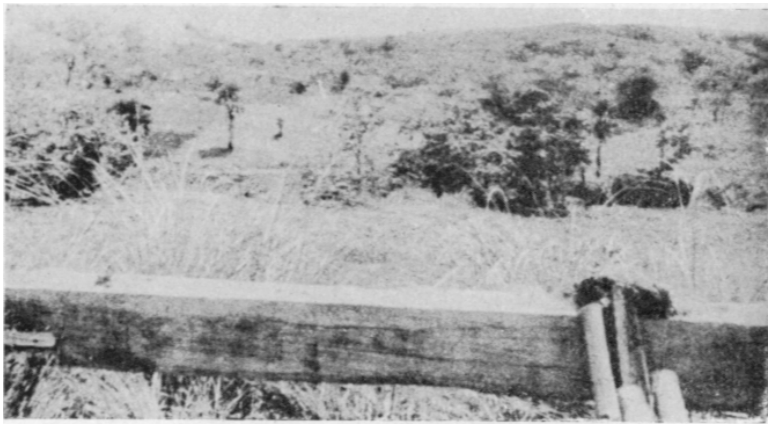
The tunnel was expertly dug in solid rock and timbered in earth. Embrasures were camouflaged with pine branches, and opened in the face of a precipitous hill. In addition to the chamber for the gun, there was a branch tunnel with a port for a machine gun above and to the left of the gun embrasures. Part of the spoil from both tunnels was used to build a baffle mound across the entrance to the tunnel on the reverse slope.



A typical 75-mm gun position built in the crest of a ridge was found among those in the ridge country between Rosario and the coast. A chamber about 10′ × 15′ had been dug in the crest, timbered with posts from local buildings, and roofed with bamboo poles covered with about 18″ of dirt which had been planted with grass. The embrasure was an opening 2′ high across the front. Piece was a 75-mm mountain gun, Type 94, for which many rounds of ammunition fuzed with both delay and instantaneous fuzes were found in the position. This position, apparently designed for direct laying, had an excellent field of fire, as shown in upper photo.

Down the reverse slope shallow communication trenches led to several small dugouts for ammunition and personnel. These were about 6′ × 8′ and some 4′ to 5′ deep, with bamboo roofs covered with soil and growing grass. There was also a cave about 12′ deep, 4′ wide, and 8′ high driven in the rock at the base of the hill, for ammunition storage.

Apparently the position had been flanked, for the gun had been removed from its covered chamber and was on top of the ridge just south of the position. It had been firing to the right rear; there were both empty cartridge cases and fuzed rounds about it. The barrel had been blown off, apparently by a charge placed in it.



Field of fire toward Lingayen Gulf.

Gun on top of position to fire to right rear.

Number of Units Present

After a study of all available data, it appears that there were present during the campaign approximately 50 batteries, exclusive of the "Battalion" and "Regimental" guns of the infantry units and the 37-mm and 47-mm guns of the AT units. It is estimated that they were armed as follows:

25 batteries of 75-mm guns
2 batteries of 75-mm AA/AT dual purpose
11 batteries of 10-cm howitzers
10 batteries of 15-cm howitzers
2 batteries of 30-cm naval howitzers

Identity of Units

The following artillery regiments were identified and are believed to have been present with the number of batteries indicated:

2nd Mobile with 9 batteries
2nd Shipping with 4 batteries
10th Field with 8 batteries
17th Field with 4 batteries
22nd Field with 1 battery
25th Mountain with 5 batteries

NOTE: The 12th Independent Heavy was present but it is believed that our naval bombardment destroyed all its guns prior to the landing.

In addition, the following artillery units of less than regimental size were present:

6th Independent Artillery Battalion with 2 batteries
13th Field Artillery Battalion with 5 batteries
20th Independent Heavy Artillery Battalion 2 batteries
58th IMB Artillery Unit with 4 batteries
103rd Division Artillery with 4 batteries
105th Division Artillery with 1 battery

TYPES OF JAP ARTILLERY ENCOUNTERED

For the purpose of this summary 37-mm,

47-mm and 57-mm AT guns, 70-mm battalion guns, and coast defense guns at San Fernando are not considered as artillery. No division reported the 57-mm except in tanks. Only eighteen 70-mm guns were reported, although the Jap T/O is two per infantry battalion. Several factors may have accounted for this low number: (*a*) being small, the gun was easily hidden or buried; (*b*) infantry reports may have referred to them as 75-mm guns; (*c*) Jap troops are reported to dislike them and to replace them with 75-mm whenever possible.

Guns actually identified as being present were:

75-mm	Type 38 Field gun
	Type 41 Regimental gun (old type mountain)
	Type 88 Dual purpose AA/AT gun
	Type 90 High velocity with muzzle brake
	Type 90 Shorter tube self-propelled
	Type 94 Mountain gun (replaced type 41)
10-cm	Type 91 Howitzer
15-cm	Type 96 Howitzer, 4th year, 1915
155-mm	M1918 Captured U. S.
30-cm	7th year 1918 Naval howitzer

75-mm Guns were usually one of the mountain types 41 or 94, which could be broken down and carried in parts. The 2nd Armored Division had modern high velocity type 90, and there were some self-propelled type 90. Horsedrawn, truck-drawn, tractor-drawn, and self-propelled were all encountered.

No *10-cm Guns* were found, although the type 91 howitzer was found.

15-cm Howitzers were almost all the obsolete type 38 with a one-piece trail and an extremely small cartridge case. The type 96 howitzer was identified only in Balete Pass.

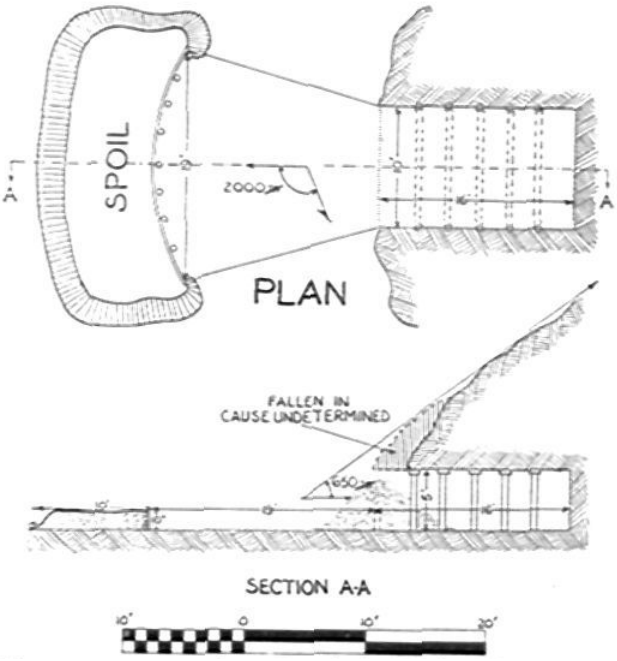
One *155-mm M1918 U. S. Gun* was destroyed while being towed by a tank in the vicinity of Rosario early in the campaign. Two others were emplaced for the defense of the San Fernando Harbor.

JAP GUNS DESTROYED OR CAPTURED

The number of guns reported destroyed or captured is not an accurate measure of the Jap's actual loss of materiel. Undoubtedly some guns were destroyed, hidden, abandoned, or sealed in caves where our troops never found them. Other guns reported destroyed by air observers were later found by our infantry and reported at locations different from those given from the air. Some guns were not so seriously damaged as they appeared, and were recovered for further use. It is believed that most of the Jap artillery units lost all their pieces and that there were as few as thirty pieces left in usable condition in Northern Luzon by the end of June.

The following figures on the number of pieces reported destroyed or captured at least indicate the magnitude of the Jap losses:

75-mm	141
75-mm AA	8
10-cm	63
15-cm	46
155-mm	1
30-cm	2
caliber not reported	70
TOTAL	331



This position was in the valley of the Arodagat River east of Sison, toward which town it was built to fire. The tunnel was dug in the side of a steep ridge across a rice paddy from the road; its axis (2000m) was toward Jap-held territory. This direction and the sector-shaped space in front of the tunnel indicate that the howitzer was stored in the tunnel, muzzle in, and was pulled back into the open to fire over the ridge into which the tunnel was dug. Part of the timbering had collapsed so it was impossible to enter the tunnel to make completely accurate measurements. No howitzer was in the position, but there were numerous used cartridge cases there, and some 15-cm Type 38 howitzer ammunition stored against the side of the hill near the road.

In addition were reported 48 37-mm and 90 47-mm AT guns and 18 70-mm infantry guns.

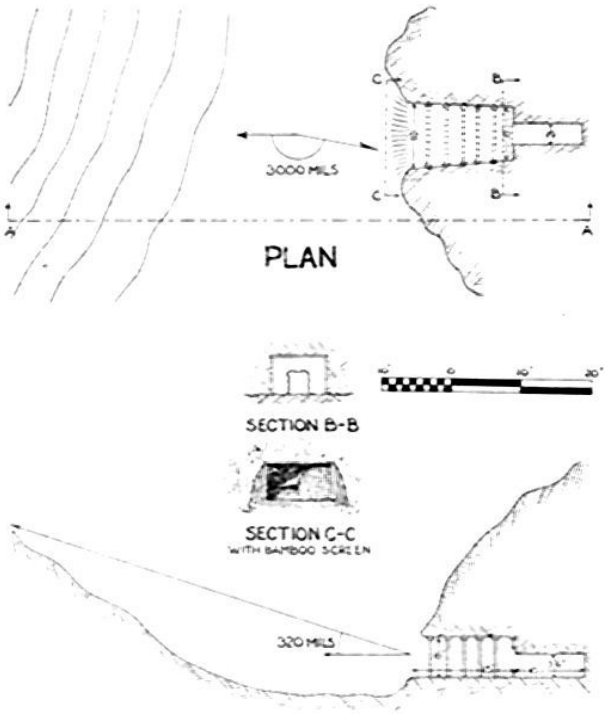
JAP AMMUNITION

Initially the Jap apparently had plenty of ammunition, judging by the quantities captured. Much of it was stored in small piles in hundreds of locations. It is possible that no one knew where all of it was located. This and lack of transportation prevented the removal of much of it to positions where it could be used. Many pieces placed in inaccessible positions were limited to ammunition that could be packed on a horse's or men's backs. Movement by any means was safe only at night.

In Balete Pass little ammunition was captured. An exception was that of the battery at Bolong. Two hundred rounds were left of the five thousand the battery was reported to have drawn.

It is believed that in some cases the Jap expended all possible ammunition before pulling out. Certainly there was a marked increase of fire just before he pulled out of Balete Pass and Imugan, and again just before we took Tuguegarao.

The Jap used instantaneous and delay fuzes almost entirely, but time fuzes were found in some captured dumps. Only in the Pugo-Galiano area were any air bursts reported. In some instances shrapnel was used, but it burst on impact.



SECTION A-A

Located in the Arodagat River Valley cast of Sison, this tunnel was built to fire toward Pozorrubio. It was driven in the side of a steep gully and, when found, was intact and well camouflaged. The tunnel was well timbered and had a bamboo screen to partially cover the entrance when the piece was not firing. No gun or ammunition was found, save for some used cartridge cases for a 15-cm, Type 38 howitzer.

Farther up the gulley and on the opposite side from the tunnel were trenches for personnel. Although the general area showed signs of our artillery fire, there was no evidence of any damage to the installation or crew.

JAP GUN POSITIONS

Jap gun positions varied from hasty open positions with little or no protection to heavily timbered tunnels impervious to anything but a direct hit. In general, the longer the Jap had to prepare a position, the deeper he was dug in.

No coast defense guns were found on the beaches on which we landed. The only heavy artillery fire received was from two 30-cm naval howitzers thoroughly dug in and camouflaged north of the Damortis—Rosario road.

Although positions were well selected they often had limited fields of fire because they were emplaced with overhead cover and excellent camouflage.

One such position was in a tunnel driven through the crest of a ridge with only a small embrasure on the forward slope. There were many positions of this type in the ridges paralleling the coast between the coast road south of Damortis and the flats near Rosario. There had been ample time to construct these positions, and they were very well camouflaged. In effect, they were tunnels through the crest of the ridge, although in some cases they had been dug as trenches, roofed, and had the original surface restored.

In the mountains guns were often in tunnels on a forward slope and were kept well back in the tunnels except when firing. At least two batteries were so emplaced in the Balete Pass. In at least one case a 15-cm howitzer was kept in a tunnel at the foot of a reverse slope and apparently was pulled completely out into the open to fire over the mask of the hill in which the tunnel was driven.

Many *75-mm guns* were found in almost inaccessible positions where they must have been packed-in disassembled. This mobility combined with the fact that most of the terrain was covered with a network of trails, allowed the widest latitude in the choice of position.

10-cm and 15-cm howitzers were usually found close to roads, although one battery of 10-cm was manhandled three hundred yards from the road and a 15-cm was found well away from any vehicular trail.

It was usual to expend a great deal of labor on the construction of positions. One battery is known to have spent a month in constructing one position for its guns. A PW stated they did not move when they were detected because it was impossible to prepare new positions with cover and it was death to go into positions in the open.

There were some cases however where guns went into position in the open. At least two 10-cm howitzers were emplaced near Gonzales with only high grass to conceal them. In the Arodagat River Valley several 15-cm howitzer positions had just a light, axle-high earth parapet. Two 15-cm howitzers were overrun on outside curves, around knifeedged ridges, on the Naguilian—Baguio road.

The Japs concealed their artillery thoroughly and effectively. Some of their positions had earth over them, plowed and planted. Mouths of tunnels and caves were usually concealed with brush, screens, or in some cases by heavy wooden doors.

The 30-cm naval howitzer position north of the Damortis—Rosario road had its heavily timbered pit concealed by a house mounted on rails which allowed the house to be moved to one side while the howitzer was firing. Slopes of the emplacement were planted as a garden to complete deception. Many of the ridge crest positions were practically invisible from the front, although from the rear the openings and communication trenches disclosed them. So well were positions concealed that aside from sound-ranging the only way positions were spotted was by the flash as seen by an air or ground observer. In Balete Pass as the end of the campaign approached, the Jap became more careless in covering the mouths of tunnels and disposing of the spoil.

Movement of Jap artillery seems to have been almost entirely by night, possibly due to the disasters he suffered the few times our cubs caught him on the move.

Usually the Jap artillery remained silent whenever a cub was known to be in the vicinity, although they occasionally did continue to fire when they had a worthwhile target under fire.

JAP ARTILLERY OBSERVATION

The Jap had numerous OPs in all sectors, and he usually held the high ground which gave him an advantage that

we did not enjoy. As far as is known he never used air observers (he had no planes), and in only one case is there any indication that he ever used anything resembling our FOs. Many of his guns were so sited as to have wide fields of fire with direct laying.

JAP ARTILLERY COMMUNICATIONS

Reports are conflicting as to whether the Jap's primary means of communication was telephone or radio. He used both, sometimes singly and sometimes with the radio as a standby for the telephone. As we disrupted his communications there were numerous indications that in many cases he had to use runners. Blinker lights have been observed while artillery was firing, but there was no proof that they were being used for fire control.

In Balete Pass it is known that one battery had telephone communication with its OP and had radio for a standby, but there was no communication between the tunnels from which the guns fired. Therefore only one gun was fired at a time because the executive had to take his signal equipment into the active position.

JAP RADIO INTERCEPTION AND JAMMING

The Jap had radios that operated on the same frequencies as our own and which undoubtedly could have monitored our nets. There is no evidence, however, that this was done on our artillery channels. Jap voices were frequently heard on our sets and in a few instances interfered with their use.

At times there was evidence of a deliberate attempt to jam a channel by constant voice repetition of a given phrase. This interference was generally ineffective in preventing our use of the channel.

No case was reported of the Jap trying to interfere with our fire missions by entering the net with false sensings or commands.

HOSTILE SHELLING

Effectiveness

Judged by our standards, the Jap artillery was ineffectively handled. Many of our artillery officers feel that had they been in the Jap's place they could have inflicted a great deal more damage. How much of this ineffectiveness was due to poor leadership and training and how much to lack of ammunition, transport, and communications existing initially, or caused by our artillery and air bombardment, is impossible to say.

Massing of Fires

No case is reported of the Jap's having massed the fire of more than one battery, and there are only a few reports of a battery firing as a unit. Fire was normally by single piece even when the battery was together. There were occasional reports of platoon salvos and of a very few battery salvos, but volley fire was never reported. A fire plan of the 10th FA captured in Balete Pass showed four batteries to fire on the same area; so far as is known, only one battery fired at a time.

Accuracy

Jap fire was often very accurate. Some of it was based on accurate survey, as at Balete Pass, where we captured the

On the precipitous slope just south of the "Rest House" at the highest point in Balete Pass, a Jap 10-cm howitzer battery was emplaced in tunnels. This photo, looking north, was taken almost six weeks before the position was overrun. By the time the place was captured it was impractical to make measurements or to take close-ups because the tunnels had been further destroyed by shelling and bombardment; in addition, a road had been bulldozed across the slope above them, practically closing their mouths.

complete notes and map of an extensive and accurate survey. In other areas there was indication of survey and/or registration on critical points before the Jap withdrew from the area. Thus in some cases in Balete Pass, on the Villa Verde Trail near Salacsac Pass, and on the Kennon Road, initial fire was accurate without any sign of an adjustment. Often it appeared that the Jap made an adjustment and then failed to follow it up with fire for effect. Sometimes, however, fire for effect was delayed to secure surprise. In one case registration just before dark was followed by fire for effect at 0400 the next morning. In other cases it was received after a lapse of days.

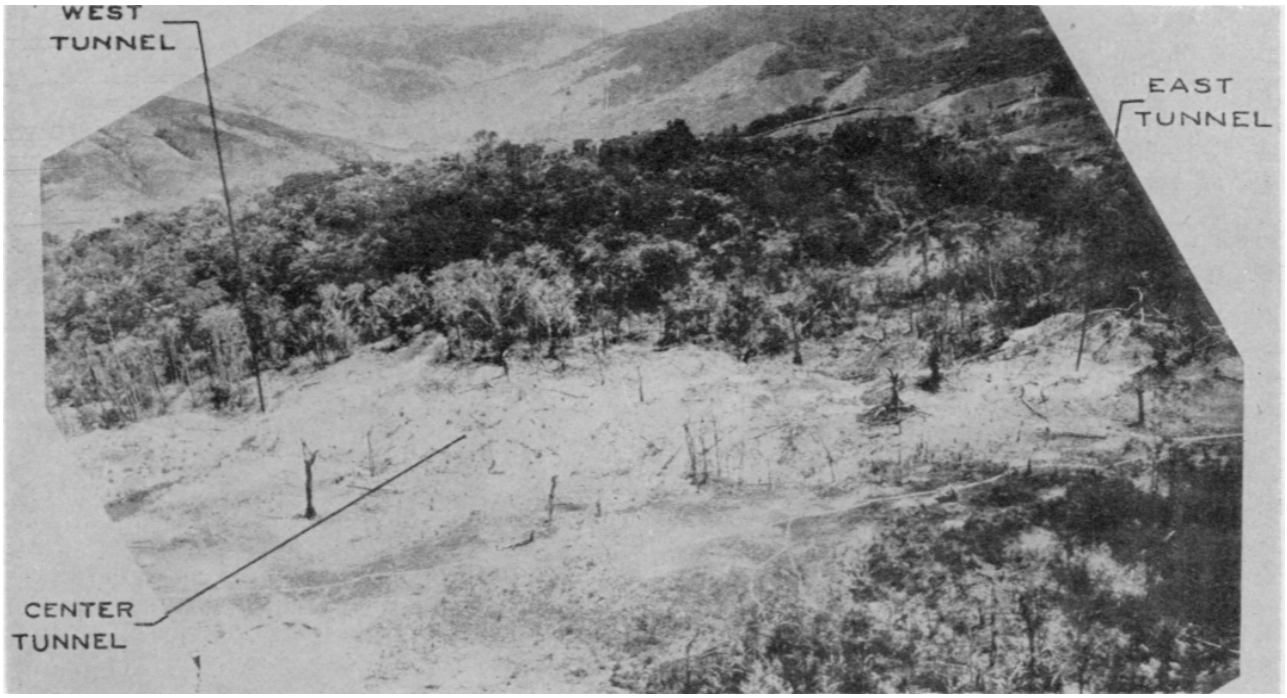
Amount of Fire

Divisions did not report details of shelling until the latter part of February so no figures are available for the initial stage of the campaign. No shelling was received during the landing except for a little on the eastern beach from the 30-cm naval howitzers. The advance south through the plain also met very little artillery fire. In our advance over the hill mass to Rosario and Sison an increasing amount was received. In these early stages the shelling was probably less than that of the balance of the campaign.

After 21 February the figures are fairly complete, although they include some 47-mm and some heavy mortar fire. The total reported for the *entire Corps zone* from 21 February to 30 June was 20,500—an average of 158 rounds per day. The maximum was 871 on 24 April.

During the active drive on Baguio from 2 April to 26 April the total was 1,940 and the daily average 78.

In the action along the Villa Verde Trail from 13 March to 30 May the total was 6,700, a daily average of 86. Initially only four or five 75-mm and 10-cm pieces opposed us with an average of 39 rounds daily from 13 March to 2 April. Then as Salacsac Pass was approached the shelling increased sharply, averaging 159 rounds from 3 April to 3 May with the maximum of 590 on 24 April. After 4 May fire decreased due to the artillery lost when Balete Pass fell and the northward evacuation of the Jap up the



Several hundred yards north of the summit of Balete Pass at Bolong a 10-cm battery was emplaced in tunnels. One of its chiefs of section gave a detailed history of the position.

These tunnels took the battery over a month to build, and were deep and with very heavy timbering. The guns were moved by hand 300 yards from the road. This photo, taken six weeks before the position was overrun, shows three of the four tunnels; at that time at least two of them were still active. This position also appears in the middle distance of the photo on page 21.

The position was first spotted by a cub observer and brought under fire on March 17th. From then until it was overrun (about May 20th) it was under intermittent counterbattery fire and bombing, which cut back the face of the hill as much as twenty feet. When this happened, the crews merely dug themselves back into the hill a corresponding amount. Although tunnel mouths were blocked, they were dug out as soon as shelling ceased.

One howitzer was destroyed about April 1st, another about the 9th, and a third about the 29th. Two were accounted for by artillery fire and one by bombing. Finally, about May 20th, when our infantry was only 400 yards away, the chief of section blew up the remaining howitzer.

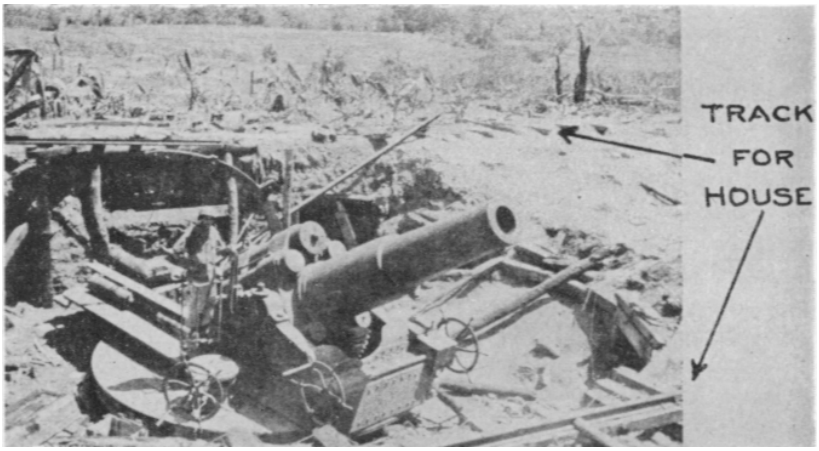
Fire of the battery was controlled from an OP on the ridge at Balete Pass. Communication was by telephone, with radio as an auxiliary means. The pieces were always used singly, however, because there was no communication between the tunnels and the executive had to take the telephone into the cave of the gun which was firing.

