The FIELD ARTILLERY Journal

FEBRUARY, 1945

LT. COL. JOHN E. COLEMAN, *Editor*
MAJ. BERTRAM H. WHITE, *Assistant*
LENNA PEDIGO, *Business Manager*

FOR THE CHRISTMAS just past we were able to be of more service than ever before, in handling the gift problems of our scattered members. Your JOURNAL'S entire staff appreciates this opportunity. And all members profit from it, even those who did not take advantage of our facilities. Because, you see, all income is ploughed back into the JOURNAL to make it as useful, interesting, and attractive as possible.

Remember, please, that this service isn't limited to the holiday season. It continues throughout the year. Whenever you want books of any kind and on any subject, for yourself or for a friend or relative anywhere, get in touch with *your Association*. Our service is prompt, books are securely packaged, in almost all instances you can save a substantial sum, and you will be helping provide a better FIELD ARTILLERY JOURNAL

You who know our service are steady, repeat customers. To the others we say, just give us a trial—you'll be convinced.

ONCE MORE we say, if your JOURNAL isn't reaching you, drop us a line with your new address. The chances are that you've had a move that came so suddenly you overlooked that detail.

And if deliveries are slow to you overseas folk, send along an extra dollar a year and your copy will reach you by first class mail. We're mighty sorry to have to charge extra for this special service, but we have no advertising revenue or government subsidy and enjoy no special favors. Consequently we must ask reimbursement of the actual extra expense involved.

MUD has been a constant enemy in all theaters, both on the road and at firing positions. Experienced units undoubtedly have many "tips" for others, both about combatting it in general and with special reference to anchoring trails. Material on this subject will be especially welcome.

ERRATUM: In line 19, second column, page 9 of last month's JOURNAL, "7 wounded" should read "77 wounded."

OUR COVER shows an 8" gun executing direct fire against the He de Cezembre from the mainland near St. Malo.

The Field Artillery Journal

FEBRUARY, 1945—Vol. 35, No. 2

Published monthly by the United States Field Artillery Association. Publication office 3110 Elm Avenue, Baltimore 11, Md. Editorial and general offices United States Field Artillery Association, 1218 Connecticut Avenue, Washington 6, D. C. Address all communications for publication to the Washington office. Entered as second class matter August 20, 1929, at the post office at Baltimore, Md. Accepted for mailing at the special rate of postage provided in Sec. 1103, Act of October 3, 1917, Copyright, 1945, by The United States Field Artillery Association. Subscription price $3.00; Canada $4.00; foreign $3.50; single recent copies to members, 25 cents; non-members, 35 cents. THE FIELD ARTILLERY JOURNAL does not accept paid advertising. It does pay for original articles accepted but unsolicited manuscripts must be accompanied by return postage if they are to be returned. ***Addresses and ranks will be changed as frequently as desired, upon notification; not otherwise. Changes should reach the editor three weeks before date of next issue. Immediate notice should be given of any delay in the receipt of the magazine.***

Variations From Standard

By Maj. James F. Cantwell, FA

Reminiscing makes amusing today what wasn't so amusing three short weeks ago. Then our armored field artillery battalion, attached to a small armored task force, was spearheading across France through the night, as we had done so often before. We were expecting soon to see less friendly faces lining the streets and roads.

At dawn on a morning in September many different reactions were felt, I'm sure, when a street sign showed "Hitler-strasse." The souvenir complex of us Americans showed up—many desires were expressed to take along that sign. About that time considerable gun fire was heard toward the head of our column, and some artillery fire which proved to be our "A" Battery silencing a mortar with direct laying at a hundred and fifty yards. After some delay the column moved on, and without further incident eventually occupied position before a town just west and north of a river.

Our positions were of necessity in open and flat country. A quick reconnaissance located a welcome ditch about three feet deep and well opened up in width as it turned a definite corner; it had a good covering of brush at the turn for our FDC tents (which contrary to many former beliefs we always found practical to erect, usually in pairs, and keep up at all times). Before the remainder of our vehicles had come into position my operations sergeant and I gathered a German radio transmitter, approximately a dozen new bicycle tires of German manufacture, and a half dozen German uniforms, which indicated either their owners' departure in a hurry or more likely their changing into civilian clothes. As our organization progressed the First Sergeant of "C" Battery arrived with a dozen German prisoners taken from the brush in his area. His first remark was. "We have plenty more to bring up." They totalled 39, so we knew that again we had surprised the Germans by the rapidity or audacity of our advance and had caught many of them unawares in the early morning hours.

Our first mission was "10 Germans working at the end of a bridge." During the mission we received a "cease firing" white flag flying, then a few minutes later a request from the FO to continue mission as the Germans had finished their job under the white flag and blown the bridge in the infantry's faces as they approached.

During this period a considerable number of shells were landing on the opposite side of the road from our position. We were lulled into a false security when we interpreted this to indicate the enemy's lack of observation. Shortly after this we found out our mistake as the shells began falling in and around our positions. We took this shelling all day and throughout the night. It often amazed me that our casualties were as light as they were: during this period we had but four. We could watch the gun sections as they performed under this shelling. When one trailer was hit and ammunition started burning a chief of section and his tank driver pulled it off and extinguished it with the fire extinguisher. During another heavy period of shelling all wire communications were blown out. We watched members of the wire sections reinstalling intercommunications between tanks and start new wire toward the FDC as the shelling continued.

Battery "C," being forward, was subject to and kept pinned down by heavy sniper fire. During one fire mission the executive reported, "Recuperator tank on No. 5 perforated by sniper fire," and several minutes later reported "leveling bubble on No. 3 broken by sniper fire, continuing fire with gunner's quadrant until we can change bubble from disabled No. 5." At another time they observed a railroad car being cut loose from up-grade and rolling toward their battery position, with their flank sections receiving fire from the car. Reacting quickly, the executive turned one tank around and as fast as the men could fire placed three rounds of HE and one of WP into the car. This stopped the car and the personnel scattered. This battery after a thorough reconnaissance on the part of the BC fired several direct laying missions on enemy trenches and sniper nests during the day.

An attempt to take the town was made that afternoon by a small force of tanks and infantry supported by infantry weapons, but did not succeed and we shelled the town heavily to cover their withdrawal. The following day the intensity of the shelling increased; at one time FDC and "A" and "B" Batteries received a sustained and concentrated barrage which convinced us that our tanks were being adjusted upon. One battery took three near hits with 13 casualties.

By now the infantry was completely filling up our trench line, usurping our trenches as fast as our men would leave them and using our FDC tents as circulation along the trench. It was decided to displace to the town approximately 1,500 meters to our rear, to get some concealment for our pieces. This still left us within easy range of any targets to the south and did not affect our coverage to the east. The displacement was accomplished by infiltration—or perhaps I should say a run for it, with the Jerries trying a little duck shooting as we headed up the road with no one wasting any time on the trip. A large culvert under the road had been taken over by a group of our men and others. During this shelling of our tanks going up the road, the Jerries got that one-in-a-thousand and hit directly at the mouth of the culvert, killing about eight men and injuring several more. With this exception it was the old Fort Sill principle of FEX 218, Able Battery taking over the firing chart and continuing the support until FDC was in the new position.