There was an extensive survey of the position areas and the target area. Our artillery destroyed the tree which the battery had been using for an aiming point. In reestablishing direction a small error was made which, unknown to the Japs, shifted their fire onto one of our CPs.

Imugan River. From 6 May until 30 May the average was 41.

In Balete Pass from 13 March to 25 May shelling was fairly constant, with a total of 9,300 and a daily average of 128 with only twelve days over 200 and eight under 50. The maximum was 384 on 7 April.

In the drive up the Cagayan Valley artillery opposition was negligible. A total of 760 rounds was received. This included 500 on 24 June when the Jap apparently expended all the ammunition he could before the capture of Tuguegaro. Omitting that day, the average from 26 May to 30 June was 8 rounds per day. If the 500 rounds are included, the average would be 22.



North of the Rosario—Damortis road the Jap had emplaced two 30-cm naval howitzers which fired on the eastern landing beaches. They were "Type 7th year" model of 1918.

These howitzers were in deep, heavily timbered pits and were well camouflaged. One had a Filipino house mounted on a track which was run over the pit when the piece was not firing. Around the house the ground had been planted as a garden, to complete the deception. Ammunition was stored in widely dispersed dugouts and was brought to the position on narrow gauge track.

By the time they were overrun these positions had been so very thoroughly shelled and bombed that nothing but the howitzers and pits were left.

Counterbattery

Instances of counterbattery against our artillery were rare and generally ineffective. In only three or four cases were our batteries forced to change their positions. The Jap's usual method of trying to knock out our artillery was by infiltration attacks with demolition charges. The size of the forces making these attacks was usually 10 or 12 although there were many small groups of only two or three.

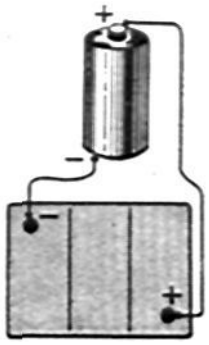
One party of 50 attacked a position in Balete Pass and shortly after the landing a company size force attacked one of our medium battalions near San Fabian on two successive nights. This was part of a large counterattack directed against our artillery and CP area. The captured orders called for three battalions of infantry and two tank units. The latter were destroyed before reaching their rendezvous and most of the infantry never made contact. In general, attacks were carefully planned and well coordinated. Equipment was usually hand grenades and demolition charges.

AA Fire

Considering that our cub observation planes were flying continually over Jap territory and that adjustments were commonly made with the target between cub and guns, very little AA fire was received. Cubs reported being fired at 39 times, usually by small arms or machine guns. There were only 4 reports of heavier weapons (20-, 40-, or 75-mm). In two cases pilots thought mortars were being fired at them as they could see mortar bursts which seemed to follow them along the mountain side. One pilot reported being fired at by a barrage mortar; the projectile has a time fuze and releases explosive charges on small parachutes; this report may be correct, as some of these mortars were found near Irisan.

Two cubs were lost by AA fire: one north of Damortis by machine gun fire (which disabled the engine) and another west of Balete Pass by rifle fire. In both cases, pilot and observer walked out from behind the Jap lines unhurt.

AN "ARMY MOTORS" TIP



If the batteries in a flashlight burn out and new cells aren't available, it's possible to recharge them two or three times.

Ground the negative end of the cell to the negative post of a 6-volt battery or half of a 12-volt battery. Place the negative end of the cell directly on the negative post of the battery, or connect them with a piece of wire; then connect the positive terminal of the battery to the carbon in the center of the cell with a piece of wire. Time required for charging is about half a minute. And the cell is good for about one hour's steady use.

EDITOR'S NOTE

Based on his own battle experience, in this *Journal* for December, 1945, General der Artillerie Karl Thoholte stressed two reasons for the success of Russian artillery. "'Mass,'" he said, "is the word which most adequately describes Russian artillery." His other major point was *leadership*—from the top down, and by artillery officers rather than by infantry commanders—and a well-defined chain of command. Other important factors which he noted were mobility, and camouflage and deception.

Even though the fighting is over, we must realize that change and evolution are still with us. So too is the need for learning, from both friend and foe and concerning the strengths and weaknesses of any and all artillery, whosever it may have been and regardless of who evaluated it.

Presented here are three aspects of Russian artillery practice, two as viewed by the Russians themselves, the other as seen by a British officer. May they help increase our understanding of our ally, and help serve as a yardstick for measuring our own performance.

Heavy Self-Propelled Guns in Tank Battles

By Lt. Col. G. Khainatskii

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Two peculiarities are noticeable in the present tank-versus-tank engagement, neither of which existed in tank battles at the beginning of the war. The first peculiarity is that a tank-versus-tank collision is now essentially a fire fight rather than a battle of maneuver. All firing is done at maximum ranges, which may be as far as two kilometers. The very first shots stop the enemy's maneuver, while a strong fire forces the tanks to take cover. Increase in the range and in the caliber of the tank gun has changed our battle tactics considerably. A maneuver the purpose of which is to disengage from the enemy is dangerous, because it is risky to expose the rear and sides of the vehicles. For this reason the fire power of the gun and the thickness of the front plate have become the fundamental factors determining the outcome of the battle.

The second peculiarity is the use in tank formations of self-propelled artillery. A study of the evolution of this weapon also reveals a trend toward a greater range and fire power. There has been a continuous increase in the caliber of the self-propelled gun and in the thickness of its armor, and the very appearance of self-propelled guns in battle formations of tanks shows the tendency to increase the fire power of the armored formation as much as possible, even at the expense of its maneuverability as a whole (self-propelled guns are less maneuverable than tanks but are superior to them in fire power).

There are two reasons why the self-propelled artillery is used in tank formations: first, to free the tanks from the necessity of dueling with antitank guns, tanks, and self-propelled guns of the enemy; and second, to enable the tanks to maneuver on the battlefield under favorable conditions. In this regard, the self-propelled artillery may be

Russia's 203-mm howitzer is comparable to our 8-inch howizter, M1. The one above on a tracked carriage, is evidently being emplaced.

compared to a shield protecting the tank maneuver.

In engagements with enemy infantry and artillery, self-propelled guns move behind the tanks or on their flanks and destroy the targets threatening the tanks. All types and calibers of self-propelled guns are used for this purpose. The situation changes, however, if the enemy manages to commit his antitank reserve composed mainly of Mark V and Mark VI tanks and "Ferdinand" self-propelled guns. This reserve strives to engage our tanks in open terrain. Opening direct fire from a distance of about two kilometers, the "Tigers" and "Ferdinands" try to arrest the maneuver of our tanks and to divert them from the accomplishment of their main mission, which is the destruction of enemy manpower. And it is at this stage that our heavy self-propelled artilery is called upon to play a decisive part. Its appearance on the battlefield upsets German plans which are based on the superiority of their long-range fire.

Successful employment of heavy self-propelled artillery in tank battles depends on the commander's ability to evolve tactical methods and forms of cooperation with the tanks which will secure the element of surprise by maneuver and fire. The greater the element of surprise, the better the chances of success and the wider the possibilities of maneuvering under the protection of self-propelled artillery.

We should not forget the importance of the time element in committing the self-propelled artillery to battle. Its premature commitment takes away the element of surprise and results in spending ammunition in firing on less important objectives, which is very undesirable. Its commitment should not be delayed until the last moment, however, when only a few minutes remain before contact with enemy tanks is established.

More often than not, self-propelled artillery is kept in the mobile reserve of the commander of the tank unit. It may be brought closer to the tanks, though, when the direction of a hostile tank counterattack is known. Ordinarily it marches from 300 to 700 meters behind the second echelon, moving from cover to cover.

Arrival of the heavy self-propelled guns should be timed so that the tank and gun crews will have enough time to establish proper cooperation. This can be done while the guns are moving toward the battlefield. A staff officer (tank troops) with the situation map is sent to meet them. He explains the mission to the artillerymen, works out with them a table of signals for cooperation, and personally leads the guns to their area of departure.

If time is available a joint reconnaissance or simply a meeting of the officers of the cooperating units is organized. Such personal contact helps a lot. But if the tank battle has already started, the commander of the self-propelled artillery sees to it that his crews know their mission and the mission of the supported tanks. All missions are indicated on the ground. Each man memorizes the mission and the table of signals for cooperation. This is done because in battle the guns are dispersed, and correct selection of targets depends largely on how well the men understand the maneuvers of the tanks.

A tank battle requires simplicity of maneuver. It is difficult to control a complex maneuver and there is little time for it. This applies also to the self-propelled artillery. It is important that its cooperation with the tanks should also assume simple forms. Despite their seeming variety, maneuvers of self-propelled artillery may be reduced to two basic forms. The first is the advance of self-propelled guns from behind their tanks to encounter the enemy tanks; the second, an ambush on the route of advance of the enemy tanks. The terrain and the situation determine which of these methods to use. The purpose of both methods is to enable the self-propelled artillery to disrupt the maneuver of enemy tanks by its fire and to neutralize the enemy's tank fires by engaging his most active vehicles, i.e., heavy tanks and heavy self-propelled guns.

When the battle begins the tankmen inform the self-propelled artillery by means of signals (or by radio) about the number of enemy tanks, the direction of their movement, and of the impending maneuver of our tanks. As soon as the self-propelled guns open fire, the tanks may take positions behind them. Then our tankmen either bypass the enemy tanks or strike at them from the flank, destroy them, and then continue their advance. The latter method is usually preferred because there is always a danger of repeated counterattacks before the enemy tanks are destroyed.

In a tank battle it is very important to dispose the self-propelled artillery in such a manner as to enable the tanks to have sufficient room behind their firing positions so that they may deploy for maneuver. It is best to locate their firing positions along the edge of woods or in the outskirts of populated places; both offer good concealment for tanks. Self-propelled batteries should be disposed so that they can parry turning maneuvers by the enemy. They should be echeloned in depth, and possibilities of mutual protection and of firing concentrations on roads and other areas accessible for tanks should be considered. One battery should always remain in the reserve of the unit commander. Fire on enemy tanks is opened immediately after the positions have been occupied. All the guns, including those of the reserve, participate in the first barrage. They continue firing until our tanks have taken cover. Then one or two batteries keep on firing while the remaining guns displace forward or go into ambushes.

Enemy tank attacks are beaten off by the fire of the forward batteries. Enemy tanks attempting to outflank us are usually taken care of by the reserve battery. After it has succeeded in stopping the enemy, the remaining batteries turn his flanks and take his vehicles under fire at long ranges. The enemy's attempt to employ part of his vehicles as a screen and to use his main forces to pursue our withdrawing tanks should be prevented by active operations of the self-propelled artillery.

Self-propelled guns may remain in their firing positions until our tanks have accomplished their mission. They immobilize the enemy tanks and prevent them from disengaging from battle, thereby accomplishing their main mission which is securing liberty of movement for our tanks.

"ARTILLERY OFFENSIVE"

An Examination of Russian Practice

By Capt. W. R. Young, M. C., R. A.

Republished by courtesy of *The Journal of the Royal Artillery*

It is probably true to say that the only army in this war which never wavered in its faith in artillery was the Russian Army. When Stalin declared in 1942 that "artillery is the god of war" he was not announcing a new discovery nor restoring "the artillery to its prime importance on the battlefield from which it has been ousted by heavily armored tanks"; for, in the Russian view, it had never been so ousted. Indeed, from the very start of the Russo-German war it was clear that to admit the supremacy of the tank would be a doctrine of despair since the Germans had, at the outset, an overwhelming superiority in that arm. Fortunately, however, the Russian artillery had a tradition in defensive fighting which was more than a century old and yet right up to date in its application. The Order of the Day issued by Count Kutaisov at Borodino in 1812 may not, perhaps, be as well known as it deserves to be and, as it invites comparison with a modern tradition of "fighting guns to the muzzle," it is here reproduced:

"Let it be known to the commanders and officers that only by standing our ground courageously within the shortest grapeshot range shall we succeed in not yielding a single step to the enemy. The artillery must sacrifice itself. Even at the risk of being captured together with your ordnance, fire your last shot at the enemy. A battery which acts thus, even if captured, will more than compensate for its loss."

It was in this spirit that Russian gunners fought the defensive battles of 1941 and 1942 and the last defensive battle of Kursk in July 1943. And even after the Soviet armies had settled down to a continuous strategic offensive it was artillery fire in the main which beat off the German counterattacks, secured the flanks of the Russian wedges, and prevented the relief of encircled German divisions—which are all, however, tactically defensive tasks.

Two views of a very rare Russian piece, the 76-mm antitank gun. In the upper photo the round is a standard AP-HE; its new case probably gives a muzzle velocity of 2,600-3,000 f/s.

ARTILLERY IN THE OFFENSIVE

But if the Russian artillery had little to learn in defense it soon found that attack was a more complex proposition. Quite early in 1942 the Soviet command, disappointed at the limited progress of the winter's offensive, began to re-examine its artillery doctrine. It "considered that the accepted methods were not justifying themselves as fully as had been expected. The enemy's fire weapons were so effectively protected that it was not enough to silence them. They had to be smashed to atoms.

"When the enemy's outer defenses had been pierced the advance became very much more difficult. The usual methods of supporting the infantry by an advancing barrage or by successive fire concentrations became impracticable and did not achieve their purpose.

"This resulted in interruptions in artillery fire and lack of coordination with the attacking troops. Attacks often failed or petered out before breaking into the open."

This presentation of the problems of the initial break-in and the exploitation of the breach is quoted in full from an article on "The Experience of the Soviet Artillery" by Major-General F. Samsonov, published in 1942, because it might otherwise be thought that it came out of the head of some last war gunner. For these are not new problems but very much the same as those which faced us from 1915 to 1918. But it must be remembered that the Russian army of the last war did not have the long and bitter experience of attacks against strong positions which we had during those years; and it must be confessed, also, that we did not find any completely satisfactory answer to the problems. What solutions the Russians proposed are set out under the general term "artillery offensive" in Samsonov's article, which appeared, be it noted, more than six weeks before the first demonstration was staged for the Germans at Stalingrad on 19th November, which suggests that the Russian command backed their new methods "against any defense"; and, as we find a similar frankness in most of the reports which come to us through the medium of *Soviet War News*, there is plenty of material available for the study of the new methods.

First Phase: Destruction the Aim

Chief place among the general ideas must be given to the emphasis laid on destruction as the object of artillery in the first phase of the offensive. The enemy's fire weapons must be "smashed to atoms," not merely silenced, says Samsonov, thereby going against all the experience of the last war. For it will be remembered that, as early as 1916, British gunners discarded complete destruction as their object—since it was found to be impracticable within any reasonable time limit—and devoted their efforts to perfecting neutralization. In this war, too, though the idea of destruction has occasionally shown signs of revival it has been hastily disclaimed when experience has confirmed the old lesson that "artillery does not kill dug-in infantry" or taught the new lesson that monster concentrations seldom hit small targets like the enemy's fire weapons.

The Russians, however, were forced by the nature of the German defenses to adopt destruction as their aim. For, when the enemy's machine guns are firing from roofed emplacements—from cellars and bunkers, pill-boxes and dug-in tanks—the neutralizing tactics of barrages or concentrations simply will not work. New methods had, therefore, to be evolved and they seem to have proved, on trial, to be effective.

The first factor in the new tactics was a great increase in the number of guns allotted for a breakthrough operation. The density at Stalingrad (in 1942) was one gun per four yards, at Kiev (in 1943) one gun per three yards, and at the Karelian Isthmus (in 1944) one gun per two yards. These figures, however, are rather misleading since the "guns" include 45-mm antitank guns and even mortars. And they will seem all the less remarkable when we recall that densities of an 18-pr or better per six yards were sometimes reached in the last war. So the Russian success cannot be attributed merely to large numbers of guns.

Perhaps more of the credit is due to the use made of direct fire—the second outstanding feature of the new tactics. "Practice has shown," says Samsonov, "that artillery preparation is most effective when a section of the guns (of all calibers up to 203-mm) are brought forward to fire over open sights at the embrasures of the enemy's forts and other strongly fortified positions. This method *reduces the time* necessary for destroying the defense works and *enables the infantry to approach* the object of attack without loss. It has also been found far more effective and economical than spreading the fire over whole areas, for *individual batteries are allotted individual targets*."

But the whole secret cannot lie in direct fire—a tactical method which is impracticable on some *terrains* and not always advisable on others. Is it not, rather, indicated in the phrases in Samsonov's article which the present writer has presumed to italicize as embodying the essence of the "artillery offensive" in its initial phase? For the first problem is how to reconcile the necessity of artillery preparation with the desirability of surprise; and the answer is by cutting down the length of the preparation and letting the second, or assault phase follow immediately upon and merge with the first. The other problem is to ensure that the preparation is effective (which, in the case of bunkers, means direct hits) and once again, that it does not take too long; and the answer is by allotting individual targets to individual batteries and, in a word, by gunfire.

A Principle—with a Difference

This mass of guns all firing together illustrates what Clausewitz calls the "simultaneous application of forces"—but with a difference at the target end. For whereas Clausewitz and others usually visualize successive concentrations against fractions of the enemy's forces the Russians aim at engaging at the same moment—and so destroying at the same later moment—*all* the forces which the enemy has deployed. It is necessary to stress this distinction lest we derive false ideas from the frequent appearance in Soviet reports of the phrase "massed fire," for the fire in the opening bombardment of the Russian offensive is concentrated in time but it is distributed in space and there is no evidence of artillery commanders switching enormous "batteries" about from target to target. That method, experience shows, seldom scores direct hits.

But to preserve objectivity we must reinforce this analysis of Major-General Samsonov's theory of individual shooting with evidence from the battlefild, and a neat example is found in the following account by Senior Lieutenant Ogarkov of an attack on a fortified village:

"The artillery commander, Loganov, decided to smash up the enemy fortifications by employing ten guns for simultaneous fire from open positions. Preliminary reconnaissance revealed the enemy gun positions, which were allocated to the various Soviet gun units. In addition, every gun crew was allotted its own special sector of the enemy defenses. Its instructions were to silence all new guns and troop concentrations they might come across. Loganov placed his guns in draughtboard order at intervals of 500 yards along the front. The 45-mm guns were 200 or 300 yards and the 76-mm guns 500 or 600 yards from the targets.

Descending from the "Cromwell" tank which proved itself in the British advance through France and Belgium, this "Comet" is Britain's fastest and most heavily armored cruiser tank. It is powered by the Rolls Royce "Meteor" engine and carries a 77-mm gun with a new laying device which greatly increases accuracy. From the Rhine to the Elbe and beyond the "Comet" led the British advance. In this picture a "Comet" of the 11th Armoured Division moves up on the Weser bridgehead in April, 1945.

The character of the terrain permitted the gun crews to take up their positions unobserved . . . and all the guns opened fire at a pre-arranged signal. This sudden barrage caused consternation in the enemy ranks. . . . The 76-mm guns ground the enemy fortifications to a heap of ruins. The 45-mm guns smashed the enemy antitank guns and concentrated their fire on the German machine guns.

"The sudden barrage of fire had an effect within three or four minutes, and the Soviet infantry captured its objective without loss."

This was individual shooting with a vengeance—but the story is entitled "*Massed* point-blank fire"!

Of operations on a larger scale we have numerous reports which testify to the destructiveness of the one- to three-hour *opening* bombardments of 1943-44 which have generally replaced the week-long *preliminary* bombardments of 1916-17. We read that "General Telegin's artillerymen firing over open sights in the Sivash area hit 237 targets"; that at Kerch "Soviet gunners smashed the vast majority of the antitank guns, machine gun nests, and mortar batteries"; that, at Zhitomir, "according to prisoners about 60 per cent of the Germans who were manning the forward edge were killed, wounded, or shell-shocked"; and that, in offensives generally, "the enemy's infantry in the area of the direct breakthrough has, as a rule, been completely annihilated by the concentrated fire of the Soviet artillery." Moreover, that this destruction was not always caused by direct fire is shown by the frequent references we find to registration.

Perhaps the best comprehensive account of the "artillery offensive" is given in War Correspondent Polevoy's article, published on 8th September 1943; it will be appropriate here to quote from his description of the first phase. After a tribute to the artillery "scouts" who spotted the enemy's strong points and produced the target maps, Polevoy proceeds:

"The artillery offensive began with a powerful burst of gunfire at a *time when the Germans least expected it. Thousands of guns* . . . participated in it from *antitank guns to mammoth guns* of great power, from company *trench mortars* to trench mortars of immense destructive power. From *covered positions* the heavy artillery *demolished* the reconnoitered objectives. . . . For an *hour and a half* a preliminary tornado of fire swept the enemy positions *without subsiding for a second*. Then the fury of the tornado increased. The infantry charged. As the advanced files of the assault battalions approached the enemy positions the wall of fire in front of them began gradually to recede, clearing the ground before the first line of trenches, then the second and third line of trenches."

The italics are inserted to save comment on points already discussed. It will be noted that surprise is claimed for the time of start of the firing and ensured again by the uninterrupted transition from the first to the second phase. Which is a reminder that this transition is overdue in this article.

Second Phase: The Creeping Barrage

With so much destruction of overhead cover achieved in the first phase it is obvious that the opportunity arises for the creeping barrage; and there is evidence, in spite of statements to the contrary, that that is the Russian artillery's normal method of covering the assault. It is described, for instance, in the last sentence of Polevoy's account quoted above and it is implied in all the numerous references to close following up. When General Chuykov (of Stalingrad) broadcast his advice on behavior during an offensive and said to the infantryman, "Try to keep as close as possible behind the explosions of your own artillery shells. . . . If you fall behind your own artillery and mortar fire you will only harm yourself," he knew full well that this advice can only be followed if the explosions are advancing at infantry pace.

But it is unnecessary to collect indirect evidence since the creeping barrage is repeatedly mentioned by name; and when we find that Chief Marshal of Artillery Voronov, in referring to the campaigns of 1943-44, states quite flatly that "the infantry offensive was preceded by a creeping barrage," we need no further arguments. But before we leave the subject of the barrage, gunners and infantry may be interested to learn that, though the Russians seem officially to advocate an ample "safety distance"—"the tanks advance 100 yards and the infantry 150 to 200 yards behind the creeping barrage"—they often ignore the instructions in practice. At Bobruisk, for instance, in June 1944 the commander of a regiment which had to force the River Drut "decided not to wait till the artillery preparation was over and began to force the river while it was still at its height. The troops crossed . . . almost under the fire of their own guns. . . . The Germans did not expect our troops to appear so soon and most of them were still in their shelters."

It would be appropriate here to speak of ruses, such as

the feint lift followed by the return of the barrage to the opening line, which used to be a stock trick of ours and which is often mentioned in Russian reports. But the subject of ruses is too big.

THIRD PHASE: THE BATTLE IN THE DEPTH

"The First World War," writes Marshal Voronov, "provided comparatively few examples of an operational breakthrough. Quite different is the Red Army's experience." He points out that the Russian offensive at Stalingrad led to a general collapse of the German front and we know that this sort of result became quite usual in subsequent offensives. Voronov speaks of "the *massing of fire* during the battles in the depth" and of the troops advancing through the breach being "provided with *artillery escort*." His general picture can be filled in from other sources.

The "artillery escort" clearly refers to guns which, according to Samsonov, "are attached to rifle companies and even, in some cases, to rifle platoons before the battle begins and remain with them till it is over"; and also to the "light guns advancing with the infantry" which are reported by Major-General Antropov to have done "particularly good work" in the battle for Orel in August 1943 where, "firing over open sights, they shattered barricades and demolished nests of enemy resistance." But that this kind of close support was not only afforded by infantry guns and light artillery is plain from Polevoy's description of "the *main mass of the heavy* artillery" moving "in the center of the wedge" and coming forward "to the tip of the wedge" when strong resistance based on prepared positions is met with.

Nor is it always a question of mobile guns and direct fire, for other accounts show that the Russians are not unmindful of the principle that the shell is the weapon. "Artillery spotters go along with the advancing infantry," says one such account; "as soon as they detect a new German firing point they contact the gunners who pulverize it into inactivity." And Major V. Smirnov, writing on 19th March 1943, says: "Experience has shown that forward artillery observation must be employed in deep tank thrusts. This means that an artillery officer must accompany the first echelon of tanks. He will be able to get a clear view of the obstacles hindering the advance, call for artillery support, and even correct the fire." And he goes on to describe an action in which the forward observer, having "radioed the pre-arranged signal to the long range artillery," did so correct the fire.

The "pre-arranged signal" may in this case have been a concentration code word, but, as we are told that on another occasion the same observer, finding a neighboring unit in trouble, "ascertained the position of the enemy resistance centers and opened fire," it is possible that the signal was simply "Troop Target."

On the other hand, when Major Koslov writes (14th October, 1944) that, to counter German mobile defense, "the leading Soviet tank always carried a spotter from the heavy artillery. As soon as our armor encountered the German machines the enemy was fired on by the heavy guns from their concealed emplacements as well as by the guns following the tanks," it looks as if the long distance support visualized is in the form of concentrations.

On the whole it seems probable that much of the fire called for by forward observers on the ground or in the air—for cooperation with aircraft is mentioned by Samsonov—does take the form of concentrations and that this must be the "*massing of fire* during the battles in the depth" referred to by Marshal Voronov. But it is likely that the concentrations are of very modest dimensions, if only because of the withdrawal of many of the guns which had been massed for the break-in, and the dispersion of the remainder over the widened battle front which always results from a breakthrough. And there is plenty of evidence that the concentrations program is not planned in advance.

THE LIMITS OF PLANNING

It seems, indeed, from an averaging of many reports, that the Russians do not set much store on planning the third phase of the artillery offensive. "In general," says Samsonov, "one can hardly ever expect the attack within the enemy's defenses to proceed as planned. But this does not mean that the planning of this phase can be neglected." Later, however, he says that the planning must wait till the capture of the first objectives makes it possible to get a glimpse of the next zone of defense; and then adds, rather significantly, "Another method is to send observers to accompany the advancing troops and to direct the batteries to targets interfering with or likely to interfere with the advance." Which seems to delegate the planning to the forward observers!

Major Smirnov is also against planning because "coordination tables drawn up in advance prove unsatisfactory in most cases since all eventualities cannot be foreseen." And he too, as we have already seen, stresses the importance of the forward observers.

Other witnesses could be called, but since none of them hold the contrary view—Samsonov having broken down after a promising start—we can safely state that the artillery support for the third phase is not planned beforehand but improvised to meet circumstances as they arise. And this is what may be expected when we consider the great width and depth of a Russian breakthrough and the large amount of decentralization which is called for by the policy of always providing artillery support for "even such small units as platoons" (of cavalry) in their most adventurous raids.

CONCLUSION

On that note—of adventure—it is fitting to conclude our study of the Russian artillery offensive. For the impression which remains from the reading of many Russian battle stories is that, in spite of the centralized organization of the artillery, the junior commander—of battalion, battery, or even guns—seems to find so much scope for exercising initiative and expressing individuality. From the opening bombardment, when he scores his direct hits on *his own* share of the available targets, he passes rapidly to the phase of the battle in the depth—and then almost anything might happen. Whether as forward observers or in charge of escort guns, battery commanders seem to have been having grand hunting on the Eastern front!

SOVIET ARTILLERY GROUPS

By Maj. Gen F. Samsonov

Republished by courtesy of the *Military Review* and of *Krasnaia Zvezda (Red Star)*

The organization of control of the artillery is determined by the type of the supported units, the nature of the operation, and the number and type of artillery units assigned to the operation.

The best form of control is that in which each rifle regiment or larger unit is supported by one artillery unit. Such an organization, however, is not always possible, for the number of artillery units participating in the offensive frequently exceeds the number of supported rifle units. In the March operation of the 2d Ukrainian Front, for example, eighteen rifle regiments of one of its armies were supported by thirty-nine artillery regiments; in the June operation of the 2d White-Russian Front, thirty-six rifle regiments were supported by fifty-one artillery regiments. For this reason, artillery units in the above and similar operations have always been grouped into *artillery groups*.

The organization of the centralized control of the artillery according to our "Battle Regulations for Artillery" issued in 1937 is as follows: Each rifle regiment has one *infantry support group* (literally, artillery group of infantry support). This group maintains liaison with its supported regiment and with the division artillery commander. Fire missions of infantry support groups are destruction or neutralization of hostile man-power and fire means, and making passages in antipersonnel and antitank obstacles. Each infantry corps is given a *long-range artillery group* (literally, artillery group of long-range action), which is divided into as many subgroups as there are divisions in the corps. The long-range group fires counterbattery missions and takes care of targets in the deep rear of the enemy. In addition to the above, special *destruction groups* are formed in corps and divisions for breaching fortified zones with permanent fortification works.

There are two basic principles in this organization. The first principle is that artillery groups are formed to accomplish definite fire missions; the second, that artillery groups are found only in regiments and corps. Thus a commander of an infantry division will have to use the infantry support group of one of the adjacent regiments to give additional support to one of his regiments. Likewise, to influence the course of the battle in which one of his divisions is engaged, the corps commander will have to use infantry support groups of an adjacent division, because, as a general rule, corps long-range artillery groups are not used for direct support missions. As far as the army commander is concerned, he can influence the course of the battle in which one of his corps participates only through a partial or general regrouping of his artillery.

Many serious changes have been introduced into the organization of the artillery since 1937. Early in the war, infantry corps were discontinued for some time and corps long-range groups were taken over by the army. And that was the beginning of *army artillery groups*. Since that time, their principal missions have been *counterbattery and interdiction fires*.

Later in the war, infantry corps were reconstituted, and with them, corps artillery groups; and today fire missions of the corps groups include the combating of enemy personnel and fire means, the destruction of concrete fortifications, and the making of passages in the obstacles. Thus, the corps commander has an artillery force at his disposal which he can use without interfering with the missions of the infantry support groups in the divisions. The corps artillery group has not replaced the army artillery. Both can function simultaneously, accomplishing different missions and complementing each other.

Fitted with muzzle brake, the Russian 152-mm heavy field howitzer fills the same role as our 155-mm howitzer, M1. It has a Schneider flavor throughout.

In assimilating the new organization, our artillerymen have had difficulties with terminology. Corps artillery groups were often called "breakthrough," "special assignment," "general assignment," and "reinforcement"

groups. All these names are confusing. It should only be remembered that the corps artillery group is an artillery force at the disposal of the corps commander, to be used for corps missions only, and for increasing the tactical density of artillery of the division requiring reinforcement.

The corps artillery, then, should have a range long enough to support the main attack of the corps and add a noticeable concentration of fire in reinforcing the artillery of one or another division.

Although somewhat larger, the Russian 122-mm howitzer corresponds to our 105-mm

A few disadvantages of this organization should be mentioned. Corps commanders, having realized the great advantages offered by the existence of "their own artillery," have formed several types of corps artillery groups. In addition to the main corps artillery group, there have appeared counterbattery groups, destruction groups, general support groups, guards mortar groups (a guards mortar is a rocket gun), and even corps gun groups (long rifles). These numerous groups have a tendency to disintegrate in the battle in the depth of enemy defenses and whenever the enemy manages to wedge into our dispositions.

This fad for artillery groups has not spared the army either. Here, too, the tendency to centralize everything has resulted in the formation of various artillery groups. One of the armies, for instance, had a "general assignment" group, fire missions of which were planned by the two corps commanders.

The operation of corps artillery groups confirmed in practice that commanders of units as large as divisions, corps, and armies should have special artillery groups at their disposal. This has led to the formation of *division artillery groups*. Division artillery groups were first formed in the units of the 1st and 3d Ukrainian Fronts. Other fronts soon followed.

Thus, step by step, an efficient system of artillery control has been developed in the course of this war.

Analyzing the fire missions of artillery groups in the regiment, division, and corps, we find that all groups function in the interests of the infantry. They all prepare the way for the infantry attack, repel enemy attacks in defense, neutralize enemy manpower and fire means, make passages in obstacle areas, and fight armored vehicles. Since the GHQ reserve artillery units from which artillery groups are formed possess a variety of calibers, all missions listed above can be successfully accomplished. The groups differ from each other in that they support different types of units. Thus we now have four distinct groups: regimental artillery groups (infantry support groups), division artillery groups, corps artillery groups, and army artillery groups.

There are exceptions, however. A division in the attacking echelon, for example, may be supported by the artillery of the second and third echelons, and also by 120-mm and sometimes by 82-mm mortar units. The mortars are formed into larger groups and operate only during the first two periods of the artillery participation in the attack (artillery preparation and support of infantry attack). Then the groups are discontinued and the units comprising them are returned to their respective divisions. It is not advisable to include mortar units in artillery groups. Consequently, a rifle division in attack should have two groups: one artillery group and one mortar group.

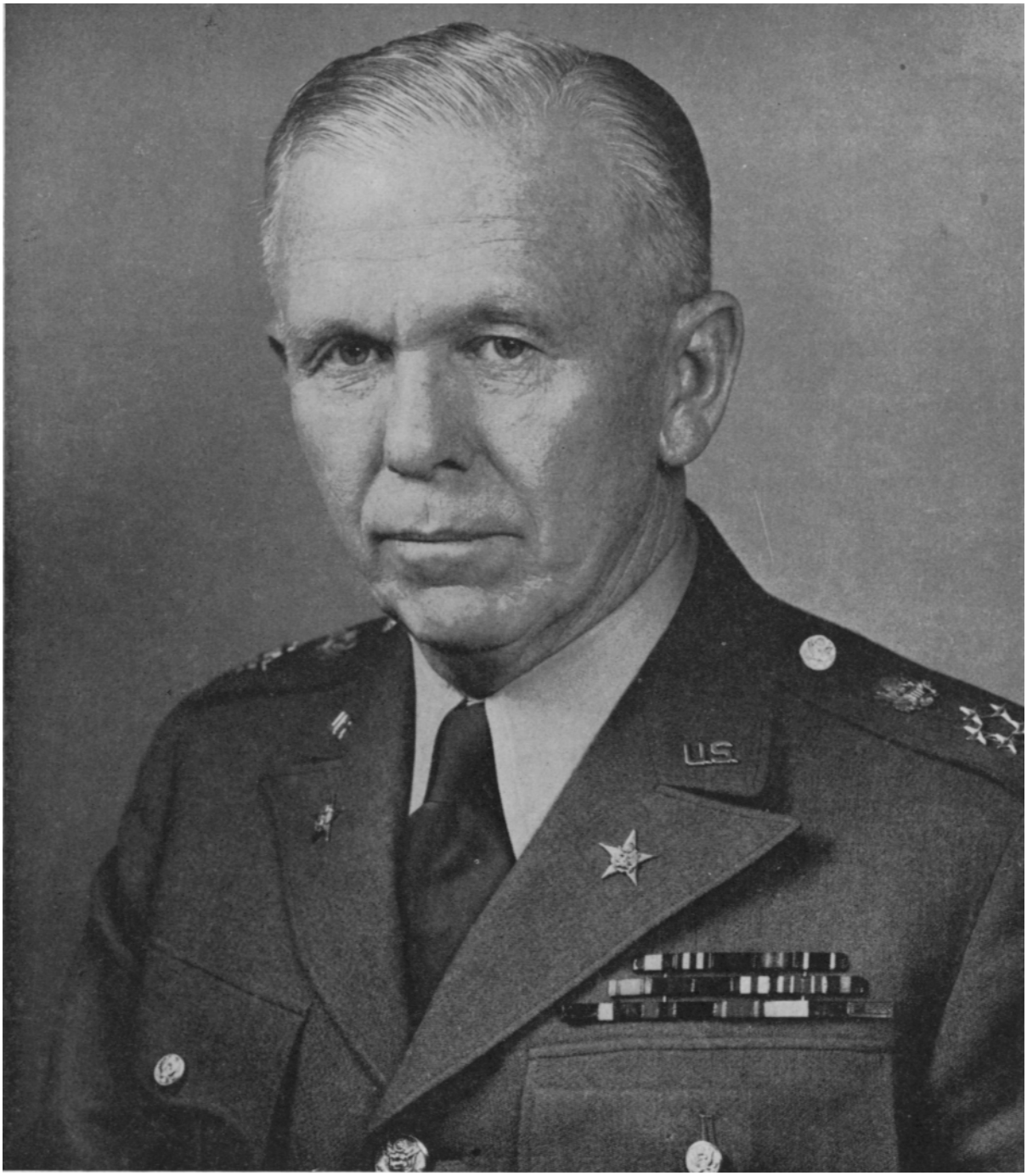
The breaching of a fortified zone cannot be accomplished without first destroying its permanent fortifications, and this calls for the employment of powerful guns and mortars. All fortifications are carefully camouflaged and interspersed with a great many dummy structures. It is advisable, therefore, to form *artillery destruction groups* out of 152-mm and 203-mm howitzers. Destruction groups should be independent corps groups. Army destruction groups are formed in exceptional cases only.

Another exception is the formation of *corps counterbattery groups*. These groups may be formed when the enemy possesses a great concentration of artillery, when the corps can be supplied with sound and flash units and artillery aircraft, or when the corps defends on a broad front. Thus, the corps may have two artillery groups—the corps artillery group and either an artillery destruction group or a counterbattery group.

As for the army, it may have at its disposal units with long-range guns. These units should be formed into army long-range artillery groups and divided into subgroups if necessary.

Is it always necessary to form and have artillery groups? Let us take an example. Let us suppose that an infantry division is supported by several artillery units. Out of these units, the division commander has a light artillery group brigade as his "own artillery." Should this brigade be called division artillery group? Not in this case. But if the commander retains one or two howitzer regiments from this artillery brigade and one light artillery regiment of the GHQ reserve artillery, then all these units should be formed into a group, and a special commander assigned to take it over.

We can now define the artillery group. *It is two or more organic or attached artillery units* (*subunits*) *under one commander, assigned to a unit* (*regiment and up*) *for a battle or an operation*.



The demands that the Nation makes on high-placed soldiers in wartime are paradoxical: to wrench forth men and machines, weld them with all speed into cohesive fighting teams, and send them to death and victory in battle—all without transgressing the nebulous but nonetheless firm limitations which a free people refuse to accede to the Military, war or no war. Probably no two soldiers in our history have better satisfied these difficult requirements than Generals of the Army George Catlett Marshall and Dwight David Eisenhower. And so, artillerymen join with the strong voice of the American people in saluting these two great and uncommon citizen-soldiers, both of whom have merited well the faith and trust of common democrats, and add:

> *Health and good cheer, General Marshall, in your retirement,* and *Welcome and good courage, General Eisenhower, as Chief of Staff.*

UNCOMMON CITIZEN-SOLDIERS

— both merit well the trust of democrats

THE STORY OF THE GUN

By Lt. A. W. Wilson, RA

Part II: 1650 to 1779

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Due to the defeats of the Parliamentary forces in 1645 it was seen that a new organization was necessary in order to carry on the war successfully. Accordingly a New Model army came into being on 15th February 1645, with Sir Thomas Fairfax in command, Oliver Cromwell becoming Lieutenant General of Horse. But though the army as a whole was reorganized it seems that the artillery was considered of insufficient importance to justify re-organization. There is still little mention of any but siege-cannon during the whole of the civil war, and it is difficult to see why we failed to learn from the wisdom of Gustavus Adolphus, King of Sweden, who was the first man to realize the power of artillery as a mobile weapon and who backed his convictions by using light 2-pdrs. and 4-pdrs, in the field with remarkable success as early as 1630. He even experimented with guns made of leather having a lining of tin, but these proved to be too weak. This neglect of mobile artillery in England is hard to understand, particularly as English gunmakers had a very high reputation in Europe. The artillerist of the time could think of nothing more for the tactical use of their heavy guns than that they should be "posted on an eminence, since a ball travels with greater force downhill than uphill." Even this limited plan was offset by the danger of the shot rolling out of the muzzle before the gun could be fired.

Pride in Gun Drill

The popularity of the artilleryman with members of the other arms was small indeed at this time, the infantryman's opinion being that he was conceited and gave himself airs as those of a superior person moving in a higher sphere. At the same time he had an evil reputation all over Europe for profane swearing, a failing attributed to his commerce with "infernal substances"—but the real reason was probably due to the fact that being less perfectly organized he was less amenable to discipline. Nevertheless, the gunners took great pride in themselves and their guns. There was for instance (as there is today) a definite drill laid down for working the guns in action, with thirteen words of command for the wielding of ladle and sponge. "A gun crew consisted of three men—the gunner, his mate (matross), and an odd-job man who gave general assistance; and the number of little refinements that are enjoined upon them shows that artillerymen took abundant pride in themselves. Thus the withdrawal of the least quantity of powder with the ladle after loading was esteemed a foul fault for a gunner to commit while the spilling of even a few grains on the ground was severely reprobated it being a thing uncomely for a gunner to trample powder under his feet. Lastly, every gunner was exhorted to set forth himself with as comely a posture and grace as he can: for agility and comely carriage in handling the ladle and sponge doth give great content to standers by" (*History of the Army, by* The Hon. J. W. Fortescue).

Civilian Drivers

But if the gunners were a casual and ill administered force, much more so were the drivers. Civilian waggoners with their teams were hired to haul the guns, and on more than one occasion Hackney coachmen were called upon to perform their duty. These civilians did not hesitate to desert with their teams, leaving the guns stranded, if conditions did not suit them, and instances of panic among them are many. These yokels gave so much trouble that in 1685 James II raised a new regiment called "My Royal Regiment of Fusiliers" with the idea that it would march with the train to act as escort and to infuse discipline in the case of panic among the members of the hastily prepared train.

Cartridges and Elevating Screw

Increase in the rate of fire was achieved a short time later by the general use of cartridges, although these had been introduced as early as 1543. The old method of putting the powder into the bore by means of a long scoop-shaped ladle was, however, still used with some equipment for a further 100 years.

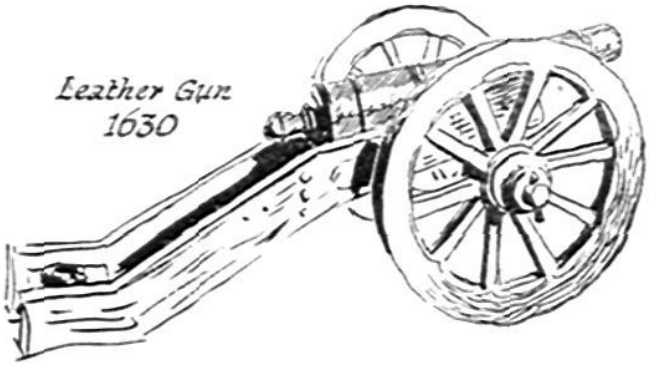
Yet another invention was that of the elevating screw, though for some reason it was not put to general use (particularly in the case of the heavier guns) for many years, the quoin or wedge supplying the means of elevation on these larger pieces up to the end of the 19th century.

The Limber

Gradually the influence of Gustavus Adolphus was felt and by 1650 some of our guns had been fitted with a trail wheel, one of which is shown here (p. 36) with a Saker gun. The trail wheel appeared to have been used for easier manhandling,

probably over small distances, and was removed when the gun was brought into action.

It was but a short step from the trail wheel to the limber, which was introduced about 1680. In its original form it consisted simply of an axletree and wheels and converted the carriage into a four-wheeled one. An eye at the end of the trail was dropped over a hook on the limber, thus forming a very flexible coupling (a system in use to the present day). A single horse was harnessed to the limber shafts, the remainder of the team being attached in pairs in front. Some of this newfound mobility was lost due to the gunners' and carters' having to walk with their guns, and this inconvenience was the practice of carrying the ammunition in separate wagons with the ever-present risk of its failing to appear in time for the gun to go into action. A hundred years passed before ammunition boxes were added to the limber.



Recoil

No satisfactory means of checking recoil had been devised, nor was it really necessary, due to the light charges employed. Thus Sir Jonas Moore in 1689 reporting on guns in one of H.M. ships says: "Pieces are very long and recoyl all along the middle of the galley to the mast, where they place some soft substance to hinder its further recoyl and that it might not endanger the mast." The only virtue to be seen in this unimaginative method is that the gun was then ready for sponging and re-loading, but Sir Jonas does not say what happened if the gun failed to make contact with the "soft substance."

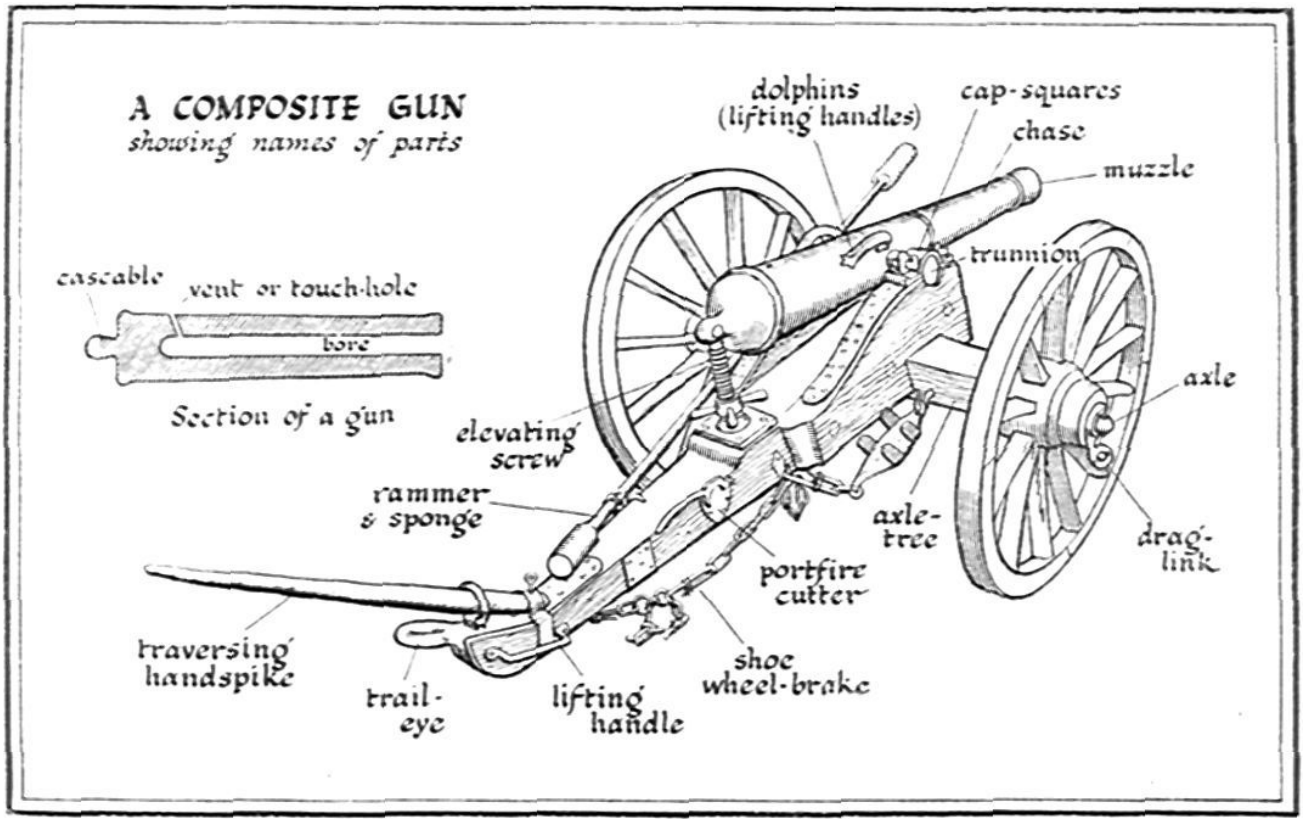
Linstock and Port-fire

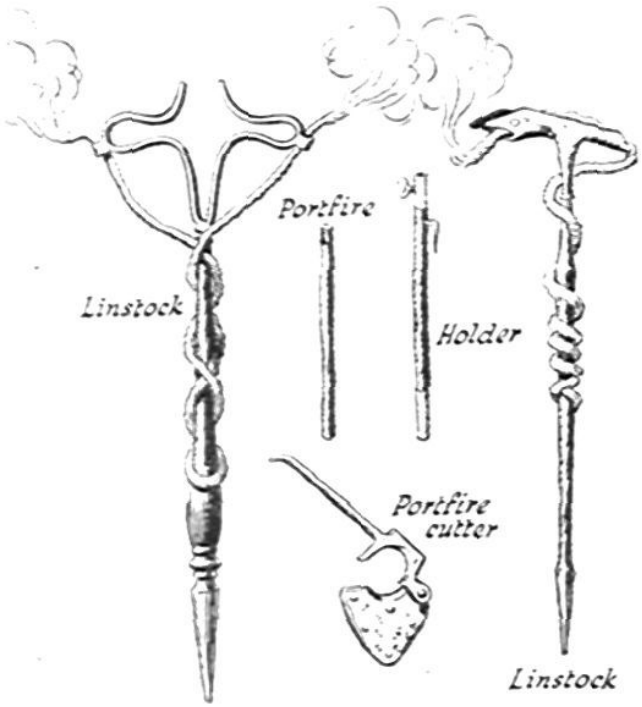
A further development in the firing of the guns was made before the end of the 17th century by the introduction of the port-fire. This was a short length of inflammable material (a quick-match) which the gunner would light from a linstock (or slow-match) placed between two guns and kept burning. After firing the gun, the lighted end of the port-fire was then nipped off by means of a port-fire cutter carried on the gun. This performance was repeated every time the gun was fired.