As I hit the ground in town to find a good basement for FDC to occupy I heard one of our planes call in a fire mission, and it was with pride that I heard "B" Battery's executive come back with, "Send fire mission." I knew he was just about getting to his position, as he was behind me. A few minutes later I heard his "On the way" and knew that the principles we had learned were sound. He had laid his base piece and was adjusting. The remainders of his battery was probably still on the road, but wouldn't be very long.

This brings us to the point of this story. We displaced "A" Battery and registered the battalion to the east across the river and "B" and "A" Batteries to the south, on a town. The battalion CO, being aggressive and conscious of the need of the infantry for artillery support and the necessity of our being prepared to give it when they wanted it, had investigated the situation around the perimeter. He discovered that in addition to the south and east, our north flank apparently was vulnerable and very lightly outposted and that the west, as we

had surmised, was a big question mark. We were well in advance of all other elements, the other parallel columns having stopped short of our advance; this gave us a 6400-mil exposed flank. Until then we had two observers with our air section on continuous patrol, a battalion FO with the tank battalion, another as a roving battalion OP, and two battery ROs with the infantry to the south and east; the third battery RO in his half track had attached himself to the force who entered the town the day before, in an attempt to give them some needed artillery support. We now assigned an assistant executive as an FO with the infantry elements to the north and hoped that the west, which apparently always remained a question mark, was the same for Jerry. "C" Battery (less one gun) was turned and registered to the north. The observers adjusted normal barrages in all three sectors; one battery covered each. In the meantime Battery "C" had pulled out one gun and occupied a surveyed position on the outer edge of town and was registered on a check point in a town to the south. This gun expended 75 rounds harassing the town and its approaches throughout the night, and 50 rounds the following night.

Our positions were unusual, so say the least. We occupied front lawns, garden patches, enclosed courts, and various and sundry other niches. All of these provided us with most of the essential requirements of a good position. As the executives of an armored unit are accustomed to considerable dispersion of their pieces, they felt no handicap in not being able to see any of their tanks.

The real show started when daylight arrived and the observers began picking up targets—a machine gun nest to the north, a mortar being dug in to the southeast, an OP being dug in to the southwest, then gun flashes in the woods to the northeast, suspected OP in church steeple to the east, enemy activity to the south, an infantry squad digging in to the southwest. This continued at regular intervals. Many times the FOs requested that FDC leave one gun or platoon on the target to permit rapid neutralization if further activity became visible. This often was justified, as the enemy would take immediate cover and the FO frequently would not be able to determine any effect. With a total of eight observers this rapidly created the necessity for an active battalion front of approximately 4000 mils, limiting the average target to one gun or at most a platoon and repeating the fire for effect if necessary. Our SOP had followed the old F.A.S. principle of leaving the guns laid on the last target until the next mission, but this finally broke down. Executives would ask rather pathetically at times, "Where do you want me to leave this gun or the platoon?" and I would truthfully answer, "I'll be ——— if I know!"

It finally became necessary to work out an understanding with the executives so they could anticipate events and alert the proper guns. This was accomplished between the executives, the computers, the HCO, and myself in various ways depending on the manner in which the individual battery was covering a sector or sectors. With "A" Battery we used 1st or 2nd platoon or an individual gun of either platoon. With "B" we gave "Adjust direction of fire south," etc., this executive preferring to select for himself the gun or platoon he could most quickly place upon the target. In the case of "C" Battery, which eventually covered the north sector but had one gun registered to the south, we used "South gun adjust" or "Adjust north." It was not unusual to hear base deflection shifts of 1600 to 1900 mils, caused by the desire to keep certain targets under immediate fire by closer guns and sometimes just because the closer guns were occupied on other missions.

The one afternoon I managed to leave FDC, and this was at a direct order of the battalion CO. I accompanied him on a tour of the battery positions. As we arrived at Baker's position and stood beside the executive facing the field of fire as he was conducing a mission to his direct front, I turned approximately 1600 mils to my left and found myself looking down the tube of another piece about 150 yards to my left. It was then that I realized the fantastic position we occupied and how far we had come from the parade ground battery fronts we knew several years before.

Each night it became necessary to gather the battalion together to check registration and barrages. This was accomplished by adjusting "A" and "B" to the south and to the east (having "B" lay on a barrage to the south and "A" on barrage to the east) and adjusting "C" to the north and south with the battery less one gun covering the barrage to the north, the one gun laying to the south.

Some interesting events of this action were the developments of a counterattack the second evening. The mission was received from Bn FO 3 and plotted across the river to the southeast. Battery "A" started adjusting and within a few minutes another observer requested time fire to the south on a counterattack, on which "B" immediately started firing for effect. After about 3 adjusting rounds nothing further was heard from Bn FO 3. After a minute or two's delay, "A" was shifted south to support "B" as two FOs were now pleading for all additional fire at this point. This request continued for additional fire at maximum rate. All efforts to raise FO 3 were futile, and although "C" Battery was not at this time registered to the south it was turned 3200 mils and laid on a compass to support the other batteries. The infantry who controlled our fire through our FOs continued to reduce the range until it was only 200 or 300 yards in front of their positions.

The observers were enthusiastic about the success of the time fire. They reported the initial fire about eave height at the edge of town, making a sheet of flame which they didn't believe anyone could pass. We were indeed the infantrymen's friend from then on.

This continuous fire rapidly reduced our ammunition supply. Reports came in that M54 was expended and batteries were instructed to go down in site and continue with M48 as the sections exhausted their time shell. When "Cease fire" was given and the attack reported lulled, the ammunition situation was critical. As plans were made to contact our Service Battery to rush a resupply forward one of the computers called out, "Ammunition now being delivered to Charley Battery." Better timing could never have been planned.

Our position so far forward created what are now those amusing incidents. Our gas truck making a trip forward was stopped by a patrol and asked where he was going, and was told he was forward of the reconnaissance patrols. His reply surprised them all when he said, "Hell, my outfit is 12 miles ahead of you," and came on with his gas. Another time when going back for ammunition the NCO was told our priority was not high enough. He asked to see the CO, explained where we were, and asked the CO if he would like to ride up. He came back with the ammunition.

It wasn't so amusing when we found ourselves required to do our own outposting, though. We accomplished this by

sections, using an infantry trick in some scary spots—trip wires across paths with the ends tied to grenades left in the containers but with the pins pulled. Our east flank in the vicinity of the CP was exposed to a canal crossing less than 1,000 yards away. The crossing was outposted with an infantry platoon with a sergeant in charge. We sent another FO to cover this point; he reported they could hear the Jerries talking across the canal at night. We prepared an emergency barrage (which we sincerely hoped we would never have to fire, for all batteries, Charge 1. I certainly watched carefully all corrections applied from that time on. The barrage was planned to cover the approach, and only 300 yards away. We learned then that when the tension is on and it's necessary to move around at night among strange troops, your reply when challenged had better be prompt, clear, and correct as you didn't get any chance to erase. In one battery position the guard heard a tap-tap up the side road. He called "Halt," he repeated, and when no reply was given he fired at the sound. Hearing a coughing, he had himself covered and went out to investigate. He found he had shot and killed a sheep. The least that can be said is that he certainly must have capitalized on his days on the rifle range, and even though he didn't know *who* or *what* he certainly knew *where* and *when*.