Fuzes

The first suggestion of regulating the burning of fuzes came from Sebastian Hälle in 1596. His ideas, however, were ignored for nearly a hundred years, but in 1682 the idea was revived.

"The lack of any accurate time-piece added greatly to the difficulties of producing a 'time-fuze' in the sense of which we know the term. . . . In the 17th century the repetition of the 'Apostles' Creed' was one of the Proof-master's favourite measurements of time, and though such a method may have commended itself to the orthodox, it could scarcely





be said to have constituted a standard of accuracy" (*Text Book of Ammunition*).

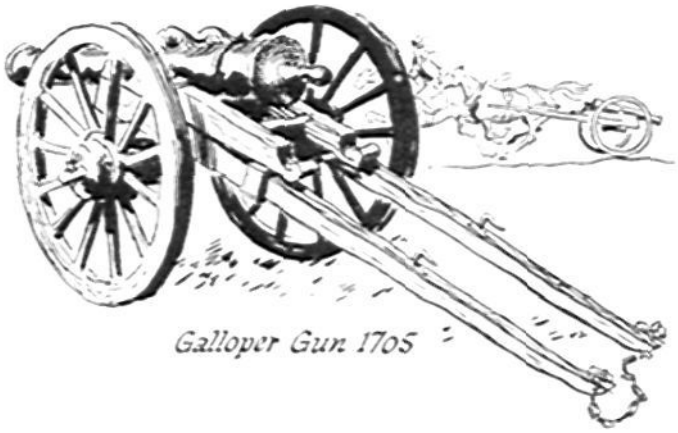
It was not until the invention of the watch in 1674 that the difficulties of "timing" began to be solved. From then on much progress was made.

MARLBOROUGH

Mobile artillery weapons were first used by the English in 1704 at the battle of Blenheim—many years after their introduction by Gustavus Adolphus. Late though it was, it might have been delayed still longer had not Marlborough been Master General of Ordnance as well as Captain General at that time. He was never greater than as an artilleryman and took a great personal interest in its affairs. Every gun at Bleinheim was laid under his own eye, and his brilliant use of the artillery contributed largely to his success.

"For the other part, the Artillery came out of the war with not less, perhaps with even more, brilliancy than the other corps of the army, and it is likely that no artillery officers ever worked more strenuously and skilfully in the face of enormous difficulties than the devoted men who brought their guns first down to the south side of the Danube and then back across the river to the battlefield of Blenheim" (Fortescue).

The undoubted advantages of mobile artillery, once having been appreciated, caused many experiments to be made, one of them being the allotment of light guns to infantry. The Galloper shown here is one of these guns. 3-pr. guns were attached to infantry battalions and drawn into action by them with drag-ropes. (We find a parallel to this today in the infantry use of mortars.) The artillery, of course, retained their larger pieces (the drawing on p. 38 shows a heavy siege gun in difficulties). It is recorded that a siege train of that time consisted of 100 guns, 10 mortars of all calibres up to 15-inch, and more than 3,000 wagons, requiring 15,000 horses and taking up a road space of 15 miles—a tremendous amount of transport considering the comparatively small number of guns, but not so surprising if we remember the "comforts of life" which always followed the guns.



FORMATION OF THE REGIMENT OF ARTILLERY

One more important reform was to be brought about by the Duke of Marlborough just before he died, and that was to complete the work begun nearly 200 years before by Henry VIII, namely the formation of a permanent regiment of artillery.

The system of disbanding the train of artillery as soon as a war was over was adhered to following the peace of Utrecht in 1713, and British home forces were reduced to a minimum. Though this was no doubt economical it was also militarily unsound, but the inadvisability of such a measure was apparently not brought home to our leaders until the Jacobite rebellion of 1715, when it took so long to form a train that the rebellion was over before the train was ready.

The necessity of retaining a permanent force of artillery was by now very apparent. On May 26, 1716 two companies of artillery were created by Royal Warrant. These companies were commanded by captains and quartered at Woolwich near the gun factory. Each company consisted

of 2 lieutenants, 2 lieutenant fire-workers, 3 sergeants, 3 corporals, 3 bombardiers, 30 gunners and 50 matrosses. No drivers or horses were included in the establishment, these needs being supplied, as before, by civilians. Nor were there any specified guns, for the companies were expected to perform garrison or field duties as required.

In this same year Marlborough died. It is to him, perhaps, that the transition of the gunner from the person of "evil reputation" to one who could take his place with the bravest and most devoted, can be attributed.

More companies were added. In 1722 the title "Royal Regiment of Artillery" was conferred, with the foremost artilleryman of the day as colonel. Colonel Albert Borgard, a Dane by birth, carried on the tradition established by Marlborough and, "by good organization and training, laid the foundations on which the regiment has been firmly built, and to him and his officers the Regiment owes that sense of duty which, when supporting other arms, keeps the guns firing up to the very last round as long as a gunner remains alive to load" (Brig.-Gen. Graham's *The Story of the Royal Regiment of Artillery*.

New Methods of Manufacture

Up to 1739 methods of manufacture had changed very little. Guns were still cast in one piece, of either iron or brass—that is, when the piece was finally removed from the mould the chamber was already formed—but in 1739 an invention from Geneva made it possible to cast the gun in one solid mass and then to "bore" the chamber afterwards. This boring of the piece ensured greater accuracy in the chamber and a "truer" piece. The system was immediately adopted and was carried on until the middle of the 19th century, when Sir William Armstrong's built-up guns proved to be a revolutionary and successful achievement.

Due perhaps to this new method of manufacture we were able to put into the field many more guns than had hitherto been possible, our light pieces in considerable numbers playing a large part in the wars against the French in 1742-48.

Experience gained in this war, however, led to the adoption of heavier equipment in the field. The 1½-pr. was

discarded and 9-prs. and 12-prs. came into use. Howitzers (from the German *Haubitze*) of 8 inches and 10 inches caliber were employed, firing shell like the mortars, all of course being smooth-bore muzzle-loaders.

The drawing here shows a howitzer detachment ramming the powder charge. It will be remembered that the gun was swabbed out after firing in order to extinguish any smoldering powder remaining in the bore, but as an additional precaution it was the practice for one man to place his thumb over the vent when the gun was rammed in order to prevent the rush of air causing any spark to flare up and thus ignite the new powder charge. This action was known as "Serving the vent." If the gunner failed to perform this duty the No. 1 in charge of the gun hit him over the head with the rammer, a somewhat drastic correction that survives to the present day, though fortunately in the expression only.

The following extracts from letters giving accounts of battles fought in this war will give some idea of the tactical use of guns at that time. The first, recounting the battle of Fontenoy in 1745, shows the need for a regular corps of drivers: "Each infantry battalion had two battalion guns (3-prs.) manned by gunners, dragged by hand in the front line of the attack to within thirty yards of the enemy infantry and gallantly fought as long as our infantry required support: while our 6-prs. engaged the French batteries, although heavily outnumbered by them. The fact that the civilian drivers disappeared with their horses early in the day limited the support these guns were able to give" (Graham).

Battle of Dettingen 1743—From Sam Davies, footboy to Major Honeywood, to his friend Abraham Debart, drawer at the "White Hart" Inn, Colchester: ". . . . our battel lasted 5 ours, the first they played upon our baggage for about 2 ours with there cannon . . . the balls was from 3 lbs. and 12 lbs. each. . . . We stayed there till the balls came flying all around us. We see first a horse with baggage fall close to us, then seven horses fell apeace (quickly) then I began to star about me, the balls came whistling about my ears. Then I saw the Oysterenns (Austrians) dip their heads and look about them for they doge (dodge) the balls as a cock does a stick, they are so used to them . . . . a twelve pounder came within tew yards of me. Then I began to stear indeed, it was about the size of your light puddings but a great deal hevyer."

Battle of Culloden 1746—From Col. Christopher Teesdale of the 3rd Buffs (The Howards): ". . . . The Royal army marched in three columns and formed battle (in view of the enemy) in two lines and a corps d'reserve, with the dragoons on the flanks, and these moved forward with ten field pieces (short 6 prs.) in the front, and when we came within reach of the cannon-shot our field pieces got into a bog, so that the horses were obliged to be taken off and the soldiers to sling their arms in order to drag the guns across the bog, which required some time. If the enemy thought our artillery could not be drawn across the bogs their ground was certainly well chosen. . . ."

It was by no means unusual for gunners and infantry to manhandle guns over long stretches of very difficult ground: one old manuscript mentions sets of men-harness for this purpose. It would seem that the enemy was repeatedly surprised by our ability to get guns into action in impossible positions.

Battle of Fontenoy 1745—From Charles James Hamilton (he was then 16 or 17) third son of Lord Binning:

". . . . We have had a most bloody battle with ye french; yesterday we began at 5 in ye morning & left off at 2 in ye afternoon, all wch time ye french kept cannonading us; I was forced to be very civil & make a great many bows to ye balls, for they were very near me . . . the foote were very sadly cut to Pieces, for ye french Put grape shot into their cannon & cut them down as just if they were sheering corn."

These two independent references to dodging round shot seem to prove that it was possible to follow the flight of a projectile from the moment of leaving the gun. Although the range was short (500 to 2,000 yards) the muzzle velocity was so low that the projectile would be visible during the whole length of its flight. Even today, with our increased muzzle velocity, it is possible to see the shell leave the muzzle.

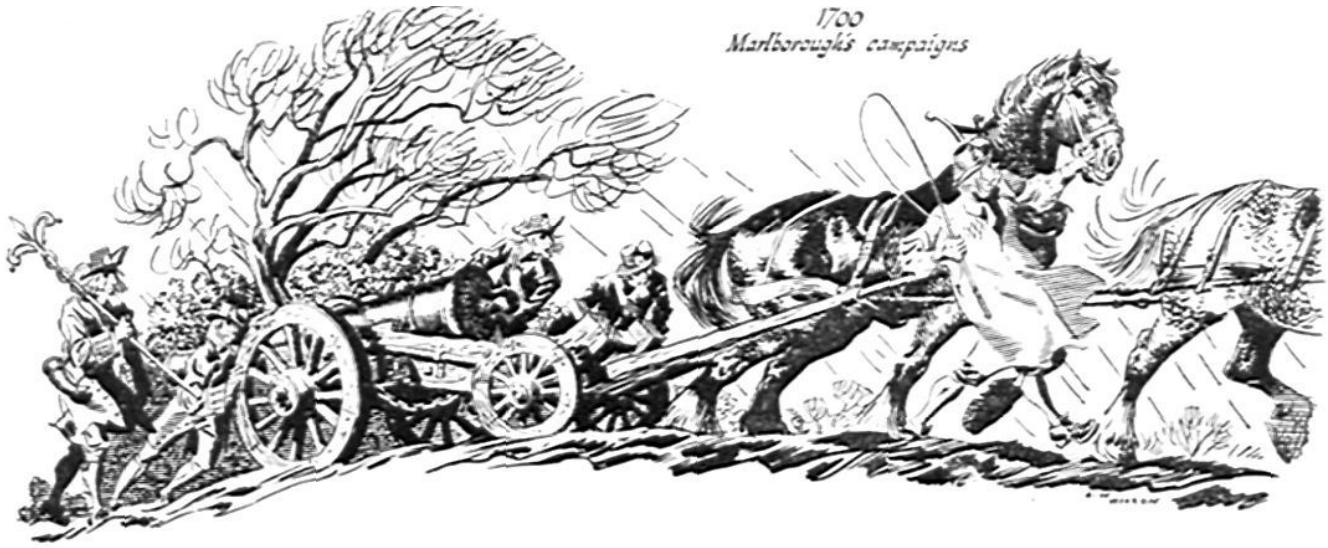
Another letter speaks of "nailing up the enemy's guns." This is another term for "spiking" the guns: the action of driving a spike or wedge into the touch-hole so that the gun would then be completely neutralized.

RIGHT OF THE LINE

The fine work achieved by the gunner in this war led to his acceptance as part of the large brotherhood of the army, a more material gesture being the granting of the privilege in 1756 of taking the right of foot on all parades, which has survived to the present day. This no doubt came about through the old practice of the guns' coming into action on the right of the infantry battalions.

The increase in mobility of field guns left the gunner with little protection against local attack. To offset this, he and the matross were armed with the carbine and bayonet. For the first time the insular gunner had to learn something of infantry fighting, though he still managed to preserve his old feeling of superiority. With the difficulty of local protection overcome, the new tactical use of artillery as a mobile unit was now firmly established and at the battle of Minden in 1759, three years after the start of the Seven Years' War, the artillery played a great part in ensuring the success of the battle. Ten 12-prs. were rushed into the front line, when our infantry were being mauled, and so placed that they achieved complete surprise over the enemy. "We accordingly drew up our Ten guns close to the six Regiments on the right and there waited undiscovered till the Enemy came almost within pistol shot, like a cloud, with numbers, and when they were just going to gallop down sword in hand amongst our poor mangled Regiments, we clapt our matches to the ten guns and gave them such a salute as they little expected, as they have since told us" (letter from an artillery officer).

(*To be continued*)



PERIMETERS in PARAGRAPHS

(BASED UPON LATEST INFORMATION AVAILABLE AT DATE OF WRITING, AND SUBJECT TO CORRECTION AS MORE COMPLETE REPORTS ARE RECEIVED.)

By Col. Conrad H. Lanza

CHINA (including Manchukuo and Mongolia) 19 Oct to 18 Nov 45

Differences Between National and Communist Parties

The political differences between these two parties, whose Chinese names are respectively *Kuomintang* and *Kungchantang*, have continued to be the subject of negotiations. These have been held at Chungking, the capital of Kuomintang China, under the supervision of Generalissimo Chiang Kai-shek.

No substantial progress has been made. Agreement has been reached on certain platitudes, such as the avoidance of civil war, free elections, etc., but not on important matters. These may be summed up briefly. The Kuomintang demands that the Communists lay down their arms and submit to the Chungking Government; if this be done, they promise to hold elections and abide by the result. The Communists demand that the elections be held first, and they too promise to abide by the result.

Neither side trusts the other. Consequently there is no agreement.

There are hostilities in several localities, with the Communists generally on the strategical and tactical offensive. The Kuomintang defends its lack of initiative as a desire to avoid starting a civil war.

General Military Situation

The Communist-held area is that part of China north of the south borders of Shensi, Honan, and Shantung. Some Communist forces are south of this line, however, and the Kuomintang holds the important cities of Peiping, Tientsin, and Shanhaikwan north of the line. They reached these places with American help, which flew Chinese troops over Communist road blocks or transported them by sea around those obstacles. A detached Kuomintang force is at Kweisui. All Kuomintang forces north of the boundary mentioned are under siege by Communists.

Manchukuo is being evacuated by Russian and Mongol forces, this movement to be completed by 1 December. The Mongol troops are returning to Outer Mongolia. The Russians are withdrawing in three directions. Some are going west. Whether these will remain in Siberia in the Baikal area or will go all the way back to Russia has not been made known. These troops appear to be Marshal Rodion Y. Malinovsky's TransBaikal Army Group, with at least three armies.

Marshal Kiril A. Meretskov's 1st Far East Army Group (at least two armies) is withdrawing into the Vladivostok —North Korea area. A third Russian force, believed to be the remnants of General Purkayev's 2nd Far East Army Group and now containing about one army, is concentrating in the Port Arthur—Dairen fortress area.

According to the August Chinese-Russian Treaty, Port Arthur was to be open to Chinese naval forces and Dairen to commercial shipping of any nation. Neither place has, at date of writing, been opened to anybody except Russians. This situation has helped to prevent Kuomintang troops from landing in Manchukuo, to take over that province.

The Kuomintang has attempted to land troops at other ports in Manchukuo, such as Yingkow and Hulutao, using American Navy transportation. All Manchukuo ports examined by American naval reconnaissance were found held by Communist troops. The nearest Russian commander was requested to guarantee the safe landing of Kuomintang troops to be made in American landing craft, against Communist interference. No guarantee being given, the attempt to land in Manchukuo was abandoned and the Chinese were landed southwest thereof.

Manchukuo is reported as containing large Communist forces who are taking over as the Russians withdraw. They are stated to be well armed with captured Japanese weapons. The Russians claim that no arms or munitions have been issued to Communist troops, but that they did issue arms to civilians whom they believe have a right to bear arms. It appears that Communist troops, eliminating their insignia, have been able to pose as civilians and draw notable quantities of weapons and ammunition.

Communist commanders have shown considerable strategical ability. They have decided to concentrate in north China, north of the boundary indicated above. To strengthen their forces in what they consider the critical

area, they are withdrawing the bulk of their troops who have been south of the Yangtze River in Chekiang. Only minor harassing forces appear to remain in those areas.

There has been a similar withdrawal from the area south of the Yellow River and north of the Yangtze River. Important reinforcements have been moving by sea, in junks from Shantung to Manchukuo. This is a slow method of transportation in these days—but since the Kuomintang has no navy, it works. The junks have been coming back with weapons and ammunition obtained in Manchukuo. There seems to be no difficulty in Communist sea or ground forces' getting into and out of Manchukuo.

Although the U. S. Navy has aided the Kuomintang by transporting their troops, it has scrupulously avoided interfering with Communist forces either on land or sea.

Communist GHQ has formally protested against American aid to the Kuomintang, as an unwarranted interference in a strictly private war. The protest has succeeded to the extent that the Army Transport Command had been directed to cease transportation of Kuomintang troops by air, and especially by flying them over Communist road blocks. Instead, Army Transport planes have been sold to the Kuomintang on credit, and the Chinese have been told to fly their own troops.

The main Communist objective appears to be the elimination of the Kuomintang troops in the Peiping—Tientsin—Chingwangtao area. The American 1st Marine Division is garrisoning those towns. The Communists have announced that as long as this continues they will not attack but will merely blockade, without interfering with food for native populations. If the Communists could hold these places the rail and road lines into Manchukuo would be cleared from what are for them nuisance road blocks. Assuming this can be done, the Communists will then have control of Manchukuo and of a considerable part of north China down to the Yellow River. Furthermore, their line of communications with Mongolia and Russia will be secure.

Mongolia

On 20 October Mongolia voted its independence from China by a vote of 400,074 to 0. According to the Chinese—Russian Treaty of last August, China agreed to abide by the vote and recognize Mongolia as an independent state. The vote covered Outer Mongolia only. The election was arranged by Russia.

The northwest part of Mongolia, known as Tannu Tuva, has already voted unanimously to apply for admission into the Soviet Union. This has been approved at Moscow, and Tannu Tuva has been authorized to elect two representatives to the Central Government.

It is expected that the main part of Outer Mongolia will in time likewise be absorbed into the Soviet Union. Tannu Tuva contains a considerable number of Russian emigrants. Outer Mongolia has few Russians, but these are in key positions.

Relations between Communists and Russia

Officially there are no relations, for Russia is bound by her recent treaty with China to recognize only the Kuomintang Government.

Unofficially the Communists, if not actively assisted by Russia, have not been hampered by any opposition. The Russians are not interfering with Communist occupation of evacuated Russian territory in Manchukuo, nor with Communist opportunities to secure large quantities of Japanese war supplies.

Pending the development of the differences between the Kuomintang and the Communists the large Russian forces in the Far East are temporarily in excellent positions, in readiness for such future military operations, if any, as may later be decided upon.

MILITARY OPERATIONS

At the beginning of the period active operations were in progress in several areas:

1. A Communist force estimated by the Kuomintang as 60,000 men was northwest of Hankow as an advance command threatening the Peiping and Hankow RR, which was the Kuomintang main line of communication north from Hankow. Of this force 30,000 men were in the vicinity of Suihsien (90 miles from Hankow, but only 30 miles from the railroad which is just to the east).

A Communist flank guard of 10,000 men was posted about and attacking Siangyang (about 160 miles northwest of Hankow). All north-and-south roads west of the P & H RR pass through either Suihsien or Siangyang; consequently these are blocked by the Communists.

A road in Communist possession extends in an are from Siangyang to Suihsien. At approximately the mid-point between those two cities, near Tsaoyang, is the Communist reserve of 20,000 men, not over 50 miles from the extremities of their line.

Notwithstanding the above Communist force, the Kuomintang seems to be operating the P & H RR from Hankow as far north as the Yellow River.

2. To cover the forces in (1) a Communist force of unknown strength was holding the Yellow River from Sikiang (or Sian) east to Tungkwan.

3. The main Communist army in the south (estimated as 60,000 men) was astride the P & H RR north of Tzehsien, where the Kuomintang forces held a bridgehead across the Yellow River. Left of the line was near Suihsien.

Forces (2) and (3) together blocked all railroads and roads leading north from the Yellow River, west of the P & H RR, inclusive.

Lines of communication to the north, east of the P & H RR, were blocked by

4. A Communist force, of unknown strength, holding a line approximately along the south border of Shantung. This force held all ports on the Yellow Sea (less Tsingtao, held by the Japanese under authority of General MacArthur) pending their surrender. These Communists had an amphibious force of 500 junks, used for transportation and occasionally for amphibious operations where little resistance to landings was expected.