One afternoon the infantry located a target and desired to bring fire upon it with their mortars. Due to the close range they were afraid the Jerries would locate the mortars by the sound, so they requested us to fire a serenade with them. It worked out fine.

In one position we received two concentrations from the German artillery. One penetrated the roof of the building housing our message center and the other landed in an enclosed courtyard used by the "A" executive, causing six casualties and again blowing out communications with this battery. Ironically this street was "Hermann Goering Street."

One afternoon the observer on one of our flank OPs adjusted on a road which carried considerable intermittent traffic. After watching the traffic for some time he developed a rough timing and spent a profitable afternoon of what he called "duck shooting." We kept a gun laid on the road and he would alert us when a vehicle or group of Jerris on bicycles (a common sight) would come into view, and we would fire at his command. He had a better-than-even average for the afternoon. He also added zest to the game by describing the results. He knocked out several vehicles and caused quite some casualties among the bicyclists before they began detouring the road. This same observer started a mission on a machine gun, and after the second round surprised himself and us by his exclamation when he hit a machine gun he hadn't seen. He did complete his original mission after getting over his surprise.

The Task Force of which we were a part was to be relieved. We arranged to withdraw after preparing all data to turn over to our successors. Finally we displaced in our proper order but saw no signs of the unit replacing us. The news three weeks later tells us that divisional reconnaissance elements are now in our old spot. We like to believe that the FA is versatile, but it's hard to think of our being three weeks ahead of the reconnaissance elements!

HARASSING FIRE

An Engineer's Impression of the Effect of Artillery Fire

By Col. William C. Hall, CE

This is the story of a bridge constructed under an intermittent fire of German 88-, 105-, and 150-mm shells. The reactions of engineers on the receiving end of the trajectory should be of interest to both the observer and gunner.

An Engineer General Service Regiment was sent to England after fifteen weeks' training. In Southern England some additional training missions and a multitude of construction jobs were completed prior to crossing the Channel on D+59. The regiment was assigned to Lt. Gen. Patton's Third Army, and supported the "ghost" XX Corps on the sweep across France. Its work was largely bridge and access road construction and road maintenance. Elements of the regiment had been bombed, shelled, and strafed in relatively small doses, and over a hundred prisoners had been picked up, but the companies had not been employed primarily as combat troops.

The map shows the situation late in September. The bridgehead below Metz had been established, but the Moselle River was still under some artillery fire. It was known that the high ground near Fort Driant gave some observation into the area. Nevertheless, it was decided to replace the floating bridges by two pile bent bridges.

Our story will deal with events at one of the locations. Here the principal job consisted of a 290-foot, class 70, pile bent bridge across the Moselle replacing a treadway and a heavy ponton bridge. In addition, fixed structures released two Bailey bridges across a canal, and two short treadway sections across creeks were replaced by culverts and fills. Necessary road construction and improvement completed the mission.

The job was assigned to the First Battalion (commanded by Lt. Col. Robert C. Horne), the major bridge across the Moselle was constructed by Company A (under Capt. Stephen S. Locantore), while the remainder of the project was completed by Capt. Glen C. Williams's Company B.

Equipment and supplies were moved to the site and a definite location for the road and bridges established the 23d of September. That night Jerry threw over a few rounds. One went through a supply tent, ruining some equipment, including two bazookas.

On the next day the engineers were entertained by the shelling of an artillery battery on the reverse slope of a hill on the far side of the river. It was quite interesting to watch the air bursts walk toward the battery, and a concentration go off in the vicinity. On the next day this shelling continued, and finally one burst made a direct hit on one gun, seriously damaging it, injuring several men, and starting a fire. Several engineer promoters suggested the construction of a small stadium for watching this interesting display. The field artillery battery moved out, however, and closed the show.

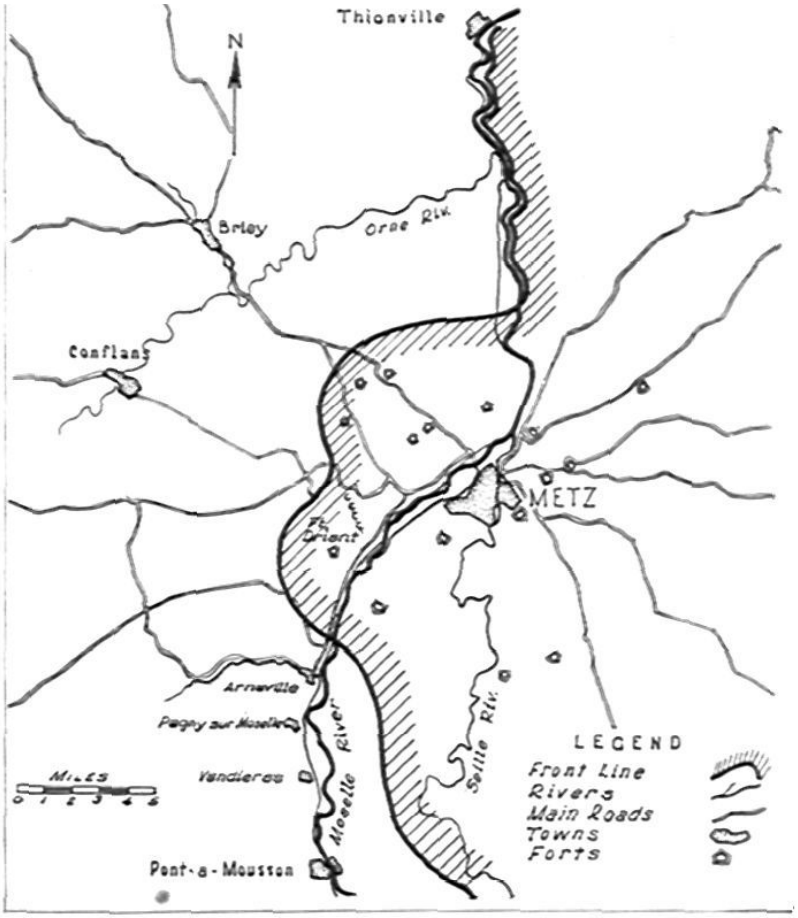
The bridge construction was moving along in good shape. On the 27th artillery knocked out the treadway bridge. Eleven pneumatic floats were damaged beyond repair and many of

the other elements destroyed or badly damaged. This bridge was not replaced and traffic was successfully routed over the heavy ponton bridge.

On the morning of the 28th construction proceeded as usual. However, in the evening the following message was received:

"Artillery fire on Pile Bridge U764466 concentrated fire from 1550 to 1815 approximately 100 rounds or more. Fire was bracketed apparently adjusted. 5th Division artillery observer on site. Both pile drivers and one air compressor damaged. One pile driver and air compressor repairable in two hours. Repair of second pile driver depends on availability of new radiator. Ponton bridge hit and out of action with traffic stopped by MP. Both hinge spans OK. Several pontons undamaged. Repairs require new pontons, pneumatic floats. No casualties. Request pile driver immediately. Request smoke to cover site of bridge and approaches. Have instructed Captain English to stop at Division CP en route and request smoke."

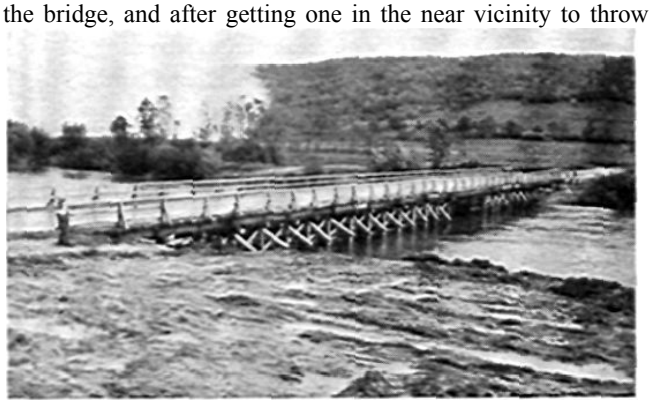
The floating bridge was repaired by morning, and the equipment repaired. Now there was a new tenseness in the air. Foxholes magically became deep dugouts with overhead cover. A very comforting smoke screen was laid by a smoke generating company during the remainder of the project. At first smoke was laid on the bridge, but since dense smoke there delayed the work the generators were shifted downstream about 150 yards. Most of the German fire thereafter fell a comfortable distance from the bridge, apparently into the thickest smoke cloud.



On the 29th an MP directing traffic and two artillerymen crossing the floating bridge were seriously wounded by air bursts. There was a general air of anxiety; once when our own artillery in the vicinity opened up, a number of men hit the ground. The Boche put over about a dozen rounds at 30- or 40-minute intervals on this day.

On the 30th we had our first casualty. One man was hit just below the eye. A second MP was also slightly wounded. Another compressor was knocked out, and a pile driver hit. The troops took cover several times on this day with the shells coming in groups of threes or fours. We felt definitely harassed!

On October 1st Pfc. Elwood C. Endler, of an attached Engineer Light Equipment Company, was wounded slightly. By this time everyone distinguished our own firing from that of the enemy, there was much less nervousness, and troops took cover on command—usually after the first close miss. The German system seemed to be to fire a few air bursts, feeling for the bridge, and after getting one in the near vicinity to throw over a half dozen or dozen. Fragments of 88, 105, and 155 shells had been recovered by this time. Everyone was trying to G-2 the Nazi firing schedule, but the bridge was completed before any successful predictions were established.



Co A at Arnaville

October 2nd I visited the bridge site just after the morning shelling (half a dozen rounds) and then drove south along the far side of the river to another bridge job. On my return I could see no one on the first bridge—the pile drivers and compressors were there, but no men. By this time we were in the flat valley just east of the bridge site and the adjacent floating bridge. It was as far to cover in the rear as ahead. As we approached the bridge Lt. Charles F. Beatie emerged from a foxhole, gave the arm signal "double time," and disappeared gopher-like into his hole. This was no help at all!

We highballed it across the bridge a bit over the posted "5 miles per hour," urged on by the glimpse of a glob of black smoke popping into existence well behind us. My driver and I found a very comfortably deep shelter near the west bridge abutment and awaited further developments.

Nothing happened for five minutes, so I crawled out just in time to watch Lt. Dan C. Wendell, Capt. Locantore, and Col. Horne emerge, blink, and gradually straighten up as they looked around, not unlike a family of bears emerging from hibernation. The order "Back to the job" rang out, and in a few minutes construction continued. This comparatively heavy concentration of about 20 rounds had stopped all work for about 30 minutes. Another ten minutes were lost before work was proceeding at the normal rate.

Until the completion of the bridge the shelling continued two or three times a day. A number of ugly, jagged shell fragments were found on the bridge floor and embedded in the timbers, but there were no further casualties to men or equipment. Some of these fragments would probably have seriously damaged floating bridging.

RANDOM REFLECTIONS

On Light Artillery in Combat

By Maj. Donovan Yeuell, Jr., FA

Perhaps the most striking impression you get of a light artillery battalion in combat is that it is beautifully capable of doing the job it was designed for. Of all the hundreds of types of units in the army none is more suitably organized for combat than the 105-mm Howitzer Battalion. The battalion is flexible, highly mobile, and extremely efficient. Its motor vehicles, howitzers and individual weapons, fire control instruments, and personnel are not only *adequate* tools for combat but they approach the ideal. Of course every battalion varies from every other in the use of its tools, and every battalion could offer suggestions for minor changes in its T/O & T/E, but broadly speaking it is beyond dispute that the light artillery battalion is a superb combat unit—it works!

Firing Batteries are required to operate 24 hours every day. Because pieces are staggered in depth a *K* must often be applied so that all pieces fire at approximately the same range. Telephones from the Exec's post to each piece have entirely replaced the old voice method of handling the battery. About 100 assorted rounds are kept prepared at each piece at all times; WP shell must be stored at least 100 yards from other ammunition (we've had two serious fires because we violated this).

Battalion Headquarters also functions continuously. We usually dig in our two CP tents end to end and form a combined Operations Tent, the FDC in one end and the S-2 people and operations maps in the other; the FDC is thus able to stay posted on the situation at all times. A small gasoline generator furnishes lights; an alternate lighting system from a command car's battery is always available. Because of Forward Observers and Liaison Officers with the infantry and because of excellent radio and wire communications, the CP of a light battalion is a logical information center for other artillery units and the infantry. The more comfortable and better organized the CP, the more efficient the battalion. An extra CP tent apart from the Operations Tent serves nicely to house the Sergeant Major, the Journal Clerk, and a typist; this tent gives the Battalion Commander and Executive a place to perform the ever-present administrative functions. Buildings are relatively safe from enemy artillery, if you have permission to use them.

Service Battery takes care of itself and does a splendid job. Their least tasteful task is to evacuate the dead from areas we occupy.

Going Forward is a subject of interest to all hands. Forward Observation and Liaison parties are always with the infantry. *All* lieutenants take their turns as FOs in tours of 4 days at a stretch. Battery Commanders are on the same roster, but their duties with their batteries make 2-day tours the most practicable for them. The Battalion Commander and staff get out in front by visiting OPs and the infantry battalions. Battery Commanders rotate personnel in the forward parties so that even the cannoneers get out and get shot at. This practice of having almost all members of the battalion spend time forward with the infantry where the real physical dangers of war are found creates a high unit spirit, a profound respect for the incomparably hellish job of the infantry, and a mutual respect for the behavior under fire of the members of the battalion, and it makes each man personally appreciate the need for doing a good job of shooting and realize that perhaps he doesn't have the toughest task in the army.

One-half of One Per Cent doesn't apply to World War II. Field Artillerymen do get killed and wounded. This battalion has one man in four wearing a Purple Heart, after 4 months of combat. Most of the casualties occur among the forward parties with the infantry, but one night we had 7 killed and 9 wounded in one battery by counterbattery fire, and 10 minutes after we landed in Normandy we lost 2 howitzers, 3 trucks, and 17 men by 88-mm fire. This paragraph doesn't mean to spell horror, but it does intend to show that to perform properly the direct support mission of a light battalion somebody is going to get hurt.