These four Communist forces faced generally south. Their assigned mission was to prevent Kuomintang troops from advancing north. This was the strategical defensive, but a tactical offensive was authorized. This appeared mostly in the form of raids against Kuomintang lines of communication, and was quite active.

5. A detached Communist force was in Anwhei and Kiangsu provinces. These have rich agricultural areas, whose food forms a valuable resource; they also yield revenues in taxes. A part of the force, which forms the 4th Communist Army, was still south of the Yangtze River in Chekiang. The 4th Army appears ready to withdraw north if seriously attacked. This army may have 30,000 men.

In the north, new Communist forces have been organized and armed from captured Japanese weapons secured in Manchukuo and in north China. Two strong centers

of resistance and depots of supply have been organized at Kalgan and at Chinhsien (at NW corner of the Liaotung Gulf.) Here are additional forces:

6. A strong force at Shanhaikwan blocks road and railroad lines along the coast. Detachments from this command hold the country as far back from the coast as Tientsin and Peiping, both exclusive.

7. A force of the Communists' Chinchachi Army based on Kalgan was attacking Kweisue (160 miles to the west), which a detached Kuomintang force held. How the Kuomintang troops reached this place, which is very far from their nearest supporting troops, is unknown. Kweisui is on the Suiyuan and Peiping RR, and is also an important road junction. Its possession by the Kuomintang is a serious nuisance to the Communists.

8. An entirely new Communist force has been organized in Manchukuo, and is reoccupying that extensive province as the Russian troops withdraw.

9. Communist GHQ and part of the GHQ reserve have remained at Fushih (or Penan), in Shensi.

The Chinchachi Command

It is now known that on 23 August the Japanese garrison evacuated Kalgan and withdrew to Nankow Pass (30 miles northwest of Peiping), which they still hold. The Japanese operate the railroad from Peiping to the pass. At the time of the Japanese withdrawal Russian and Mongol troops were just north of Kalgan and had been severely shelling that city from positions north of the Great Wall. The Russians have never crossed the Great Wall. It was the Communists who reoccupied Kalgan from the south.

The Communists promptly transferred a considerable part of their reserve from Yenan to the Kalgan area, and there established the new Chinchachi Command. This seems to be part of the Group of Armies commonly known as the 8th Route Army. Administratively, Chinchachi is independent. Its assigned territory includes Jehol (reported to be clear of Russians), Chahar, Suiyan (less Kweisui, held by the Kuomintang), and northern sections of Shansi and Hopeh.

Within this area, which contains about 40,000,000 people, the Japanese hold Tatung, and Peiping and vicinity. American troops—1st Marine Division, plus Kuomintang troops—held Tientsin and the coast from there northeast to Chinwangtao, inclusive. The Japanese operated the railroad between Chinwangtao through Peiping to Nankow Pass.

Kalgan has a population of 150,000 and lies in the center of a fertile area which raises ample food supplies. In Kalgan, enormous quantities of Japanese stores are reported as having been abandoned and as having fallen into Communist hands.

On 24 October Kuomintang troops flew over the heads of Communist road blocks to the south in American planes and arrived at Peiping. No opposition was made by the Communists but they retained positions in the vicinity of Peiping.

On 2 November the Communist C-in-C, General Chu Teh, with a force which possibly exceeded 50,000 men, commenced an attack to clear the Tatung road block, held by Japanese and Kuomintang troops. A second Communist force of about 20,000 men, but with considerable artillery, commenced a siege of Kweisun. Tatung was reported as captured by the Communists on the 3d. On the same day they entered Kweisui, but a Kuomintang counterattack threw the Communists out. The Communists now started a siege. A detached force by-passed Kweisui, and advancing west cleared the railroad to its terminus at Paotow by 7 November.

Paotow was not taken, as it was found held and fortified by Kuomintang troops. An assault delivered on 13 November from the west side made progress, but lost most of this to a subsequent counterattack. A new attack on Kweisui also failed. Then the Kuomintang troops at Peiping announced an intention to march west and relieve Kweisui. At this time it was bitterly cold, and the ground was snow-covered.

The Shanhaikwan Sector

On 29 October the 94th Chinese Army (Kuomintang), transported by the U. S. 7th Amphibious Force, landed at Chinwangtao. (Chinese "armies" are approximately equivalent to an American corps of 2 divisions.) This Chinese command landed under protection of the 1st Marine Division, without opposition. Its mission was to move northeast into Manchukuo. On 30 October it advanced to Shanhaikwan, where it came in contact with a Communist force holding the Great Wall. At this point the sea offshore is so shallow that cargoes and passengers are transferred to lighters 18 to 20 miles out, below the horizon line. Landings against opposition can be supported by naval ships with air observation, but the American fleet refrained from taking part in the Chinese conflict. Nevertheless, American planes watched events. This Chinese army had American equipment, including flame throwers, pack howitzers, and the usual infantry weapons. The 13th Chinese Army began to join the 94th on 1 November.

On 2 November Vice Admiral Daniel E. Barbey, commanding the 7th Amphibious Force, investigated the possibility of landing the Chinese in rear of the Communists at the Great Wall at Hulutao and at Yingkow. The Chinese commander had expressed a desire to avoid a major contest at Shanhaikwan. Reconnaissance developed that the Communists held both these ports, and that ships would have to anchor 20 miles out. As the Communists announced an intention of resisting any and all amphibious attacks Admiral Barbey recommended against these proposed landings. Instead, he suggested that additional Chinese forces en route be landed at Taku, Chinwangtao, or even Tsingtao, which places were held by U. S. Marines or by authorized Japanese troops who had not yet surrendered.

It later appeared that there were only 500 Communist troops at Yingkow when the American reconnaissance was made. There were some Russians, but their commander declined to remove the Communists. By 4 November 4,500 more Communists arrived and prepared to defend Yingkow. However, Admiral Barbey's recommendation was approved by the American China Command. On 6 November the Russians withdrew from Yingkow.

Next day the 52nd Chinese Army commenced to debark from American transports at Chinwangtao. The 5th Chinese Army was also arriving.

On the 8th the Chinese 13th and 5th Armies, with the

52nd Army in reserve, attacked at Shanhaikwan, which is 9 miles northeast of Chinwangtao. A night artillery preparation preceded the infantry assault. This attack failed. It was renewed on the 10th and 11th, without material change in positions.

According to reports of American medical officers assigned to the transports which brought the 5th and 52nd Chinese armies from Haiphong to Chinwangtao, these troops were of inferior class. Notwithstanding close medical inspection before the embarkation, a large sick report developed. 13 men died from cholera during the voyage, while ulcers, eye diseases, dysentery, and venereal diseases appeared to a total number of several hundred cases a day. Troops were dirty and totally unfamiliar with modern hygiene. There were no personnel records, making it difficult to identify the dead and sick, whose names were ascertained only by inquiry. Uniforms were beyond description. Arms and ammunition were of numerous types, including American, Russian and Japanese, and used many different kinds of ammunition. After use by the Chinese the transports needed thorough cleaning and disinfection, very distasteful to the American sailors. Thanks to the medical officers, the Americans escaped contagious diseases.

The fighting at Shanhaikwan extended southwestward on a line parallel to but inland from the railroad in a series of Communist raids and patrol activities. The 1st Marine Division garrisoned the beachhead at Chinwangtao with about 2,000 men, and guarded the railroad trains to Tientsin. So far as is known the Communists avoided attacks on the Marines, but the latter had a few casualties from stray bullets. On the 16th a heavy Chinese attack on a 35-mile front captured Shanhaikwan. The Communists withdrew the next day to Suchung.

Manchukuo

Initial Communist occupation commenced in the south in Liaoning. By 29 October garrisons had been established at the ports of Hulutao and Yingkow, with reserves posted at Haicheng and Liaoyang on the South Manchuria RR and at Fengcheng on the Mukden & Antung RR. The Communist commander in Liaoning is reported to be General Chang Hsueh-hsih. This general is a brother of Marshal Chang Hsueh-liang, formerly known as the Young Marshal, and Governor of Manchukuo until the Japanese ran him out in 1931. He thereupon moved to the Communist Yenan GHQ. In December, 1936 he captured Generalissimo Chiang Kai-shek. Chiang escaped, and in the next month captured Chang. The latter failed to escape and has been held in confinement ever since. This is one of the Communist grievances. The young marshal—now not so young—has numerous supporters who have reentered Manchukuo and have been raising troops to join with the Communists. To date they have met with no opposition.

A Kuomintang General Tu Ling-ming, designated as Commanding General for Manchukuo, was flown to Russian GHQ at Changchun, where he arrived on 31 October. He was received by Marshal Alexander M. Vassilevsky, Russian C-in-C, but nothing ever developed as to arrangements to move Kuomintang troops into Manchukuo by air over the heads of the Communists, or for use of the permanently-Russian-held ports of Port Arthur and Dairen, guaranteed to China by treaty.

By 11 November General Chang Hsueh-shih had organized a force of 30,000 men in the Mukden area. On the 15th Communist troops commenced to take over the Russian airfields throughout Manchukuo and posted blocks to prevent hostile planes from landing thereon. The last Russians were scheduled to leave the important center of Changchun on 20 November.

Communists were moving troops freely from Shantung via Chefoo—about 100 miles—with their 500 junks. In ordinary weather this method would permit transportation of an average of 10,000 men a day. There is, however, no information as to actual figures.

Shantung Sector

At the beginning of the period a Japanese force estimated at 80,000 men held the key points and the railroads in Shantung. The garrison had been doubled in July, 1945 by withdrawing Japanese garrisons from north China in order to resist an expected American invasion. About two-thirds of the interior area were held by the Communists and the rest by Kuomintang sympathizers. The Kuomintang governor reported that he was engaged in hostilities with the Communists. He obtained his ammunition by purchase from the Japanese Ordnance Sales Depot but complained that the Communists received their ammunition from the same source, the Japanese selling impartially to both sides. This seems to have been an old habit. Instead of fighting the Japanese the two Chinese forces fought each other, and the Japanese found it advantageous to supply the necessary ammunition to keep this civil war going.

The main Kuomintang force appears to have been in the vicinity of Tsinan. It was operating inside Communist territory, and had no regular line of communication with the main Kuomintang armies.

On 25 October, the U. S. 6th Marine Division having arrived at Tsingtao by sea, the local Japanese commander (Lt. Gen. Eiji Nagano) surrendered 10,000 troops in that city. The Kuomintang was represented, but the real commander was Maj. Gen. Lemuel C. Shepherd of our Marine Corps. About 40,000 other Japanese were reported as in camps within a radius of 50 miles. They had ample supplies and ammunition and were authorized to maintain their posts, particularly against Communists, until further arrangements had been effected.

At this date the Communists controlled the entire sea coast of Shantung, less Tsingtao. The Kuomintang Government planned to move their 8th Army from Hong Kong by sea, using American transportation, to Tsingtao, with a view of clearing Shantung.* The first of these troops arrived on 14 November; the 17th Squadron, USN, completed the movement next day.

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*The 8th Chinese Army had been assembled near Canton. It moved from there to Hong Kong by Chinese water transportation for embarkation on U. S. transports. In this local movement 1,500 men were killed and unspecified equipment lost, through failure to clear mines from channels.

The Communists immediately attacked. A strong detachment raided the air field, which is about 12 miles from Tsingtao. This appears to have been a secondary move, which accomplished its mission of drawing the defending troops to that direction. The main attack then came against the railroad, which was ripped up for several miles so as to interrupt traffic into the interior.

At this date Tsinan, capital of Shantung and 140 miles inland, was held by the 47th Japanese Division plus 20,000 Chinese troops belonging to the old pro-Japan government at Nanking. The city was blocked by Communists from all sides, but there was no special fighting. The Kuomintang claimed that the Chinese troops within Tsinan belonged to their side, in compliance with a general agreement that all former Nanking troops (estimated) as well over 500,000 men) would join the Kuomintang armies.

The 6th Marine Division had intended to send parties to Wehsien, about 80 miles inland, to relieve prisoners of war and refugees held there. The successful Communist raid prevented use of the railroad. Thereupon the Air Force flew the PWs and refugees out of Wehsien, without interference from the Communists.

As this account closes the plan is to have the 8th Chinese Army relieve the Japanese who continued to defend Tsingtao along the land front.

Communist headquarters reports that during the period over 57,000 Japanese surrendered to them in Shantung and in adjacent areas of Giangsu and Anwhei.

The South Front

On 24 October a Kuomintang Army Group of two armies started north astride the Peiping and Hankow RR, from a line north of the Yellow River. The announced mission was to open the railroad to Peiping and then continue into Manchukuo.

The Communists immediately counterattacked. On 25 October a severe battle was fought near Tzehsien (about 100 miles north of the Yellow River). The Kuomintang forces consisted in part of former pro-Japan Nanking Chinese troops, who gave way before the Communists. Whether this was intentional or whether they were out-fought isn't yet known. According to a Communist account the former pro-Japan Chinese troops lost 5,000 killed and wounded, which indicates that they made a determined stand. Two Kuomintang Army CPs together with their commanding generals were captured, and the Kuomintang army was forced south out of Tzehsien. This battle was the major combat anywhere in China during the period. The Communists reported the capture of much American equipment.

The Kuomintang was having trouble keeping open the railroad from Hankow north to the Yellow River, and the line leading north from Pukow (across the river from Nanking) to Tientsin. About 30,000 Japanese PWs were employed in repairing damage caused by constant Communist raids. The raids on the P & H RR covered a section of 200 miles on both sides of the Yellow River, where nearly all trackage was reported as destroyed. Assuming this is true, it seems hardly possible that the Kuomintang armies can obtain sufficient steel to rebuild the line within the near future. As of 5 November, 30 bridges were out on the Pukow and Tientsin RR and the track had been cut in 108 other places. According to Communist reports their 4th Army, which includes the troops withdrawn from south of the Yangtze River, is charged with the continuous interruption of the above two main railroad lines.

The Communists report that following the victory at Tzehsien the Kuomintang Army Group astride the P & H RR disintegrated. Two Chinese divisions transferred from the Kuomintang to the Communists. It is probable, but not known, that these divisions were the former pro-Japan Nanking troops. Six other Chinese divisions surrendered and were disarmed by 8 November.

Miscellaneous

About 60,000 Japanese assembled at Wuhu (60 miles southwest of Nanking) surrendered to Kuomintang troops on 29 October. At this time weak Communist forces were reported raiding generally in the area south of the Yangtze River, and around the cities of Nanking and Shanghai. The Chinese 25th Army is in the Shanghai sector.

The Kuomintang Government has started organizing an Air Force, using recently discharged American fliers and ground crews. On 10 November Lt. Gen. Albert C. Wedemeyer, commanding the United States Forces in the China Theater, announced that there would be no transport of Kuomintang troops into Manchuria by American air personnel. According to a State Department announcement of 14 November American transport planes have been turned over to the Kuomintang under lend-lease as an exception to the previously announced rule not to furnish war supplies effective upon the date of the Japanese surrender. The State Department stated that the planes delivered to the Chinese would not be flown by American personnel. Left open was the question of whether Americans discharged from the Army and entering the Chinese service were thereby considered as Chinese personnel.

The United States has turned over five Liberty transports to the Kuomintang, which is negotiating for 30 additional ships.

On 14 November Gen. Wedemeyer recommended a drastic reorganization of the Kuomintang armies, including a marked increase of air troops and a decrease of divisions. A complete revision of the supply services was considered necessary.

COMMENTS

There has been no declaration of war between the Kuomintang and the Communists. The latter maintain an advanced CP within Chungking, which is visited frequently by the Communist C-in-C. The personnel of the two GHQs are on friendly terms, and attend each other's cocktail parties.

Each side issues communiques. They stress their defeats and do not mention their victories. The idea is to obtain American sympathy by representing themselves as peace-loving parties who are victims of wholly undeserved aggression by the other side.

The Kuomintang mission to Russian GHQ in Manchukuo has been withdrawn as the Russians withdrew. In compliance with the treaty the Russian evacuation is due to be completed by 1 December, less Port Arthur and Dairen. The treaty prescribes that Russia will take no part in China's internal disputes. Russia has interpreted this as not authorizing action on her part to interfere with Communist occupation of Manchukuo, and claims that the has neither hindered it nor aided it. It just happened that Communist troops were the only Chinese troops on hand.

THE SOUTHEAST ASIA COMMAND (19 Oct to 18 Nov 45)

GENERAL SITUATION

The Southeast Asia command includes Burma, Malaya, Indo-China (less that part north of Latitude 18°), Thailand, and the Netherlands East Indies. The CP has been at Kandy, Ceylon, but at the end of the period was moved to Singapore. The Supreme Commander is Admiral Lord Louis Mountbatten. American forces are being reduced, and none are at present involved in military operations. The majority of forces employed are British, but a considerable number of French and Dutch are in the field in those parts of the Command which used to be their respective colonial possessions.

Total area is about 1,200,000 square miles, with a population of 145,000,000. This area is about 4 times that of Great Britain, France and Holland combined, while the population of these distant Asiatic lands is roughly 1½ times that of the three dominant white races.

A hundred millions of these Asiatics are concentrated in Burma, Malaya, Thailand, Indo-China, and Java. They have a fair civilization, while the upper classes are as well educated and as intelligent as those of the white races. This whole region is in a ferment. The native inhabitants demand independence, and claim that they are fully able to maintain their own states. Law and justice, they insist, can be continued as well (or better) under their guidance than under the pre-war colonial systems. They do not want Dominion status, but have no objection to retaining close association with their former colonial masters. All rights to foreign property are guaranteed, with full rights to conduct business as usual.

The three European nations involved in the seriously troubled conditions are not willing to grant independence. They are willing to grant Dominion status, and much more local freedom than heretofore. For the British, French, and Dutch the problem varies slightly.

For Great Britain, independence of any of the Southeast Asia native states will form a precedent which it will be hard to deny to the others, or to deny to India. To grant all of these independence would seriously affect the British position throughout all of Asia, and might well impair its standing as a World Power. Consequently the British have shown no enthusiasm in meeting the native demands. British forces have been freely loaned for duty in French and Dutch territories in an effort to restore them to their prewar colonial masters. The British are attempting to reduce military operations to a minimum, and are restoring to diplomacy in an effort to convince native leaders that their best course is not to force matters but to accept for the time being a Dominion status.

Yet the British power, while sparingly employed, when used is with strength and considerable severity, with a view to demonstrating that prolonged resistance to the white races is hopeless and that the natives had better accept the limited independence offered them rather than persist and be defeated and lose everything.

For France, Indo-China is the most populous and most productive unit of the colonial empire. French colonies elect members to the French Parliament in Paris. France has offered Indo-China increased representation in the Chamber of Deputies and full local independence. Loss of that country would not only affect French prestige but also reduce employment of Frenchmen who hold office in the colonial governments and adversely affect French trade which might lose its present privileged position.

The Netherlands' problem is the same as that of France but to an intensified degree. For a small nation of 8,000,000 Dutch, the trade with 70,000,000 in the East Indies is of major importance. It had been expected to send 40,000 Dutch to the East Indies this year to fill positions throughout that great area, and reestablish what had been a most profitable trade. If the Indies become independent there is great probability that much of this trade (which formerly passed through Holland) will go direct to other countries, and that similarly the natives may buy elsewhere than in Holland or through Dutch firms. For Holland, in its present partly devastated condition, the loss of its rich colonial empire would be a tragedy indeed. The natives are being offered a Dominion status with entire local independence, but under acknowledgement of the sovereignty of the Dutch Queen and her successors. This would be a status similar to that of the British Dominions.

Neither France nor Holland has sufficient forces to quell the rebellions in their areas in Southeast Asia. They are dependent on British or American aid to furnish transportation, air forces, arms, and ammunition for what forces they have, and substantial military aid in operations.

The United States has limited its aid to lend-lease equipment and weapons previously furnished. It has offered its good services to arrange a peaceful settlement, but has not insisted. The British have transported Dutch and French troops, and have used their ground, air, and naval forces, to establish the French and Dutch at key points. They have explained this operation as being primarily a war obligation of accepting the surrender of Japanese troops, who are still present in large numbers, some of them with full equipment. The British have not engaged in general operations to recover French and Dutch colonies. They have fought and gained beachheads from which the French and Dutch can operate later if and when they have sufficient strength.

BURMA

Japan had acknowledged the independence of Burma in August, 1943, and a set of Burmese organized a complete government. Upon British reconquest these men were ousted as collaborators. This did not solve the problem of Burma's independence.

The presence of very strong British forces has prevented a rebellion. The British have executed a number of collaborators, including members of the Japanese Indian Army.

The British have of course not recognized Burma's independence.

Instead they brought back the pre-war Governor (Honorable R. H. Dorman-Smith) who immediately installed his former friends and assistants in their old jobs.

Maj. Gen. Aung San, a 31-year-old Burmese who has been active in the independence movement, is the Burmese leader. Prior to the return of the Governor he had established liaison with the Commanding General and shown a desire to cooperate. With the assumption of civil government Gen. San has withdrawn and refused to cooperate further. There is also a Communist party headed by Thakin Than Tun, who has also refused to cooperate.

The Burmese leaders have made it clear that they desire independence and will not willingly acknowledge British rule. They have offered temporarily to accept the governor provided the latter discharges all British ministers and other higher officials and replaces them with Burmese with complete control of the country.

The British have renewed their offer of Dominion status. To date there has been no acceptance.

On 24 October, Gen. Suchiro Kimura, Japanese Commanding General for Burma, surrendered at Rangoon. He is believed to represent the last of the Japanese forces in this country.

Banditry is reported as prevalent in some sections.

MALAYA

A native independence movement is active. Its leaders are the same men who composed the underground during the war. At that time they were actively supported by British and Australian aid in personnel and equipment, which was dropped to them by the Air Forces.

These men now demand independence, and have not accepted a British offer of Dominion status. Able British officials are traveling through the country in an effort to convince the natives that their best interests are to remain within the limits of the British Empire.

There have been no military operations, the British being sufficiently strong to prevent an uprising. Japanese prisoners of war are being concentrated on formerly uninhabited islands off Singapore, pending arrangements for transportation back to Japan.

THAILAND

At the time of the Japanese surrender the Japanese forces in Thailand were reported as 120,000 men. British troops, including Indian units, have arrived in large but undisclosed numbers. 106,000 Japanese have surrendered, leaving an estimated 14,000 still at various garrisons.

All Allied dealings with Thailand are under the Southeast Asia Command. Thailand is ruled by a Regent, Pridi Phanomyong. There is a king, born in 1925, who succeeded to the throne in 1935. Three years later he was sent to Switzerland for a college education and has been there ever since. The British have announced that he will be flown back at the end of this November for the purpose of being officially crowned. A 30-day leave will be granted, after which he is to be flown back to Switzerland with a view of receiving a degree about next June.

No information as to Thailand is available from British sources. The Thai government has represented that the British have demanded rights and concessions, which if granted will make Thailand completely subservient to Great Britain, economically and politically. Thailand is resisting the demands on the ground that they are unreasonable. For example, one of 21 demands is to furnish yearly 1,500,000 tons of rice for India. To raise such a quantity Thailand would have to reorganize her agriculture, and this in turn would disrupt native customs and economy. The Regent also objects to the size of the British occupying force, claimed to be completely beyond any needs for disarming Japanese.

Thailand, with a pre-war population of 14,500,000, includes a minority of 3,000,000 Chinese. Allied to the Kuomintang party, these form a militant element ruled by secret societies which maintain armed gangs who cause much trouble. The leader is a Chinese woman known as the "Dragon Lady," whose identity is kept concealed.