Awards and Decorations are an important means of creating personal pride. This battalion has received 125 Silver Stars, Bronze Stars, Soldier's Medals, and Air Medals in its 4 months of combat, and each recipient of an award is intensely proud of it.

Administration goes on in the thick of the fiercest battles. It runs the gamut of paperwork from Soldier Voting to write-ups for the home-town paper. The Battalion Commander writes a letter of condolence to the next of kin of every member of the battalion killed or missing in action; it's a grim job but it means much to the bereaved. Battlefield promotions, though they require 8 copies, are an important means of rewarding jobs well done. Awards and decorations keep the Battalion Executive and Sergeant Major busier than you might think. The personnel clerk (T/4) stays at the CP and handles Morning Reports and Battle Casualty Reports exclusively. An *After Action Report* containing a summary of the battalion's operations together with maps and the Unit Journal is submitted monthly to the War Department; it takes a lot of time but is the only official history of the unit and will one day be of interest to present members of the battalion. The centralization of all Personnel Sections in the Division Administrative Center is a godsend in that it almost entirely relieves the forward CP of all worry with such matters as Allotments, Pay, Special Orders, Mail, and a myriad of other garrison-type paperwork. Combat Administration is definitely in the picture, but it is by no means unbearable.

Morale seems to take care of itself in a good outfit. There's little time for athletics. Mail is head and shoulders above all other factors in importance. The more commercial-type radios you can rig up the better (we've captured many). The troops are eager for both world news and their own local Division and Corps situations—Service Battery puts out a twice-daily summary (which is so good that even Division Headquarters takes a copy) on the former and the Battalion CP publishes the tactical situation daily. Even in a battle we have movies, whenever we can get them, in an old barn or house for any of our people who can get away. *Yank* and the *Stars & Stripes* are always welcome. Some of the Camp Shows are excellent, others mediocre. Red Cross Clubs help,

too. The usual hygienic preventives are kept on hand for any men who have the rare occasion to use them.

Tactics quickly resolve themselves into a matter of common sense when the shooting starts. Flash and position defilade are most important. The danger of tree bursts lessens the attractiveness of woods. A light battalion should try to stay where it can use the maximum range of its time-fuze. Reconnaissance is, as the book says, continuous to the front. The Battalion Commander has yet to stand on a hill and issue a Field Order. A Battalion Forward Switchboard (for FOs & LnOs) is habitual. It is far more expeditious to have another light Battalion cover your displacement than to try to displace your own Battalion by echelon—an SCR-608 merely goes to the other battalion's CP, and all calls for Fire Missions are handled by the other battalion until the displacement is complete. The SCR-600-series is excellent. Simplexing telephone lines has not been too successful. The Infantry Cannon Company works well as a fourth battery in a stabilized situation. Their observers often fire our battalion. Tank Destroyer Companies work very well when they are assigned to reinforce the fires of the light battalion. We carefully study maps and intelligence reports to obtain targets for *night* harassing and interdiction firing; this firing keeps the enemy awake, interferes with his digestion, and gives great comfort to our own infantry—we shoot every spare round we can get at night. High, distant OPs are not very frequent though we use them when we find them—captured German observing instruments are useful as additions to those the T/E gives us. Most of the observers of a light battalion do their best work in or close to the leading infantry elements; we do all the close-in support firing. Any attached, reinforcing, or general support artillery operating in our sector clears any fire through our Operations Section, the nerve center of the battalion. All responsibility for artillery support and the placing of all regular or attached observers is given to the artillery liaison officer with each infantry battalion.

These comments have been random indeed, but they have attempted to spot some of the highlights of the experiences of a light battalion in combat. Our general conclusion is that if you've got to be in a war, and if you want to see just enough but not too much of the rough stuff, there's no better place to spend your time than in a light battalion of Field Artillery.

LIGHT ARTILLERY IN EUROPE

By Lt. Col. John J. Duffy, FA

For successful support of the infantry, the most important single factor is good communication. It has been found that switching centrals along the axis of advance save wire and time. The battalion wire crew lays to a forward switchboard and the batteries lay from this to their own FOs. Division Artillery CommOs who have followed this same procedure have found it very successful: they lay along the axis of advance and battalions lay to them. In a congested area wire must go overhead over every gate as well as over every road.

Radio communication has been the only communication about half the time. This necessitates radio relays, using in some cases the airplane.

Radio work with the higher headquarters has not been as beneficial as should be possible. It is felt that the Corps SCR-193 set could furnish metros every two hours and changes in "no fire" lines whenever they occur. Areas for registration could also be furnishd over this or the SCR-284 set, which would save work and worry. All DivArty headquarters should have two channels for the SCR-608, one for the air channel and one for command.

MOVEMENTS

When an organic battalion has another light battalion reinforcing its fires, displacement by an entire battalion is possible. If the reinforcing battalion is displacing its LnO can process all the fire missions of his FOs through the organic battalion FDC. When the organic battalion displaces it has proved best to have it send the Asst S-3 and SCR-608 to the reinforcing battalion's FDC and process his missions there until the displacement is completed.

The battalion usually follows the Bn CO and party in the order: CP section, two firing batteries, Hq Btry, and the third firing battery. Battery agents are used as mobile route markers for either short or long moves. They can overtake the head of the column in their ¼-tons, and soon become very adept at handling traffic and giving instructions. Maps are and should be furnished each vehicle in the battalion. Communication is by radio, all on "C" channel.

The battalion CO's party consists of Battalion CO in ¼-ton with radio and .50-cal. MG, the CommO in ¾-ton lineman truck, and the Asst S-2 in ¾-ton survey truck. With it are the three firing battery BCs in ¾-ton lineman truck. Mine detectors with mine marking tape, and pioneer tools for enlarging driveways and cutting hedges, are carried in the battery parties.

GUNNERY AND FIRE DIRECTION

The simplest form of survey allowed by the maps issued has worked very well. With 1/25,000 maps this consisted of a simple position area survey, orienting line, and connecting survey for direction when required. In moving situations the Survey Officer must always consider declination of instruments since marginal data is not sufficient.

Air OP registration was the most generally used. A great deal of time can be saved if the BP or CK P is picked in advance after a thorough map and photo reconnaissance and observer briefing. If this is not possible FDC should pick a likely point and fire an identifying round, as this gives less chance of error in identification. Observers should be equipped with photos whenever possible.

It has been possible to register with a normal OP setup only three times. Registration by forward observer was used occasionally, and would have been used more had the Air OP not been available. The forward observer's field of observation is usually so limited, however, that base points so registered upon would not be ideal. The lack of good ground OPs makes map and photo reconnaissance again most important.

High burst registration has been used often, and with success.

Time corrections should be determined whenever possible.

A 3- or 4-round high burst using an axial observer at the gun position is often the simplest solution.

When the situation allows, a great deal of time is saved if in advance of displacement one gun is sent forward to register.

For close-in fire it is necessary that the calibration of the guns be checked frequently. This can be done by any observer. Position corrections should be applied by the executive and reported to FDC. When corrections are not available defensive fires or barrages may be registered at night by the forward observer, using one gun and obtaining a flash observation in the center of the desired location.

Registration usually requires Smoke WP, but if it is not available sensings can sometimes be obtained from low air bursts or from groups of two or three rounds of HE.

Neutralization adjustments are usually made with one or two guns. In fire for effect it has been found that the first two or three rounds do the most damage. After these the enemy is holed up and will be kept that way by intermittent fire from a few guns.

Forward Observer methods of conduct of fire have been used almost entirely. In one instance where the GT line was not known directional sensings (i.e., *400 west*) were used to good effect.

Barrages and successive concentrations may be fired very quickly by observer sensings based on last rounds fired rather than by using different sets of coordinates.

There seems to be a tendency to use too much ammunition on some types of targets. This is especially true of harassing and interdiction missions. On the other hand, it seems at times that not all available targets are taken under fire. Possibly this is due to the difficulty in circulating the location of "no fire" lines.

Time fire is not used as much as it should be, probably because of the difficulty in obtaining a time correction from the air and in persuading the infantry that it is not too dangerous to them. The first objection is easily met by having a battery executive obtain a high burst correction, and the second by adjusting on the ground.

Close-in fires should be adjusted if possible, and only the adjusting battery should fire for effect if the target is closer than 150 yards to our own lines. If more fire is required, check the non-adjusting batteries before firing them for effect, unless survey and corrections are proven.

Grading of HE into A, B, and C gave satisfactory results, but it places a very great burden on the FDC and executive. According to the latest information all newly manufactured ammunition is grade A, but during the time our battalion had all grades a table was made up from the firing tables showing the differences between grade A (two square, with an assumed *K* of 0) and grades B and C with deficient weights at various ranges. This saved registration with more than one grade of ammunition.

Smoke WP was found to vary slightly in range with HE, generally being slightly short but not so much as anticipated. It would be of value to know within what grades this ammunition lies.

Whenever possible, during periods of great activity ammunition was delivered to the gun positions uncrated.

Our FDC consists of: 4 HCO, VCO (Operations Sergeant, HCO, VCO, Basic); 7 computers (3 regular computers, 3 radio operators, 1 telephone operator). Additional personnel and replacements for the regular radio operators may be obtained from drivers, and radio and wire personnel.

Periods of great activity require a full complement of 2 officers, HCO, VCO, 3 computers, 3 radio operators (get reliefs from radio section), and possibly 1 FD telephone operator. This may be reduced if all FOs and liaison officers are not committed or if wire is available to those persons.

Normal activity requires 1 officer, HCO, VCO, and 3 computers. Other personnel are excess baggage, except possibly one more officer to check computers and handle telephone.

Reduced activity requires only 1 officer, HCO/VCO, and 2 computers.

It is possible to anticipate operations sufficiently to arrange shifts of the above personnel so that sufficient rest is obtained, but every man must be able to perform the duties of computer, HCO, VCO, and radio operator. Thorough training of all officers in FD procedure will produce all the officer reliefs required.

One battalion has used various types of FDC installation, including individual and two-man foxholes, shallow dugouts with CP tent, deep dugouts, sunken roads, and houses or barns. From the point of view of protection a deep dugout (if a bulldozer can be begged, borrowed, or stolen) or a sunken road are the best. It has been found that an FDC is most efficient if personnel are together, have plenty of room, and are not tired from constant digging. For these reasons a house or barn reinforced with sand bags is used when a bulldozer or sunken road are not available. A CP tent is too small even when personnel are cut to a minimum. The S-2 should be at the FDC or nearby. The FD section should always carry a good supply of sandbags.

CONCLUSION

It is felt that even more could be obtained from artillery if:

1. Infantry mortars are properly used.
2. More consideration is given to the method of fire most suited to the mission.
3. "No fire" lines are constantly reported down to battalions.
4. Harassing and interdiction fires are shot at more targets for longer periods.
5. Accuracy is stressed. All units should endeavor to get and use the best available data and not rely on a mass of fire to obtain their objective.
6. Speed is increased. To accomplish this over-caution on the part of the infantry must be overcome by very accurate fire and explanation of the enemy's tricks.

COMMENTS BY FOS AND EXECS

FOs, for night work take the bell out of your telephone; also, use the radio headset.

Don't carry large, elaborate map cases; the cellophane from a "K" ration is enough—put it inside your shirt. Keep your jeep away from the infantry battalion CP and infantry mortar position. 200 yards may save you a vehicle. Take "K" rations, not "C"—you need the extra space. Make yourself eat — no one gets real hungry but you need nourishment. Don't load down with grenades, etc.

Executives, try to give each chief of section his complete sector of fire so he can properly lay out his trenches, ammunition pits, and camouflage. Practice several large shifts during a lull—you can thus see if you are really set for them.

If the men receive a course on how different guns (particularly German) sound, they will be saved a lot of worry every time small arms fire occurs.

SOUND LOCATIONS

By Capt. Eugene Maurey, Jr., FA

Frequently a forward observer or artillery liaison officer pushes so far forward with infantry elements that enemy gun and mortar positions are approached close enough that the propelling charges can be heard and fixed for direction quite definitely by ear. These were the circumstances encountered in the drive by the 79th Division through the Foret de Parroy. The following instances of adjustment upon enemy targets by sound illustrate the method used.

The infantry battalion to which I was assigned as liaison officer had pushed forward about 1,000 yards beyond existing front lines. Visibility in the forest was 100 to 150 yards. Two enemy mortar positions, estimated at 800 to 1,000 yards from us, could be heard, one to our right front and the other to the left front. Their shells were landing some distance to our rear. As the mortars on our right were popping I definitely fixed their direction by using a tree as a direction-identifying terrain feature. Next, the azimuth to the tree was taken with the M2 compass. The azimuth drawn on the map through the observer's position placed the line upon two possible mortar positions at the estimated range. A careful map study was made. The coordinates of one of these positions were sent in and one round in adjustment was requested. As the 105 howitzer battery was registered, deflection was assumed correct and range changes were given to put the round by sound on the observer-target line. As mortar crews are well dug in, fire for effect was delivered with 15 minutes' delay after the adjustment was completed, in order to secure the benefit of surprise. Both mortar positions were fired upon with the result that all enemy mortars were silenced in that sector for the remainder of the operation even though the infantry battalion was counterattacked by the Germans three times in the two days.

Next morning, after our move, we were counterattacked by infantry with automatic weapons to our left front. Again securing an azimuth by sound to the center of the automatic fire, which apparently came from an enemy front of about 100 yards, a point in line with the observer and target was selected. Adjustment was commenced with two pieces using fuze quick. The fire was gradually decreased in range until the rounds could be seen bursting in the trees about 100 to 150 yards from us. The interval of time between the sound of the shells rushing directly overhead until the time of hit aided greatly in this adjustment. Fire for effect with one battery was delivered so that it covered the zone of the counterattack. The counterattack was broken up. Our own infantry reported afterward that they could see our shells fall directly among the enemy; we could hear the Germans scream when hit. Fragments from our shells came back upon us but most of them apparently passed at least 4 or 5 yards above us.