INDO-CHINA

Military operations by British and French forces have been concentrated in Cochin China. The inhabitants are mostly of the Annamese race, but in pre-war times Cochin China was a French colony while Annam was a French Protectorate under an emperor, Bag Dai.

Upon Japan's surrender, Bag Dai resigned. He was succeeded by Menyen Nai, leader of the independence party and known as the Viet Nam, who immediately proclaimed a Republic with himself as president. He seems to have considered Cochin China as included within the boundaries of the Republic. The Viet Nams resisted the return of the Allies on the ground that they themselves could disarm the Japanese, who were not making any resistance, without foreign assistance. Nevertheless, British and French troops went to Saigon and at the beginning of the period had occupied that important city and center after considerable fighting. The Viet Nams held the surrounding country. They have announced that they will not tolerate a return to French colonial rule.

On 24 October the Indian 20th Division after light fighting had reached a line about 10 miles northeast of Saigon. Its mission was to capture Bien Hoa with its airfield. French armor was attached to the British division, and the mission was accomplished without serious fighting.

Skirmishing continued in and about Saigon. Bands of Viet Nams raided the city, and penetrated at frequent intervals. After clearing the sector to the northeast, a French force commenced to clear the southwest sector. On 8 November heavy resistance was met near Tan An, 35 miles from Saigon. It was believed that Japanese "deserters" were leading and aiding the Viet Nams. On 9 November the French attack entered Mytho. Minor fighting within Saigon increased, and on the 10th a Viet Nam raid captured the air field's gasoline tanks and set fire to 40,000 gallons of fuel.

Attention was now turned to the north sector. On 13

November the heaviest fighting of this campaign took place, but details have not yet been released. By the 18th the British and French had cleared the area around Saigon generally to a distance of 60 miles.

In north Indo-China Chinese Kuomintang troops have penetrated as far south as Hué and Tourane, which were occupied on 24 October. No details of this operation are yet known.

According to American Navy medical reports the Chinese troops in Tonkin are infected with cholera. A considerable number of these troops have been withdrawn by American transports, (after proper inoculation), for redeployment in north China.

SUMATRA

Very little information is available as to conditions in Sumatra. The Indonesians have established their capital at Medan, in the north, and are operating the usual public services. Minor disturbances are reported between the new Indonesian authorities and other natives classified as "collaborationists."

Minor disturbances also occurred in southern Sumatra. In this case casualties were reported as having been inflicted on a British mission, ostensibly present for refugee duties. The Indonesians claimed that there was no legitimate need for any such services.

No effort has been made by the Southeast Asia Command as yet to take over Sumatra, but small forces are present at principal ports and cities.

JAVA

Java, an island with a population estimated as close to 50,000,000, is the greatest center of disturbance in southeast Asia. Almost all the people are Mohammedan. Although in the past no fanatical religious zeal had been noted, it is now beginning to appear. The Javanese claim that the British troops which arrived in Java in mid-September, allegedly solely for the purpose of accepting the surrender of the Japanese garrison, have long since accomplished that mission and should no longer remain in the country. It is charged that Indian troops have been undisciplined and have committed outrages. On their side the British claim that Java is infested with bandits and lawlessness, and that their mission is now to establish peace and order.

There seems to be no Javanese desire for any kind of Dutch control. Complete riddance of the Dutch authority is demanded, without prejudice to Dutch property and lives. At the beginning of the period the British had parts of the Indian 5th and 23d Divisions in and about Batavia. In the same area the Dutch had two battalions of 800 men each, and some 5,000 released prisoners of war, hastily organized and equipped. Four other battalions were completing training in England, eight not yet trained were in Holland awaiting clearance of training camps in England,* and five more were in the United States with orders from the American government to discontinue training and clear the country by 15 November, or as soon thereafter as transportation became available.

Strength of the Javanese forces is unknown. Main military center seems to be in the Jogjakarta area, where a Mohammedan sultan rules. In pre-war days this official was strictly under Dutch control, although he was generally consulted on matters relating to his own people. It seems that he has taken advantage of the situation to establish his independence and probably to become a leader. Only two sultans remain in Java, all others having been suppressed by the Dutch in years past.

There is no evidence to substantiate charges alleging that the Japanese have been or are aiding the Javanese. The latter are hostile to the Japs, who themselves have suffered. However, the Javanese have secured quantities of Japanese equipment, including some armor and artillery.

Javanese civil headquarters is in Batavia, where British GHQ is located. This facilitates conferences which have been continual between the British authorities and those of Java, in an effort to end what has come to be a bitter and devastating war. The British earnestly desire to end hostilities. The stumbling block remains the Javanese demand for the expulsion of the Dutch. The latter will not consent, and the British do not desire to abandon an ally.

The British occupation of Semarang (a commercial port on the north coast) occurred on 19 October. A detachment from the Indian 23d Division met considerable resistance on landing. In a hard fight, in which Japanese troops aided the British, the Javanese were thrown back. Casualties were reported as 300 Javanese, 200 Japanese, and 6 British. It would seem that the brunt of the attack had been taken by the Japanese. This fighting went on until the 21st, when a truce was arranged. The Javanese withdrew 20 miles to beyond Ambarawa with 1,200 prisoners, all Japanese or Dutch who had previously been in the area. 9,500 other Dutch women and children were reported as in Javanese concentration camps. During the fight the Javanese secured at least some of the Japanese motor equipment.

On 22 October the Javanese attacked a Japanese detachment at the Jogjakarta air field. The Japanese had previously surrendered to the Javanese their ordnance depot upon an understanding that the air field would be allowed to remain temporarily in their possession. Upon demand of the Javanese the Japanese evacuated Cheribon on 23 October. More British arrived at Semarang, and the remainder of the Japanese—about 1,000—surrendered to them. On the 24th Great Britain announced that reinforcements would be sent to Java "to fulfill the tasks indicated by the Prime Minister." What these tasks were was not made public.

At this time conditions in and around Batavia were chaotic. The British held the town and the outlying cities of Buitenzorg and Bandoeng. In the triangle formed by these three places the Javanese underground was operating with ferocity. It killed people charged with collaborating, attacked isolated British and Dutch detachments, held up

*The British have since declined to train any more Dutch troops for duty in Java.

railroad trains, and generally maintained a condition of turmoil.

On 28 October the British, having received reinforcements including a light tank regiment of about 3,000 men forming a part of the Indian 23d Division, landed at Soerabaja, which had been the principal Dutch naval and air base. The Japanese had previously been overcome by the Javanese, and the entire area was in the hands of native contingents.

No opposition to the British was made at first. The British commander thereupon demanded a general surrender of arms throughout the adjacent countryside. This was published as an order, and widely distributed by being dropped from planes. The Javanese hotly resented this, on the grounds that they had not opposed the British landing, that the British were only concerned in surrenders of Japs, and that the unexpected British demand had no connection with the alleged British mission. On the 29th the Javanese counterattacked; a severe battle started. After losing about 300 men the British were forced to limit their occupation to the port area. British sources reported that the Javanese had 2,000 casualties. The Javanese treated some British prisoners with extraordinary brutality. Two British officers, one a general, had their arms and legs chopped off successively.

President of the Java Government is Achmed Soekarno. When the fight at Soerabaja became known, he promptly flew there and held a conference with the British commander on 30 October. It was agreed to suspend hostilities, with the British to hold the port district, which has an airport, and a detached post at the Dermo airfield, which is 4½ miles inland. The remainder of the city was to remain in Javanese hands. The Javanese furnished motor transportation to move the British back to their assigned areas.

Fighting on a harassing scale broke out in the Semarang area following the establishment of an advanced British post, garrisoned by a battalion of 700 men, at Magelang, 45 miles inland.

On 3 November the Indian 5th Division commenced to debark at Soerabaja. The landing of the Indian 9th and 123d Infantry Brigades was completed by the 5th. Air Forces were also made available. Maj.-Gen. E. C. Mansergh was in command. On the 8th, having completed a redeployment, he issued an order directing all Javanese to surrender all arms by 0600 hours, 10 November. In case of non-compliance all the army, naval, and air forces under him would be employed to insure obedience. On the 9th the British moved out and occupied the west border of Soerabaja. There was only slight opposition. The Javanese retreated to new positions, but infiltrated patrols within the British lines.

Next day it was found that the Javanese infiltrations had resulted in their holding the interior of the city (less the port area) with the British holding the west perimeter plus the port area. No Javanese surrendered or turned in arms.

At 0600 hours three British light cruisers fired a 5-minute artillery preparation into Soerabaja, which was bombed at the same time by six bombers. Soerabaja is a large city about seven miles from north to south and four miles wide. Its population is about half a million and houses are largely of stone, affording good posts for house and street fighting. The British infantry closed in in a concentric advance from the north and west. Resistance was bitter. The Indonesians on the outside counterattacked, losing three tanks against British tanks. The British appear to have killed every able-bodied male in houses as they moved forward, on the ground that all males were fighting for the Javanese cause. Bombing was continued throughout the day, using 500-lb. bombs; one of these went through the roof of the Javanese CP but failed to explode. Javanese losses were very heavy. Their GHQ ordered forward strong reinforcements from the training area near Jogjakarta, where it was reported that six divisions were in process of organization. The Javanese downed three British planes by AA fire.

President Soerkarno flew to Jogjakarta, where on the 11th he made a fiery speech denouncing the British action at Soerabaja as pure massacre.

The battle continued on the 11th, starting with a British pre-dawn attack. The British gained ground and continued on through the day. The Indonesians captured about 180 prisoners, the British released about 3,500 internees in a concentration camp. As the Javanese seemed well supplied with armor and artillery and were fighting with considerable skill, the British assumed that the Japanese had furnished the equipment and were directing the operations. They thereupon placed in arrest the local Japanese commander (Lt. Gen. Nagano, 16th Army) together with his chief of staff and one division commander, and sent them to Singapore for trial as war criminals. The Japanese explanation is that no Allied troops appeared for a long time after the surrender at Tokyo and that they thereupon had to surrender to the Javanese, who did secure the Japanese weapons, equipment, and stores.

On the 12th Javanese light artillery made the British air field in the port area untenable by starting brush and grass fires. British destroyers returned the fire and the Javanese guns ceased fire. The savage fighting within Soerabaja continued without cessation. British G-2 estimated the enemy as 20,000 regular soldiers and 100,000 additional levies. About a third of the city, including the main business district, had by now been secured.

On 13 November the street and house battle continued with the British claiming that half of the city was now in their possession. The Javanese were employing standard Japanese tactics and using Japanese equipment. They were fighting with considerable skill. In Batavia, minor fighting increased.

In view of the crisis caused by this battle, Javanese GHQ ceased to consider the British as present solely to relieve the Japanese: they now regarded them as their own enemy. The Javanese Government was recognized. The president (Achmed Soekarno) withdrew as executive head, but retained his title and position as chief of state. A premier was appointed—Sutan Sjahrir, who undertook to direct matters and form a regular cabinet. Little is known about

Sjahrir. He has belonged to the Socialist party, but is reputed to have moderate ideas. He is 36 years old.

On the night of 13/14 November the Javanese counterattacked in Soerabaja. They made no advance, but neither did British attacks after daylight. After a day's severe fighting the line was substantially the east and west railroad through the city, with the British holding that part of the city to the north and the Javanese that to the south. The Briish heavily shelled trenches along the railroad using 25-pdr guns but failed to dislodge the defenders. Some Javanese infiltrated into the British sector but were unable to maintain themselves. The British then commenced an air and artillery preparation after which an assault by the Indian 123d Brigade got across the railroad for a gain of 400 yards.

On the 15th the Javanese took the offensive generally. Notwithstanding air and artillery aid the British made hardly any progress. The Javanese seized part of the east sector north of the railroad where they destroyed warehouses and depots. The Javanese were using about a dozen tanks, of which one was killed. Next day the fighting died somewhat.

On the 17th the Soerabaja battle was renewed with its former bitterness. In an effort to halt the war the British commander in Java (Lt.-Gen. Sir Philip Christison) convened a meeting of representatives of the Javanese Government under their new premier, together with those of the Dutch authorities, headed by Acting Governor General Hubertus van Mook. The meeting was formal, but no agreement could be reached as the Javanese demanded complete independence; as the Dutch would not grant this, the meeting was abandoned. The Javanese withdrew and announced that effective the 18th they considered themselves at war with the British as well as with the Dutch.

There was no change on the 18th.

COMMENTS

The delay between the date of Japanese surrender and the arrival of Allied (British and Dutch) troops enabled the Javanese to set up their own government, which had in any case been expected to be established in September. The Japanese troops, having no further interest in the war, in some cases surrendered to the Javanese and in others withdrew to appropriate locations and interned themselves. These troops abandoned arms and equipment which naturally fell into the hands of the Javanese.

It is probable that some Japs joined the Javanese. It has not yet been proved that the Javanese leadership has been materially aided by Japanese.

American correspondents report that the present Javanese Government has representatives of all parties who are all united against a return to Dutch domination. Only a few favor the Dutch, and these are in constant danger from terrorists who accuse them of collaborating. Even in rural districts the people are stated to be generally favorable to the republican movement. The republican flag is flown everywhere.

THE PHILIPPINES (19 Oct to 18 Nov 45)

A considerable number of Japanese (estimated as high as 20,000) are unaccounted for. They are supposed to be at large in the jungles and mountains.

A large and at present unauthorized force of armed Filipinos, known officially as the *Hukbo Bayan sa Lahap sa Hapon*, is scattered throughout the islands in bands of various sizes. The name means *People's Army for Fighting Japan*. It arose during the war and was the basis of the underground. Arms were dropped to it and sent also by submarine transportation. Other arms were captured from the Japanese or found in abandoned American and Japanese dumps. It is estimated that this force may have as many as 200,000 rifles and automatic weapons. It is commonly referred to as the *Huks*.

This underground did good work during the war, and really fought the Japanese. Upon conclusion of hostilities its members failed to turn in their arms but maintained their organization with posts in the bush. Since the Japanese surrender they have been charged with raids on isolated posts. Whether the unaccounted-for Japs are now with them is unknown.

As such a large armed force forms a threat to law and order, President Truman on 26 October issued a Proclamation. He called for demobilization of the armed forces, but specified that in view of their past useful services and their consequent "legitimate claim to fair treatment . . . they be not dealt with in a ruthless manner." In view of this order no operations have been started against the Huks.

As this account closes, the Huks are reported as active outside the garrisoned cities. Exactly what their aim is hasn't been determined. In general, the Malay races favor secret societies of a revolutionary character, without much regard for principles involved. Most anything will do. The majority of such moves exhaust themselves in secret meetings, where there is much talk and planning but where little is accomplished. The Huks may or may not be one of these societies. In view of their extensive armament and recent war experience, they constitute a danger.

GENERAL OFFICERS FROM THE FIELD ARTILLERY—II

Four names were inadvertently omitted from the list of general officers from the field artillery who served in World War II, which was published on page 741 of this JOURNAL for December, 1945. The editor is pleased to add, belatedly, the following names to that toster: Major Generals John N. Greeley and James P. Marley, and Brigadier Generals LeRoy P. Collins and Oliver L. Spaulding.

TRENDS in Field Artillery Organization and Equipment

Although this column announces only approved changes, it does not constitute authority to requisition personnel or equipment listed herein.

By Maj. Irvine F. Belser, Jr., FA

Publication and distribution of all approved but as yet unpublished changes to tables of organization and equipment, with a few exceptions, have been suspended by the War Department pending completion of studies now in progress intended to incorporate into one general revision all organizational and equipment lessons learned during the recent war.

A considerable number of changes to T/O & E 6-75, Field Artillery Observation Battalion, and allied tables, have been approved. Changes will increase the total strength of the battalion by two (2) officers and 57 enlisted men. In the headquarter and heaquarters battery, T/O & E 6-76, a major, Survey officer and a captain, Intelligence S-2 will be added. The note in the Remarks column authorizing a Coast and Geodetic Survey officer when available will be amended to indicate that this officer may be provided in lieu of the major, Survey officer, so that a battalion will have either a Field Artillery major or a Coast and Geodetic Survey officer (of unspecified grade) as Survey officer. The meteorological section will be increased by one (1) Observer, ballistic, metro, artillery, one (1) Operator, radiosonde, and one (1) Repairman, radio. One (1) technician, fourth grade, Computer, geodetic is to be transferred from the topographical platoon to the operations section of the operations platoon to help man the Survey Information Center. Two (2) Draftsmen, topographic are being added in the same section—one for the SIC and the second for the drafting work for the rest of the operations section. An additional four (4) machine gunners will be included, providing two men for each gun and eliminating the necessity of calling highly trained specialists from other jobs to assist in manning machine guns. Transportation changes will cause the addition of two (2) drivers. One (1) basic and one (1) cook's helper will be added because of the increase in other personnel.

Major equipment changes in T/O & E 6-76 include the substitution of two (2) trucks, ¼-ton and one (1) Truck, 1½-ton, 6×6 for the two (2) weapons carriers formerly authorized the battalion commander and battalion executive; the addition of one (1) truck, 2½-ton with 1-ton trailer, for the service platoon; and the addition of a 1½-ton truck for the personnel section and one for the Survey Information Center. Other equipment added for the SIC consists of a CP tent, a portable typewriter, a drafting equipment set, and a company-size field desk. Two (2) additional Telephones EE-8-( ) and two (2) Telephones TP-9-( ) will be included, and the allowance of Wire W-110-B increased from 16 to 32 miles. Two (2) Radio Sets SCR-619-( ) will be added for use in survey operations by the topographical platoon. Among other equipment changes are the inclusion of four (4) Launchers, rocket, 2.36-in, M18, and the increase in mine detectors from one (1) to three (3). The Telescope, observation, M48 or M49 and the Telegraph Set TG-5 will be deleted completely.

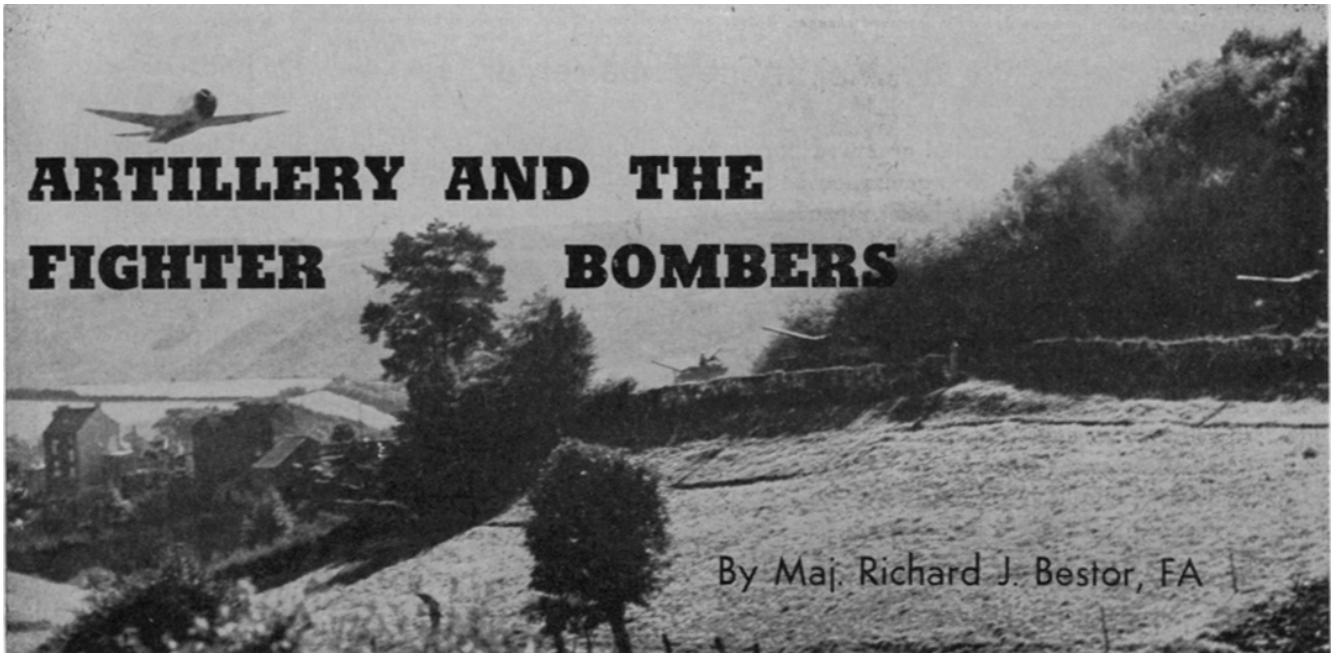
In T/O & E 6-77, Field Artillery Observation Battery, the flash ranging platoon will gain two (2) sergeants, Observer, flash ranging and one (1) sergeant, Operator, flash switchboard. Machine gunners will be increased from four (4) to eight (8). The communication platoon will be augmented by the addition of one (1) operator, switchboard, and four (4) radio (or radiotelephone) operators. In the operations section of the sound ranging platoon one (1) corporal, Computer, geodetic will be deleted and two (2) film readers added. Drivers will be increased by seven (7)—six (6) to replace surveyors now driving in the topographical sections of the sound and flash ranging platoons and one (1) for the truck, ¼-ton being added for the operations section of the sound ranging platoon. One (1) basic and one (1) cook's helper will be added. Besides the truck, ¼-ton, mentioned immediately above, transportation will be changed to substitute one (1) Truck, 2½-ton, 6×6, shop van, M535 for one (1) Truck, 2½-ton, 6×6, cargo for the sound central. Equipment added includes two (2) Electric lighting equipment sets No. 2, 1½-KW, four (4) Launchers, rocket, 2.36-in, three (3) Detector Sets AN/PRS-3-( ), and two (2) Telephones 2P-9-( ).

The Intrenching tool, combination has been standardized to replace all previous models of this implement, and will be included in the next published change to or revision of all field artillery tables. The blade of the Intrenching tool, combination folds flat against the handle for carrying, can be fixed in two different positions for use either as a hoe or as a shovel, and has one edge slightly sharpened for limited use as an axe for chopping. Opposite the blade is a pick point which also can be folded and fixed in different positions for carrying and various uses. The whole tool can be carried in the ordinary Carrier, shovel, intrenching, M1943.

All pertinent field artillery tables will be changed to include the Case, field, for typewriter, non-portable, 11″ carriage, a newly-standardized item, on the basis of one (1) per typewriter, non-portable, 11″ carriage.

The Frame FM-91-( ) and the Frame FM-92-( ) have been standardized to provide a means of packing the Radio Set SCR-619-( ) and spare batteries in pack artillery units. The FM-91-( ) carries the top load and the FM-92-( ) the side load. T/O & E 6-186, Headquarters and Headquarters and Service Battery, Field Artillery Battalion, 75-mm Howitzer, Pack, Mountain, will be changed to include four (4) FM-91-( )'s and three (3) FM-92-( )'s. T/O & E 6-187, Field Artillery Battery, 75-mm Howitzer, Pack, Mountain, will include two (2) FM-91-( )'s and one (1) FM-92-( ) when part of a non-divisional battalion, and two (2) of each when part of a divisional unit.

The Gun, 3-in, M5, with carriage, gun, 3-in, M6, formerly used in towed tank destroyer battalions, has been reclassified as obsolete and will be disposed of in accordance with existing regulations.



Sometimes the cooperation works in the opposite direction. Here a P-47 "Thunderbolt" passes along by radio the lowdown on an enemy tank column in northern France.

In order for the ground forces to secure the maximum results from their air support the artillery must assume an important role, not only in providing good observation, communications, target marking, and counter-flak fires, but also through being in on the planning of the targets to be hit by air power. This latter is necessary because air power should primarily be used on those targets against which artillery is either relatively ineffective or the ammunition expenditure required is too great for the results obtained.