Japanese-Americans comprise this gun crew in France. Their position is well prepared: dug in, sand-bagged, both for protection and to hold the trials in place, camouflaged, and furnished with wheel platforms.

On the following afternoon the battalion was again counterattacked by an estimated force of two tanks, one half-track, and infantry. This force was upon us before we realized their presence. Our own planes were attacking nearby targets and the noise of their engines drowned out the sound of the approaching tanks. As the enemy armor was obviously coming down one main road in the forest, a point on that road was selected for the initial round by a 155 howitzer battery. Range was decreased by bold jumps thereafter, as time was essential. One tank had penetrated our defenses but was driven back by the heavy machine guns and bazookas. The artillery fire was adjusted until the shells were hitting from 50 to 75 yards from us. The attack was broken up. Afterward a stalled enemy tank could be seen on the road from which the attack had come. A later precision adjustment for destruction on the tank had to be abandoned as a result of the shells' striking trees and exploding before reaching the tank; fuze M105, used for penetrating concrete pillboxes, was later suggested as a possible solution to this problem.

One of the German tanks that had participated in the counterattack had evidently pulled off the road not far from our position and turned off the engine. After nightfall we could hear it suddenly start its engine. 155 howitzer fire was immediately brought down upon the road, using the precision adjustment on the tank of the afternoon as the initial data. The tank turned off its engine. In about 15 minutes it again tried to move off. Artillery fire was immediately brought down upon it. After its third attempt we did not hear it until our infantry battalion withdrew under cover of darkness.

COUNTERBATTERY

If the observer is well forward he can frequently obtain fairly accurate azimuths to an enemy gun by sound. The following procedure is recommended. Plot the position of the observer; draw the azimuth to the enemy gun. A careful study of a good map and aerial photos, if available, will yield locations in which the piece could be located. Another factor which aids materially in the search is the "boom-boom" time, time from sound of propelling charge to burst, which will often give indication as to type—howitzer or flat trajectory gun. Careful attention must be given to the characteristics of the weapon. Possible road nets on the map must be studied adjacent to the suspected position as routes of approach and departure of the piece. Defilade and field of fire as indicated on a map must be thoroughly studied. Also the experience of the observer must be taken into consideration, as his judgment as to type of piece can often help the search materially.

The declinating constant must be applied.

A coordinated system of front line infantry observers in a regimental front can give valued aid in seeking out enemy guns. The more azimuths available from a broad front to a gun, the more easily can the gun be located. Such a system was put into effect during the defensive period north of Lessay, and was found successful in quieting enemy mortars and guns in a number of instances. The following data were required from each observer:

1. Observer's location
2. Azimuth to gun
3. Time of firing
4. "Boom-boom" time
5. Number of rounds fired.

THERE IS ONE THING ABOUT COMBAT - - - By A Battalion Commander

There is one thing about combat. It makes you want to tell the fellows who haven't been there, how to do it. Which of course is just a prelude to the fact that I too am feeling the urge to tell the boys back home "how we do it." But rather than describe "new" methods or "gadgets," however, I'd like to tell you about some of our experiences and expedients. We're a 105 outfit and normally operate in direct support of a very aggressive infantry regiment.

One thing we have found is that our pre-combat training of the infantry officers and NCOs in conduct of fire has paid big dividends. We never lack FOs, as the doughboys don't hesitate to call for and adjust fire if they don't happen to see an artilleryman around.

Once in a while communications all the way to the "point" aren't feasible. Our doughboys solved this with what I call the "bucket brigade." An officer or NCO at the point, needing fire, gives the necessary sensing or the coordinates and description of the target. This is passed by word of mouth from soldier to soldier until it reaches the FO radio or a telephone, where it is transmitted to the FDC. The entire problem is then fired using this "human telegraph wire" to transmit commands and sensings from the observer to the phone or radio. Surprisingly enough, when the pressure's on the boys don't garble the commands or sensings. They're too anxious to get the fire where and when it's needed. Of course I'm not recommending the "bucket brigade" as a substitute for adequate communications, but there have been times in France, Belgium, and Germany when it was a necessary expedient.

Another little trick we've used successfully deals with the placing of fire to assist patrols at night. One situation comes to mind where we had a large number of concentrations and defensive fires plotted covering a considerable area immediately in front of the infantry's positions. As the patrol started out the officer in charge requested a couple of volleys on a plotted concentration about 200 yards ahead and on his axis of advance. As soon as the fire lifted he moved his patrol to that point, finding it in the dark by the shell-holes. Upon reaching that point he called for two more volleys—"last concentration is 200 short." Using this method he was able to attain his objective quickly and without casualties while the Germans lost a number of men killed, and several prisoners were brought in who didn't like the artillery fire.

Occasionally, as we chased Jerry across France, we would lose contact at night. As defensive fires were always planned it was highly desirable to get a registration in before dark. As you can imagine, this wasn't always possible. A high burst would solve the problem, but there were times when we weren't positive that there weren't friendly troops in front of us. One of my liaison officers, Lt. Richard H. Holstein, solved this, however. Selecting a base point on his map, he took a couple of men and a tommy-gun, "jeeped" out to the base-point, ascertained that it was "clear," then came back and called for the fire. After three rounds, which he was unable to sense properly in the dusk, he gave "cease firing" and drove back out to the BP, where he sensed his rounds from the shell-holes. Rather a laborious way of registering, but it worked.

Another time we were up against the same problem, only this time we knew that there was some Mecz cavalry out in front of us, as we had an FO out as liaison with them. We radioed him that we wanted to register but didn't want to shoot up the cavalry. He gave us the coordinates of a base point about 500 yards back of the cavalry CP, where he was located, and proceeded to register the battalion from there. It was a real "forward" OP. He said that the cavalry got a little nervous during the registration, but he convinced them that it was perfectly safe.

One of the most entertaining incidents occurred one day when our combat team was advancing along a ridge. On a parallel ridge a few thousand yards away another friendly force was advancing abreast of us, while in the valley between was a medium sized force of Germans. It was a nice clear day and the doughboys on both ridges had an opportunity to watch the artillery "take over." With artillery fire alone, we drove the Jerries up the valley abreast of the two infantry columns until they (the Jerries) were finally pinched out and mopped up by our doughboys. It was really fun to watch, and the infantry boys provided an excellent and loudly cheering audience.

One more incident, before my pen runs dry. You've no doubt read of FOs shooting up their own OP to stave off an attack. One day as our infantry was advancing on a little Belgian town and meeting considerable resistance, Capt. Willard F. Bunker, one of my battery commanders, decided that he wasn't getting good enough observation. He left the forward elements of the infantry, still some 500 yards from the town, and snaked his way into town with his radio. Setting up an OP in a house on a street corner he started to adjust fire on the next corner, which the Jerries were using as a point on their axis of "strategic withdrawal." When his first volley landed the infantry immediately called in a "cease firing," stating that they had seen Bunker going into the town and they didn't think we should shoot him up. This information was transmitted to Bunker who called back immediately—"Cease firing, hell! Those rounds are at least 75 yards from me. Don't stop now—there's still lots of Germans here!" He stayed there adjusting fire on the enemy rear-guard until the infantry reached the town and the enemy disappeared.