The methods employed within the 104th Infantry Division Artillery proved successful, and a great deal of satisfaction has been expressed by the pilots who have performed air support missions for us. It is believed that the methods used enabled Air-Ground to accomplish effectively

1. Accurate bombing of targets selected.
2. Protection for the pilots and their aircraft.
3. Protection for the ground troops from accidental bombing.

Within the division there was set up a Target Selection Board to pre-plan desired targets for air support for the next day or the next phase of the operations. Members of this board were the Division Air Support Officer (usually experienced in the fighter bomber), G-3 Air, and representatives from G-2, the Engineers, and Artillery. It was not infrequent that the Division Commander would preside at the meeting, but in any case the whole proceedings were considered important enough that the targets for air strikes were presented to him for approval.

However, as anyone who has been in combat must know, the target recommendations of the Board could not be inflexibly adhered to in every case. Frequently (in fact, more often than not) due to the rapidly changing situation, particularly in the attack, more immediately important targets arose that must supersede the prior planned targets. This does not seriously affect the Artillery in carrying out its role of Target Marking and shooting of the Counter-Flak Fires. Fifteen minutes' notice usually provides sufficient warning and many times accurate Target Marking and Counter Flak-Fires were accomplished in less time.

Once the target had been selected and the fighter bombers were on their way, there were four major concerns of the Artillery in assisting successful completion of the Dive Bombing mission. These were: 1. Communications, 2. Observation, 3. Target Marking, 4. Counter-Flak Fires.

COMMUNICATIONS

Normally the Division Air Support Officer received some advance warning of the approach of air support, and when the fighter bombers approached the zone of action he could communicate directly with them when they were five or ten minutes away.

A direct wire line was maintained between the Division Air Support Officer and the Division Artillery FDC. This line could be the normal liaison line established to Division Headquarters, and at the Division end can be operated by the Artillery Liaison Officer. Communications were established by wire (and also by radio if necessary) with the battalion to mark the target and fire from the counter-flak fires, and also with the observation. These communications were held open during the course of the target marking, the bombing, and the counter-flak fires, the latter two occurring simultaneously.

It is admitted that this method ties up considerable communications, but only for a very short period of time. Open communications prevented accidents from occurring on several occasions, so this was considered worthwhile.

Observation

Both ground and air OPs can be advantageously employed in this type of operation. The OP can adjust on the target selected for air strike so that there will be accurate target marking with no delay when the fighter bombers arrive.

Where the bombers operate in more than one flight the OP can quickly report sensings of the first bombs so that the Division Air Support Officer can relay corrections to the second flight. This is important in obtaining good results because sometimes there is a tendency for the bombers to try and hit where the first bombs fell, particularly when the target is hard to identify.

There is one very important advantage in using air OPs, as may be illustrated by the following incident. We had an Air Support mission scheduled, and when the fighter bombers approached our area, the Germans fired red smoke artillery shells into our lines before we had marked the target. Since we were using red smoke to mark Air Support targets that day we avoided having ourselves bombed by our own planes by the quick radio report of the Air OP. No bombs were dropped. We then proceeded to mark the target and deliver an air strike at the enemy. So it is wise to have the Air OP watch inside your own lines as well as the enemey's.

Finally, the artillery OPs can observe the over-all results of the air strike and make an immediate report to headquarters.

Target Marking

The target was marked with colored smoke, fired preferably by medium artillery. In cases of ranges too great for the time fuze used with colored smoke shells, white smoke or WP can be effectively used. Target marking was done with one or more pieces. If one gun was used, two or four rounds of smoke shell were fired at the target in quick succession. Even more rounds may be necessary. It can be said that the visibility governs the number of rounds placed on the target.

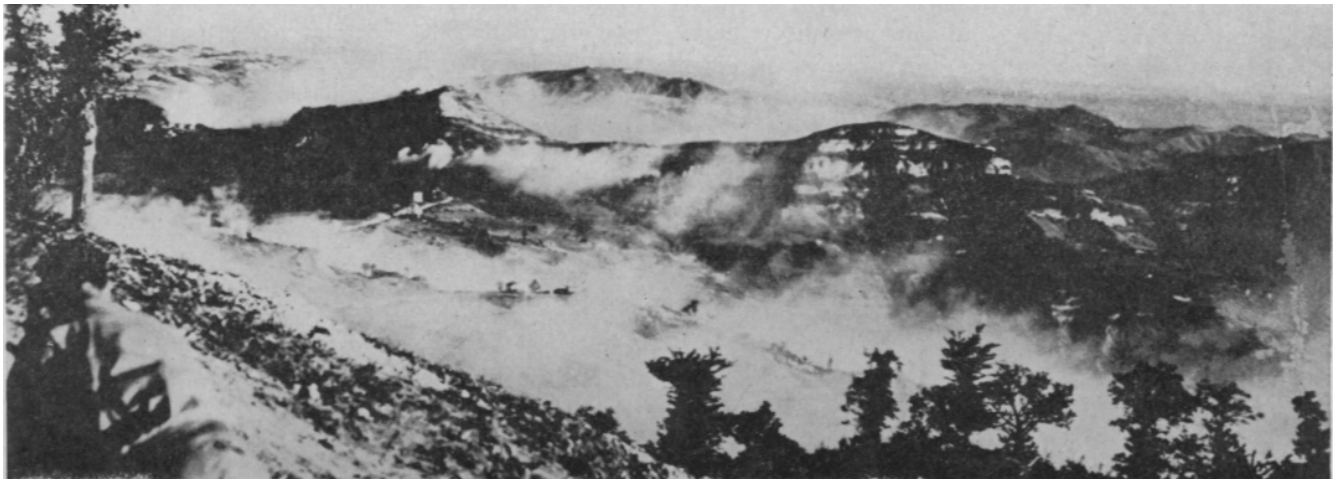
If time permitted, the target was adjusted on, before the arrival of the fighter bombers, using air or ground OP's. To aid deception colored smoke should not be used during the adjustment. If time did not permit an adjustment, then the OP sensed the round in relation to the target and the Division Air Support Officer could guide the planes on the target with direction in relation to the OP's sensing. If the fighters bombed in flights, adjustments on the basis of the first flight's bombing could be quickly made.

If it was felt that the enemy might retaliate by firing similarly colored smoke shells into our own lines to cause confusion, we adopted the "pattern" method of marking the target. Then we used an entire battery and placed three rounds in a triangle or four rounds in a square around the target. We have placed a triangle of three rounds of colored smoke around the target and dotted the center with one round of white smoke. The pattern to be used can be varied from mission to mission and need not be decided upon until immediately prior to marking the target, since it is a simple matter for the Division Air Support Officer to explain the pattern to the fighter bomber pilots just before they dive. Since the enemy has no way of knowing what pattern of target marking is to be used, his own deception must necessarily be limited to the mere throwing of smoke rounds into our lines.

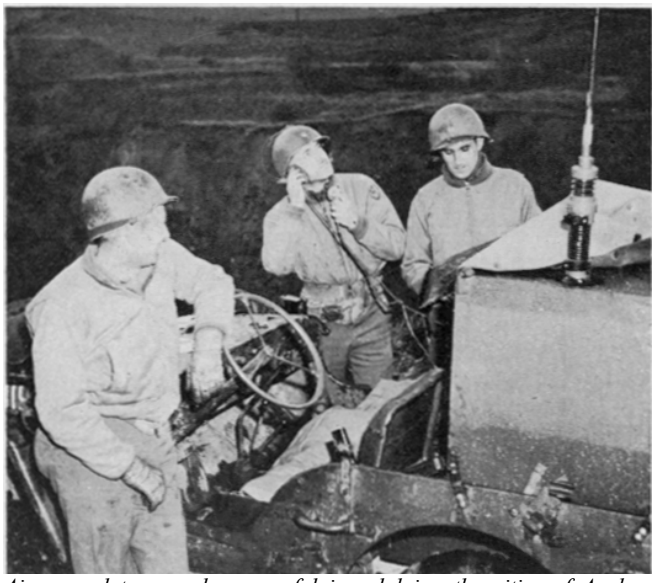
Counter-Flak Fires

In order to secure the best dive bombing results it is necessary that the pilots be protected in some measure from the enemy antiaircraft fire. This was accomplished by the firing of counter-flak fires with the primary purpose of neutralizing enemy flak guns during the bombing run and subsequent pull-out by the fighter bombers. This worked very successfully; usually the crews of the enemy flak guns were pinned down, and most of those who were not were so harassed that their aim was generally shaky.

We had three or four cases where bomber flights signified that they did not need counter-flak fires. They then encountered terrific flak barrages resulting in damage to air personnel and aircraft, and in incompleted missions. The same targets were later attacked by our aircraft employing the artillery counter-flak fires; results were good and the amount of enemy flak was negligible.



Results of air-ground cooperations are sometimes spectacular, as in this view near Bologna.



Air-ground teamwork successful in subduing the cities of Aachen and Metz as well as innumerable tactical targets, starts with small units like this. With the mike, a joint air-ground operations officer from the air forces directs fighter-bombers overhead to targets, from information supplied by the air-ground liaison officer standing next to him. If targets are not easily located, the liaison officer directs artillery to pin-point the planes' objectives. Radio operator is at left.

It is believed that normally the counter-flak fires can best be delivered by light artillery due to its greater flexibility and the ammunition transportation problem. During the first day of the crossing of the Roer River in Germany, however, we used a medium artillery battalion exclusively for both target marking and the counter-flak fires, with very fine results. It fired for 17 air missions involving a total of 136 aircraft, and there was no delay.

Every available intelligence source was employed to discover all known and suspected enemy flak gun locations. The Photo Interpretation Teams of Division, Corps, and Army provided most of the locations. Do not neglect your own photo interpretation, though, and the reports from observation posts, PW interrogation, civilians, and line crossers. All of this information was plotted on a chart and data kept on coordinates of gun positions, number, description, approximate caliber, and whether it was a known or suspected location. Each location was assigned a "Counter-Flak Concentration Number." Plotted overlays, with the above information, were made and disseminated to all artillery battalions and to the Division Air Support Officer.

The concentrations to be fired were determined as soon as possible after the target was known. When the fighter bombers were approaching, the guns were laid on the known and suspected flak positions. One gun was laid on each location, to be fired "at my command." After the target was properly marked and the fighter bombers reported that they saw the target, the command to fire was given and fire was delivered until the fighter bombers had completed their run. A rate of fire of one round per gun per minute proved successful, causing the enemy to keep his head low. The Germans rarely manned their guns under the blows of accurately delivered counter-flak fires. The bombing run, including pull-out, rarely took more than five minutes. Fire was continued until the pull-out had been completed.

If insufficient warning of an air support mission was received the target must still be quickly marked, and the counter-flak fire was still delivered with good results. Harassing rounds were placed on a line 800 yards to either side of the target on a line perpendicular to the gun-target line and at no more than 300 yards greater range than the targets from the friendly artillery guns. If your rounds are placed too deeply it makes the pilots understandably nervous of their own artillery. This method can be quickly started with little notice, and on one occasion a battalion was firing within 45 seconds of receipt of mission despite the fact that they had 12 guns shooting on 12 different locations.

The counter-flak fires are effective chiefly against light caliber flak. The theory that has to be followed is that the flak guns closest to the target are the most dangerous to our aircraft.

Target marking must be quickly done upon the arrival of the fighter bombers. Any delay gives enemy interceptors a chance to break up the bombing mission, and while our fighter craft are eminently qualified to deal with the enemy air, nevertheless, it robs the ground troops of valuable air support, perhaps at a crucial moment.

On the other hand there will be times when guns will be laid on the targets for marking and shooting of counter-flak fires, communications lines open, and observation alerted, and then the planes do not come. They may have been intercepted by enemy aircraft or run into foul weather, so don't be too irritated—they always get there if it is humanly possible.

Target-marking sometimes does much actual damage too. Here we see white phosphorous shells fired on Hill 2380, Lipa, Batangas, Luzon, by the 457th Parachute Field Artillery Battalion.

F. A. S. EVENTS

Col. Norman E. Poinier, a veteran of the fighting in the Pacific, where he commanded the 205th Field Artillery Battalion of the 41st ("Jungleers") Division, was named Director of the Department of Materiel, succeeding Col. William C. Huggins, who has held the position since December 1943. Col. Huggins was given an undisclosed assignment.

Col. Poinier had been Director of the Department of Gunnery since late August, when Col. Lewis S. Griffing left that post to become Executive Officer of the Field Artillery Section, Headquarters First Army, at Fort Bragg, N. C. Prior to his appointment as Director of the Department of Gunnery Col. Poinier had been Assistant Director of the Officers' Refresher Course in the Department of Gunnery.

* * *

Col. H. T. Brotherton, Peekskill, New York, S-3, Field Artillery School, was presented the Bronze Star Medal by Maj. Gen. Louis E. Hibbs, Commandant of the Field Artillery School, in the Commandant's office in McNair Hall.

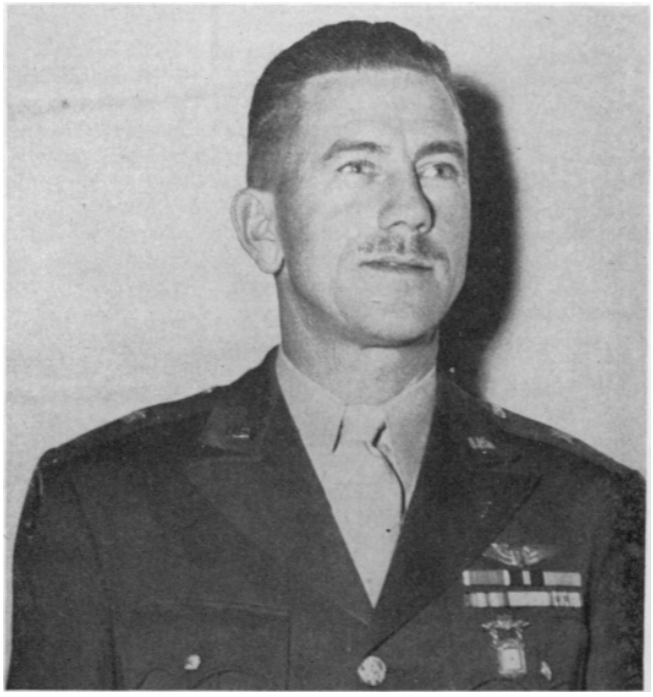
The award of the Bronze Star Medal was made to Col. Brotherton for performance of duties as Field Artillery representative on the Army Ground Forces Board in the Mediterranean and European Theaters of Operations, "which entailed many hardships, required professional judgment of a high order, and demanded long hours of study."

* * *

Fifteen officers of the Philippine Army were assigned as students to the Field Artillery School, in October. Twelve of them are attending the Officers' Special Basic Course and the other three are students in the Officers' Motor Course.

Attending the Officers' Special Basic Course are Col. Zoilo M. Perez; 1st Lts. Jacinto P. Alejandro, Benjamin M. Bayhon, Gregorio C. Katimbang, Rizaline P. Lacuna,

Brig. Gen. Williston B. Palmer has been assigned as Commander of School Troops at the Field Artillery School. In Europe. General Palmer served as Artillery Commander of the veteran VII Corps, which spearheaded the First Army from Normandy to the Elbe.



Brig. Gen. William W. Ford has returned to the School as Director of the Department of Air Training, which post he held when the Department was first organized in 1942. Gen. Ford was recently Division Artillery Commander of the 87th Infantry ("Golden Acorn") Division.

Benjamin T. Lima, and Nelson I. Regalado; 2nd Lt. Patricio C. Buyson; and 3d Lts. Antonio N. Concepcion, Felix Duenas, Timoteo Gabriel, and Leonardo D. Sangalang. Students in the Officers' Motor Course are 2nd Lt. Florencio de la Cruz and 3d Lts. Raymundo Sena Estacion and Anacleto S. Garcia.

All are veterans of combat in the Asiatic-Pacific Theater of Operations.

* * *

Col. Lewis S. Griffing has resumed his post as Director of the Department of Gunnery, after an absence of six weeks during which he served as Executive Officer of the Artillery Section of the First Army, which had been scheduled for a major operational role in the Pacific Theater.

Col. Griffing, who was overseas in the Mediterranean Theater of Operations with the Army Ground Forces Board, has spent several years at Fort Sill. He was a member of the Department of Gunnery from 1939 to 1941 during the development of the present fire direction technique, which is largely responsible for the superiority of United States field artillery in battle all over the world.

* * *

PERSONNEL CHANGES, 16 OCTOBER - 15 NOVEMBER

Arrivals

Name	*New Duty*
Col. Lewis S. Griffing	Department of Gunnery
Col. Alfred E. Kastner	S-3 Section
Lt. Col. E. H. Almquist, Jr.	Department of Materiel
Lt. Col. Leo W. Bagley	S-2 Section
Lt. Col. William J. Stover	Department of Combined Arms
Lt. Col. Robert N. Tyson	S-3 Section
Lt. Col. Milford W. Wood	Detachment
Maj. Carl E. Bobo, Jr.	Department of Air Training
Maj. Lawrence Bowlby	Department of Air Training
Maj. Harold L. DeSonier	Department of Communication
Maj. Duff Green, Jr.	Department of Combined Arms
Maj. Keith I. Ingalls	Department of Combined Arms
Maj. George H. Kitchen	Department of Gunnery
Maj. James A. Roming	Department of Air Traising
Maj. James C. Rominger	Department of Gunnery
Maj. A. F. Sherman, Jr.	Department of Communication
Capt. G. D. Arthur, Jr.	Department of Materiel
Capt. Vonual D. Beavers	Detachment
Capt. Tim M. Carigan	Department of Air Training
Capt. Frederick B. Fiigon	S-4 Section
Capt. Harold F. Griffin	Department of Gunnery
Capt. Robert S. Hanson	Department of Motors
Capt. Jake G. Lyons	Detachment
Capt. B. F. O'Connell	Department of Communication
Capt. Gust E. Olson	Department of Combined Arms
Capt. Heinz P. Rand	Department of Gunnery
Capt. H. S. Salmon, Jr.	Department of Materiel
Capt. Robert J. Tolly	Department of Observation
Capt. Stanley J. Turk	Department of Communication
Capt. Ernest B. Wilder	Department of Gunnery
Capt. Robert H. Winegar	Department of Motors
1st Lt. Randall R. Bell, Jr.	Department of Motors
1st Lt. Edw. E. Blacknall	Department of Motors
1st Lt. Clarence P. Bullard	Department of Motors
1st Lt. Harold O. Davis	Department of Air Training
1st Lt. Kleber E. Dunklin	Department of Gunnery
1st Lt. Paul W. Geddes	Postal Officer
1st Lt. William F. Gunkel	Department of Gunnery
1st Lt. Jesse L. Guthrie	Detachment
1st Lt. W. B. Hallenbeck	Department of Gunnery
1st Lt. Edgar M. Hill	S-4 Section
1st Lt. Herman H. Horst	Department of Motors
1st Lt. Jack C. Humphreys	Department of Combined Arms
1st Lt. Harley Hungerford	Department of Air Training
1st Lt. J. M. Jenkins, III	Department of Air Training
1st Lt. Richard E. Kohler	Department of Gunnery
1st Lt. William S. Kuehn	Department of Motors
1st Lt. John A. McDougal	Department of Motors
1st Lt. Harold G. Meiser	Department of Gunnery
1st Lt. Gotfried D. Moore	S-1 Section
1st Lt. Gerald C. Roop	Detachment
1st Lt. Robert D. Sage	Department of Motors
1st Lt. Allan R. Semstead	Detachment
1st Lt. E. N. Stillings	Detachment
1st Lt. Deane P. Wiley	Department of Air Training
2d Lt. A. A. Farbington, Jr.	Department of Observation
2d Lt. Wilbur T. Page	Department of Observation
2d Lt. Eugene M. Sire	Detachment

Departures

Col. Russell G. Barkalow
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Col. William C. Huggins
New Duty — Navy Dept., Washington, D. C.
Col. Lloyd S. Partridge
New Duty—Eastern Defense Command, Governors Island, N. Y.
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Lt. Col. Ralph R. Bush
Lt. Col. Lincoln M. Cummings
Lt. Col. Sheridan E. Farin
Lt. Col. Wiliam A. Lucas
Lt. Col. Houston L. Whiteside
Maj. Charles T. Ames
Maj. Gurnee H. Barrett, Jr.
New Duty — Rept. Station No. 2, Ft. Dix, N. J.
Maj. Francis C. Bartle
Maj. Roland W. Barlett
Maj. William T. Brian
Maj. Jerome W. Byrd
Maj. John W. Cochrun
Maj. Howard L. Crouse
Maj. Harold E. Fleetwood
Maj. Crawford E. Grenard
Maj. Harry E. Halock
Maj. Edw. B. January
Maj. Peter F. King
Maj. Stephen H. King
New Duty—Regional Hosp., Sheppard Field, Tex.
Maj. Ralph V. Lennen
Maj. Ronald G. Martin
Maj. John T. Neath
Maj. Harry A. Nelson
Maj. Robert Peebles
Maj. Harry A. Randle
Maj. Charles W. Ware
Capt. Newton E. Armstrong
New Duty—General Hosp., Ft. Sam Houston, Tex.
Capt. T. Dye Barnhouse
Capt. Clarence A. Bitts
Capt. Merlin D. Black
Capt. John R. Bossa
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Capt. John L. Bremer, II
Capt. Wendell H. Brewbaker
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Capt. Eluer Carlquist
Capt. Robert I. Coppes
Capt. Robert D. Cowan
Capt. Ralph L. Dale
New Duty—School of Mil. Gov't., Charlottesville, Va.
Capt. Warner F. Davenport
Capt. Clifford D. Ecklebarger
Capt. James E. Edmonds
New Duty—ASF, Washington, D. C.
Capt. Roscoe M. Egan
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Capt. Harry J. Uarke
Capt. Howard W. Perry
Capt. Philip D. Reister
Capt. Platho P. Scott, Jr.
Capt. Harmon G. Shively
Capt. William E. Smith
Capt. Georye N. Snow
Capt. John R. Turner
Capt. Douglas E. Walwyn
Capt. Samuel P. Woolford
1st Lt. Ralph M. Black
1st Lt. Harry M. Bramberry, Jr.
1st Lt. Clarence H. Brown
1st Lt. Thomas S. Burns
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For Heroism and Service

2nd OAK LEAF CLUSTER TO DISTINGUISHED SERVICE MEDAL

Gen. JACOB L. DEVERS

OAK LEAF CLUSTER TO D. S. M.

Maj. Gen. BEN M. SAWBRIDGE, for service from Aug 44 to May 45, in Corsica, France and Germany, as Assistant Chief of Staff, G-1, Sixth Army Group. He applied wide experience gained in the Mediterranean Theater of Operations to meet exacting standards in personnel functions. He organized and skillfully supervised a highly efficient staff and achieved particular distinction by his adeptness in meeting difficult requirements for reinforcements.

DISTINGUISHED SERVICE MEDAL

Maj. Gen CLIFT ANDRUS, for commanding the 1st Infantry Division in Germany from 8 Mar to 27 Apr 45. He protected the right flank of VII Corps during assault on Cologne, captured the key city of Bonn, crossed the Rhine and forged on to the Ruhr, led his division to western edge of Harz Mountains, and killed and captured all the enemy.

Brig. Gen. WILLIAM C. CRANE, for commanding the IV Corps Artillery from June 44 to May 45. He displayed exceptional professional ability and leadership in organizing, training, and commanding the corps artillery of the IV Corps during that phase of the Italian campaign which ended with the surrender of all German forces in Italy. During this period by his outstanding qualifications as an artillery commander, his superior judgment and thorough understanding of the tactical requirements, supplemented by painstaking personnel reconnaissance, he so disposed the corps artillery in exceedingly difficult terrain that the maximum artillery fire was brought to bear on the enemy at all times.

Brig. Gen. CHARLES G. HELMICK, for commanding the V Corps Artillery from Dec 44 to May 45, in Belgium, Germany, and Czechoslovakia. He rendered exceptional service in planning the employment and supervising the action of the artillery of the corps and the many infantry and armored divisions which it comprised. By masterly and decisive action during the desperate German counteroffensive in Dec 44, he not only saved his artillery from capture but also emplaced it so expertly that it stopped the onslaught of vastly superior enemy forces in its sector. Later, by careful and meticulous planning, he assured timely artillery support of the corps' attack on the Siegfried Line and continual battering of the enemy, during the Rhine crossing and the subsequent drive through Kassel and on to Leipzig and the link-up with the Russian forces.

Maj. Gen. LOUIS E. HIBBS, for acting as Commanding General 63d Infantry Division during Mar and Apr 45 and being responsible for the success of his division in breaking the Siegfried Line, crossing the Rhine, and capturing Heidelberg.

Brig. Gen. WARD H. MARIS, as Commanding General XXI Corps Artillery, in France and Germany, from Jan. to May, 1945 directed the Corps and Division artillery, and supported the operation of the Corps in the reduction of the Colmar pocket, breaking the Siegfried Line in the Seventh Army sector, reducing Wurzburg, and crossing the Rhine and Danube rivers.

Brig. Gen. JOHN E. McMAHON, JR., for commanding the VIII Corps Artillery from Sept 44 to May 45, in France, Belgium, Luxembourg and Germany. During the German Ardennes counteroffensive he swiftly synchronized activities and reorganized disrupted elements. In breaching the Siegfried Line, he provided powerful artillery support to infantry and armored units, moving his heavy equipment to favorable positions despite the complete deterioration of roads. When the assault crossings of the Moselle and Rhine rivers were undertaken, he directed his units in delivering devastating concentrations of artillery fires.

Col. BERNARD R. PEYTON, for serving as Executive and later Chief, of the G-3 Planning Division, General Headquarters, Southwest Pacific Area from Dec 43 to Apr 45.

Brig. Gen. (now Maj. Gen.) EDWARD W. SMITH, for rendering exceptionally distinguished service from March 42 to October 45 as Executive for Reserve and ROTC Affairs and as President of the Secretary of War's Disability Review Board.

Brig. Gen. JOHN F. UNCLES, for commanding the 34th Field Artillery Brigade and reinforcing artillery of the Ninth Army from Nov 44 to May 45. He assembled a large mass of artillery and tank destroyer units, supervised their training and equipping, and led them and his brigade in performing many and varied missions of artillery support. In the vast concentration of guns for the crossing of the Rhine, he supervised and controlled the fires of 13 battalions of medium, heavy and super-heavy artillery and the activities of five field artillery groups.

Maj. Gen. ORLANDO WARD, for commanding the 20th Armored Division from Mar to May 45. He prepared his forces for combat by initiating an intensive training program, and then committed them to battle for the first time in the Ottingen-Nordlinger sector. Despite heavy resistance, the skill of the division and the tactical ability of its leader brought quick victory. During the pincer movement to take Munich the division drove forward with great speed and seized intact three bridges across the Danube River and pressed on to the Paar River where desperate enemy resistance was overcome by expert maneuvering and crippling blows. In the northern section of Munich's main defenses, where fanatical SS troops fought with great tenacity in prepared positions, the 20th Armored Division launched a coordinated attack which swept the hostile forces before it. General Ward's superior leadership throughout the campaign was directly responsible for the excellent combat record compiled by the division.

BOOK REVIEWS

ARMS AND POLICY. By Hoffman Nickerson, 346 pp.; bibliography; index; maps. G. P. Putnam's Sons. $3.50.

Maj. Nickerson has here written one of the most lucid and important books of the year.

In Part I he sets the stage. He views World War II as "the fourth bout of prolonged mass warfare in human history," so begins with a brief but penetrating account of the first three and their import—the Revolutionary-Napoleonic war from 1792 to 1815, our Civil War, and World War I. The stage setting of 1939 is followed by a clear discussion of the opposing war plans at the outset of World War II.

Part II, which he terms "Decisions," accounts for nearly half the text. It is a careful description of this last war, in detail through 1944 and with some later bits. In many ways it is perhaps unfortunate that *Arms and Policy* was scheduled for publication in the fall of 1945, as during the period between writing and printing many very important events took place. On the other hand, however, last-minute revisions permitted account to be taken of the atomic bomb and its problems, and with so much mechanical work already out of the way the book comes to us much sooner, and at a more useful time, than could otherwise have been the case.

Finest and most important is the third Part, "Lessons." In it are pointed up what the author considers the most significant strategical and tactical things to be learned from events of the last six years. He also discusses frankly our possible postwar military policy, and the possibilities of future peace.

The most significant development has been *proof* of the triumph of the gun. And by "gun," incidentally, Maj. Nickerson does not mean just "artillery" in the accepted sense of the term, but rather any team weapon—"one which cannot be carried and fought by a single man on foot or mounted on a horse." He excludes, too, the weapons carried by planes or fighting vehicles, for their use is further complicated by special usages and by their combination with the "iron horse" or internal combustion engine.

But finally and forever has passed the day when power was reckoned by the number of pikes, lances, rifles, or bayonets at a commander's disposal. The machine gun and cannon, infantry heavy weapon and rocket launcher, crew-manned weapons of all kinds now dominate the battle field and have both subordinated the old-fashioned or "true" infantryman and abolished the cavalryman. And development of the plane-tank team has changed the face of war more quickly than change ever came before.

In a chapter entitled *Air Power and Team Play*, Maj. Nickerson's cold, dispassionate logic demolishes the claims of Maj. Seversky and other extremist proponents of air power. Not that the author is always calm—he writes too strongly for the reader not to feel his scorn. He is most incensed at the disparity between claims of what air power can do and what it actually does accomplish. And that statement, of course, does not minimize in the least the undoubted achievements of the air forces of the world. The point is that not all who refuse to swallow both bait and sinker are dodos; not all bombardment destroys or even hits its designated target; not all flights furnish the most economical way of destroying the enemy or even of breaking his will to fight; and perhaps above all, from the viewpoint of morality—old-fashioned morals, if you will—air bombardment more than any other form of warfare involves a certain amount of indiscriminate killing of noncombatants. It is in this latter manner in which the atomic bomb, however launched, will be an even more fearful and destructive weapon.

Thoroughly interesting is the discussion of our future military policy. At present it appears to be viewed by the public chiefly in terms of cases and of universal military training. These, however, involve a third and more fundamental question: do we intend to seek imperialism, or will we be content with mastery over ourselves? The answer is not a simple one, nor is Maj. Nickerson entirely "on the beam" in all of his discussion. For example, in arguing toward what some might tag as a form of "isolationism" he insists that our distance from other continents still gives us great protection; he seems, though, not to have peered at the top (north part, if you prefer) of a globe, noted the relations and distances of other land masses to our own, and considered with these facts the speed and range of modern planes and other missiles. Except geographically, though, his arguments have much force.

Finally he raises the question as to whether we must have a World War III. Many things bode ill for the future, and Maj. Nickerson is not one to view through rose-colored glasses. He does, however, have faith in mankind's ability to find a solution other than mass murder and mass suicide. He gets back to fundamental human morality as, really, the sole source of our human salvation. There are signs of it in the offing, and perhaps an awakening world citizenry will once more put it to work. Honestly exercised, it would be not a reed but a stout and reliable rod.

Throughout his book Maj. Nickerson constantly draws from the past, uses it to illumine the present, traces developments through the centuries in order to make his points crystal-clear.

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In so doing he retains a fresh and vigorous style, with a humor sometimes light and sometimes biting. He is "reactionary" only in the sense that he doesn't blindly accept purported panaceas. *Arms and Policy* well deserves a widespread and careful reading.

TOMORROW'S HOUSE. By George Nelson and Henry Wright, 210 pp.; illustrated. Simon & Schuster. $3.00.

This book is unfortunately ballyhooed as "a complete guide for the home builder." Such a book has yet to be written. But within its sphere, *Tomorrow's House* offers considerable sound advice and makes out a quite strong case for so-called "modern" architecture.

Its main theme might be called "functionalism." The uses of a dwelling and its several parts are taken apart and looked at, and practical suggestions made as to how to best provide for them. This extends not only to arrangement, but to materials, fixtures, machines, furniture, etc., as well.

As editors of *Architectural Forum* the authors are in a good position to know whereof they speak. At the same time, as enthusiasts for the new they focus much of their attention on the advantages of new materials and the like without paying too much attention to the drawbacks of a good many of the new products. Also, whereas extreme efficiency is desirable in (say) a manufacturing plant, most people look upon home as a place in which to putter; they want an attic in which to store away things that maybe really *ought* to be thrown out but for which they retain a sentimental attachment; they want a place capable of littered informality, "hominess" if you want to use the term. Perhaps much current architecture gives some people the shudders—but it is what the public as a whole wants and pays its money for, and as the one who foots the bill John Q. should have a voice in the matter.

By the same token, of course, those who want "modern" architecture should be able to have the best available within the limits of their purses—and that's where this book comes in. Its advice is good, and its concrete examples and magnificent photos of what has already been done should give the prospective builder some fine ideas for working into his own dream house.

FAIRY TALES FROM NEAR AND FAR. Selected and edited by Felix Salten. Illustrated in color by Elice Johnson. Translated by Clara Stillman. Philosophical Library, N. Y. $2.00.

The author of *Bambi* shows his usual good taste, humor and discrimination in these carefully selected fantasies from Russia, China, France, Arabia, Turkey, India and other child-entrancing places, both near and far. Once again, moreover, Felix Salten captures the trick of using every-day language in a conversational manner which reduces Caliphs and Princes to our ordinary understanding without losing the richness and glamour of magic.

Grown-ups who read aloud at bedtime will be relieved to hear that all twenty-one stories have happy endings, and that the animals are pictured with sympathy and kindness. They will recognie many familiar faces such as the little tailor in *Seven At One Blow*, the shoemaker in *The Little Men*, and the wise young girl in *Sevenyears*. Every legend, however, makes it clear that all peoples are alike in their basic emotions—a fact which will endear the various characters to younger readers who think and act as they do.

This book is abundantly illustrated and although the artist slipped up on the interpretation of two articles—points bound to be noticed and questioned by children—no great harm is done.

Fairy tales fit any age, so if the child is reaching out beyond the *Mother Goose* and *Three Bears* stage, this friendly book will prove a perfect stepping stone to realms of kings and castles.

S. L.

HISTORY OF WORLD WAR II. By Francis Trevelyan Miller, 967 pp.; illustrated. John C. Winston Co. $5.00.

It is a mite hard to approach a monumental work of this kind. Work on it has been going on for four years, nearly all over the world. Two hundred editors in thirty countries helped Dr. Miller make this book as complete and as accurate as possible. Then,

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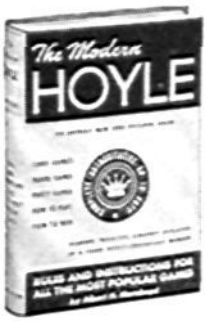

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So much for background. What of the book itself?

Its story begins before the first overt acts of war against Poland in '39; in fact, that isn't covered until the twelfth out of 102 chapters. Quite properly, the phenomenon of Hitler, the Nazi plot against the entire world, internal German matters, and Germany's relations with Austria, Czechoslovakia, etc., first appear in proper perspective.

For the period of the war itself, event after event is set forth factually, yet tied into the major forces and events. The whole drama and pageant is as well covered as will be possible until mountains of records can be carefully combed for a truly definitive history of the war.

Along with the text are over 200 photographs which in a sense parallel it to tell graphically much of what the words describe. A good many of these are newly culled; others, already familiar, deserve much repetition "lest we forget."

A chronology of the war years closes the book.

For reference use as well as for plain good reading of what transpired, this *History of World War II* is excellent indeed.

SO FAR SO GOOD. By Charles Hanson Towne, 237 pp.; index; illustrated. Julian Messner, Inc. $3.00.

For the past forty-odd years Charles Hanson Towne has been a leading figure in our country's literary, theatrical, and social worlds. He has been editor of *Smart Set, The Delineator, Harper's Bazaar, McClure's*, and other magazines; in the course of that work he has not only known but helped discover some of our greatest authors. Dreiser, Masefield, Tarkington, Markham, Howells, Cabell, Gale—his friends are legion. The world of the stage is his world too, as actor, commentator, columnist, and friend.

His youth was in the golden age of late-nineteenth-century New York. From the beginning his life has been full, varied, full of people. His reminiscences make delightfully warm reading. They recreate eras and epochs the like of which may not again be seen, but which make one wish he could, himself, have known them.

ENCYCLOPEDIA OF RELIGION. Edited by Vergilius Form, 844 pp. Philosophical Library, $10.00.

Under the central guidance of the president of the American Theological Society, a hundred and ninety scholars shared in the preparation of this work. Each is an outstanding man in his own religion, denomination, or cult. Each speaks with authority: for instance, articles by men of the Roman Catholic church carry the imprimatur of their religious superiors.

Topics include the widest range of the field of religion. Authority, simplicity, and succinctness mark the writing. Subjects are treated historically and descriptively, not apologetically. Each contribution is so keyed that its author can be identified; and the positions of the writers are given in an alphabetical listing.

The whole is well arranged and cross-indexed for convenient use. Although of only desk size, it contains such a wealth of material as to be extraordinarily useful for reference.

AMERICAN SOLDIERS IN SIBERIA. By Col. Sylvian G. Kindall, 251 pp. Richard R. Smith, $2.75.

Our first combat with the Japanese came not in December, 1941, but more than twenty years earlier. In 1918 some 10,000 American soldiers were sent from the Philippines to Siberia, where they did guard duty along the Trans-Siberian Railroad at the time when Russian Reds were still fighting the Whites, the latter at times abetted by the Japs, although the little men were generally playing just their own wily game. They stayed until 1920. They were the so-called "Graves Expedition," named for their commanding general.

Col. Kindall took part in this expedition, as a young lieutenant. He tells of the contrasts and conflicts, of intrigue and treachery, of clashes both verbal and more serious. He had a good look at

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the Japs and their mentality. His detailed account is one of the few that have been published. It has both the virtues and the defects of any personal narrative, but without question illumines a little-known part of our military history.

RENDEZVOUS BY SUBMARINE. By Travis Ingham. 248 pp., index. Doubleday, Doran & Co. $2.50.

This exciting narrative of Commander Parsons and his work in organizing the Filipino guerrilla resistance uncovers a portion of the story that will be many years in the telling. As in all hot-off-the-griddle military yarns this leaves great holes in the information eagerly wanted by military readers, but here is probably as much of the story as can now be told.

The fall of Corregidor left the woods and hills and waterways of the Philippines full of Filipinos and Americans who refused to surrender. These bodies of loyal men would have been useless to the Allied cause, in fact they would have proved detrimental, unless they had been organized and supplied and trained to fight in cooperation with Allied operations. Commander Parsons was given the task of welding these desparate bands into organized fighting units, and seeing that they were supplied. How he did it, and how the resistance movement bluffed and fought and outsmarted the Japs, supplies the story told by Travis Ingham.

R. G. M.

REPTILES OF THE PACIFIC WORLD. By Arthur Loveridge. 245 pp.; bibliography; index; illustrated. The Macmillan Co. $3.00.

In the Pacific area reptiles and amphibians have retained both the size and the characteristics of their prehistoric forebears. Here are found eight-foot turtles weighing three-quarters of a ton, ten-foot lizards, and pythons that stretch all the way from here to there. But here too are found smaller cold-blooded animals at least as interesting and much more useful to mankind.

Of all these Dr. Loveridge writes in a fascinating way. It would take more than even his descriptions to make me like some of his subject animals, but he does rouse interest. He also includes information on collecting, preserving, and shipping that are applicable far beyond the Pacific world.

THE WOLF. By Sgt. Leonard Sansone. 90 pp. Crown Publishers. $1.00.

Sansone's "wolf" is about as famous as "Miss Lace," creation of Milt Caniff (who wrote a foreword for this collection of cartoons). It's fun to speculate as to what might happen if the two of them should meet! Meanwhile, here's a grand group of sketches showing the master pickup in action.

LOWER DECK. By Lt. John Davies, RNVR. 180 pp., illustrated, glossary. The Macmillan Co. $2.00.

This robust, humorous, and sometimes thrilling yarn of seamen's life in a British destroyer in the Mediterranean rates five stars from this reviewer. Lieut. Davies received his commission the hard way—through the naval equivalent of OCS—but as hard as it was he kept his eyes and ears and sympathies open for the "common" seamen, and has turned in a grand report of life between the decks.

The danger, the boredom, the fun, the "feel" of destroyer life are told sympathetically, perceptively, and with a fine sense of humor. This book is totally different from Nicholas Monserrat's *H.M. Corvette,* but it ranks right with it in this reviewer's opinion —and that's no small praise.

R. G. M.

ALASKA: Promyshlennik and Sourdough. By Stuart Ramsay Tompkins. 304 pp.; bibliography; index; maps. University of Oklahoma Press. $3.00.

Spain, England, Russia, the United States. Captain Cook, Bering, Baranov, John Jacob Astor. These are but a few of the great names touching that great region which we purchased in 1867.

All know that the Territory is fabulously rich, but not so many realize that its history is equally colorful. And its future promises to be equally bright, due in considerable part to this land's strategic position among the world's coming air routes.

This story has been told before, but in this recounting Mr. Tompkins brings a first-hand knowledge of the place and a love for it that are seldom found. A Canadian, he was educated on both sides of the border. As a superintendent of schools in the Yukon Territory he became intimately acquainted with both Alaska and the North Canadian area. He tells of early history and of the Klondike; of Muscovites and sourdoughs; of government and of boundaries; of seals and of agriculture. He paints a good picture.

THE GOLDEN CARPET. By Somerset de Chair. 244 pp.; index: illustrated. Harcourt, Brace & Co. $3.50.

We need more books like this, books that concentrate on small but immensely important aspects of war. Books that are clear and detailed. Accounts that give the very "feel" of the operation and the reactions of men, not just baldly paraphrase official reports and pretty well let the matter drop there.

Capt. de Chair's story is concerned with the Near East in 1941. German agents were extremely active that spring, fomenting revolts among the tribesmen. They had some success in Iraq, even though the Iraqi army was British-trained and equipped. Matters were not going too well with the Empire those days. Troops were scarce. But 750 of them went through Palestine, crossed the desert from the west, and captured Baghdad from 40,000 Iraqi troops! What's more, they held the place until reinforcements from India could arrive!

It was as Intelligence Officer that de Chair was with this column, dubbed "Kingcol" for its Brigadier, Joe Kingstone. He stayed on too for further operations, the crossing of the Syrian desert to surround and capture the fortress of Palmyra.

When speaking of persons and events in that part of the world, it is easy to appear glib and to draw comparisons with Lawrence. The publisher did, for example, in preparing the book's dust jacket. I cocked an eye at that description, thinking an overenthusiastic copy-writer had slipped a cog or two. Not so, however, I was to find. For de Chair is nearly as penetrating in his observations as was Lawrence. And just as from Lawrence's accounts of operations the man Lawrence emerges clearly, even though never described directly, so does one obtain a distinct picture of de Chair from *The Golden Carpet*.

THE SHENANDOAH. By Julia Davis. 360 pp.; bibliography; index; illustrated. Farrar & Rinehart, Inc. $2.50.

Economically speaking, the Shenandoah is not one of our "great" rivers. It was not a pathway to the west. No great industries are found on its banks.

Few rivers, however, dominate a section as rich in history as is the valley of the Shenandoah. First stream west of the Blue Ridge, it was already settled by Pennsylvanians when the tidewater people began to spread out. It furnished a half-dozen generals to the Revolutionary forces.

Its people were hard-working, conservative. Few among them owned slaves. But after John Brown's affair at Harper's Ferry at the foot of the valley, there was only one place for their sympathies. After all, their forebears had been Virginians long before there was a United States. Up, down, and across the Shenandoah were fought the classic battles of the Valley Campaigns. Staunton, New Market, Front Royal, Winchester, and many another place found their names indelibly in the history books.

Now the valley is as peaceful and pleasant a spot as it ever was. Its economy has been restored. Automobiles from every state visit Luray and its caverns, and bear away bumper advertisements. The Skyline Drive along the Blue Ridge is one of the world's most gorgeous highways. And descendants of Scotch Covenanters and Germans from Pennsylvania still live there and love the place.

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full of odd little sidelights and scraps of interest, as well as the steady, pulling theme of the larger course of history.

SCIENCE OF THE SEVEN SEAS. By Henry Stommel. 203 pp.; index; illustrated. Cornell Maritime Press. $2.50.

A good many Americans have had their fill of the sea. When they teach port after service abroad they don't care if they ever see the ocean again.

On the other hand, many will have acquired the wanderlust—an itching foot, as it were. Others will have learned to love the wide water. And yet others live or will live near the sea. For all these (and also for the inlander who likes the water) *Science of the Seven Seas* will be a delight.

Don't be scared away by the term "science." This is no dry text; not in the slightest. It is a compilation of fascinating, easy-to-read information about the seas, winds, and stars. Without being too technical, the book describes and explains the natural phenomena found at sea. The author draws on many fields—oceanography, geophysics, hydromatics, astronomy.

His descriptions are divided into three parts. The first ("The Sea") describes waves, the ocean bottom, sea water, tides, ice, currents, shores and islands. Under "The Sky" come atmospheric optical illusions, a description of the upper air, fogs and clouds, lightning, winds, and the celestial bodies. "Ocean Life" is self-descriptive. The whole is well and profusely illustrated by both photos and clear line drawings. The whole, too, is a fine example of the practical and well-prepared books of this publisher.

THE RIVER MATHEMATICS. By Alfred Hooper. 395 pp.; index; illustrated. Henry Holt & Co. $3.00.

THE ART OF CALCULATION. By Henry Sticker. 256 pp. Essential Books. $2.00.

Each in its own special way, these two books hold considerable interest and can be of much practical help.

Mr. Hooper's book integrates the branches of mathematics. It traces the developments through 40 centuries, from the days of the abacus to those of the marvels of modern engineering. He follows from the brooks of childhood addition, subtraction, decimals, and fractions. With the addition of algebra and logarithms the stream widens. When geometry, trigonometry, and calculus join the flow, the tides and currents become so complex that a pilot is needed. Mr. Hooper serves as that pilot, and he does a first-class job of clearly and logically detailing the history and inter-relationship of the several branches of mathematics. Excellent illustrations, diagrams, and practical examples are a distinct aid, too.

As Mr. Sticker says, "Arithmetic is a science, but calculation is an art. Science is knowledge—art is skill." And he bends his efforts to help develop that skill, that familiarity with the subject that facilitates complex calculation. His aim is to develop *number sense*. or "the ability to recognize the relations that exist between numbers considered as whole quantities, and to work with the thought of their broad relations always uppermost." This he does through step-by-step exercises, essentially in mental arithmetic. These progress from the simple to the difficult, without regard to whether addition or division may be involved. His system *works*—at least, for this reviewer and the friends on whom he's tried it. Pocket size of the volume makes it easy to keep at hand, ready for a few minutes' dipping into.

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EXPERTS AGREE

Ten people whose business (as well as pleasure) is to read books have selected what they consider the outstanding publications of the past year. In a surprising number of instances they agree. Here are their choices in the *non-fiction* field.

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