Almost anyone with some front line combat experience can tell stories of incidents such as these. Next time I'll tell you about our gadget to end all gadgets. It's known familiarly as the "juke-box" and makes the FDC even more of a mad-house than it was originally designed to be.

Short-Range Firing Against the Siegfried Line

By
Capt. Richard W. Van Horne, FA

The Yanks of Corregidor are not forgotten by the Yanks in France. Here an M-12 helps mangle the Krauts near St. Lo.

Battery B of the 991st FA Bn (155-mm gun, SP) was attached to the 9th Inf Div from 14 Sep to 12 Oct 44. During this period the battery fired 30-odd missions against pillboxes, bunkers, fortified houses, and OPs in the Siegfried Line for units of the division. After reverting to battalion control again the battery also executed similar missions for the 3d Armd Div, to which the 991st was attached.

It was found that reconnaissance was 90% of the battle. It took hours, often even days, to line up a situation the actual firing of which took only 10 or 12 minutes. Judging by the experiences of the other firing batteries of the 991st, which also did their share of direct laying, the infantry is apt to be more understanding and patient than the armor.

The tankers found it a little difficult to realize that the M12, although mounted on an M3 tank chassis, is actually not an armored vehicle. The cannoneers have no more protection than they would have if they were serving an ordinary, towed piece.

Perhaps the tankers' impatience was merely a reflection of the outlook of mid-September. At that time everyone was talking about "knocking off a couple of boxes and moving on." By the end of the month those wallowing in the mud of Western Germany had had a rude awakening, even if the V-E Day Celebration Planners at home hadn't.

The most important thing in the reconnaissance was the selection of a gun position. Before a gun position could be selected, the situation—friendly as well as enemy—had to be ascertained and the target pointed out. Then the responsible officer had to decide whether to attack the target by direct laying, "direct-indirect" laying, or straight indirect methods.

Two extremes as far as the friendly situation was concerned were encountered. Either the infantry would wait until they were on top of the target before they called for help or they would want "a box strafed" even though they were a good distance away with no prospects of closing it. In the first case the "doughfeet" were too close for their own safety, and generally they were reluctant to yield ground voluntarily. In the second it did no particular good to punch holes in a box unless the infantry were prepared to exploit the temporary neutralization of the bunker.

It so happened that we were able to walk up and examine only two or three of the boxes at which we shot. Judging by what we did to them and what we could observe of the others, it is safe to assume that we penetrated most of those on which we fired and that the inhabitants of the moment were either killed or wounded. However, we could not completely demolish a box and, as the infantry quickly discovered, it was necessary either to bury a box, blow it completely to pieces, or seal it up by spot welding if Jerry was to be kept out permanently.

When the battery fired its first few missions the Germans were still too disorganized to do much about the situation. Single M12s were actually emplaced in open fields and were fired at bunkers at ranges as short as 500 and 600 yards without drawing any form of retaliation.

This not unpleasant situation did not last long. Within a week any gun drew counterbattery within 10 or 12 minutes of the time it opened fire, if it was emplaced in the open. Since the M12 was not considered expendable at the time, it became necessary to resort to healthier methods.

Thanks to the foresight of their then commanding officer, Lt. Col. O. A. Axelson, all batteries of the 991st were prepared for other solutions. During the summer of 1943 at A. P. Hill Military Reservation, Va., Col. Axelson had devoted hours of training time and many rounds of his battalion's ammunition allowance to practicing what he called "direct-indirect" laying. All that "direct-indirect" laying entailed was the emplacing of the piece in a completely defiladed position and the laying of the gun by one of several methods. Direction was obtained by lining in on the target with an aiming circle set up on a crest either in front of or behind the gun; range and angle of site were secured either from inspection of maps or by short base and measurement. Such a solution gave the gun and its crew a fighting chance to escape notice and swift retaliation, yet retained two important features of direct laying—a flat trajectory and a high terminal velocity.

B Battery worked in open country and also in densely wooded terrain. We were seldom able to employ "direct-indirect" methods because of intervening stands of tall evergreens. We then resorted to conventional indirect fire at ranges short enough to retain the desired features of a flat trajectory (to minimize range dispersion) and a high terminal velocity. Initial direction was obtained by crude, hasty survey. Straight stretches of highways and railroads were used as orienting lines: range and site were taken off the maps.

Perhaps the most satisfactory position of the many from which we fired was one in a 30-foot railroad cut. Even after Jerry knew that we were in the area and had greeted us several times with rapid counterbattery, we were able to fire out of this position for literally hours on end without drawing a single round in reply. This position, which was only 150 yards' straight-line distance from a direct-laying position which had proved to be almost disastrous, also illustrated three other important considerations of reconnaissance—approach, departure, and relative altitudes of gun position and targets.

We approached the railroad cut position by running the full-tracked M12 up along the right-of-way astride the rails. This approach not only afforded secure footing in a generally swampy area, but also complete concealment. As for departure, if a hasty one had become necessary, we could have gone back the way we came or we could have gone straight ahead. It so happened that moving straight ahead would have meant running parallel to the lines.

This railroad-cut position fortunately had another excellent feature. Its altitude was practically the same as that of the targets. Appreciable disparity in relative altitudes was one of our greatest sources of trouble, because at ranges of only 2,000 to 4,000 yards, it doesn't take much difference to yield a large minus angle of site.

Minus site is particularly annoying to M12 outfits. The problem of mask will plague any type of gun. It's not exactly pleasant to be at an OP in a woods and have your own shells detonate in the trees behind you as the boys try to ease one over the mask at a quadrant setting that is a mil or two below the measured minimum.

During the month of operations with the 9th Div we tried several combinations of ammunition. We gradually hit on the following general procedure. Regardless of what type of laying we were using, we'd open with a round of HE armed with fuze quick. Our object was to get an observable round.

If we saw the first round, we'd make the appropriate correction, but shift to fuze delay. If we lost the first two rounds we'd throw out a round of WP to find out what was wrong. It was seldom necessary.

There was a dual purpose in shifting from fuze quick to fuze delay. Fuze delay, if we got a hit, was effective, infinitely more so than fuze quick. An additional advantage was that fuze delay turned the misses into vicious ricochet bursts. This was important because it was quickly discovered that the enemy did much of his fighting from trenches outside the bunkers.

Once we got our shots in on the target, we switched to fuze (CP). It really did the job. Armed with this fuze, we saw our shells punch gaping holes in bunkers, rip the side out of masonry belfries being used as OPs by the enemy, and cause a double-walled, reinforced concrete tower to buckle one-third the way up its height.

We also learned one valuable little trick in handling this fuze. The fuze comes in two parts, each of which must be screwed into the shell separately. A wrench is required to screw the parts into position and it is an awkward, slow task. Before moving up to do a job, we'd screw the parts together, replace the eyebolt lifting plugs, and roll. When it came time to go into fire for effect it was a comparatively easy and swift job to unscrew the eyebolt plug and screw in the solid nose, both easy hand operations.

We did not use much AP, but we did see it punch neat holes in boxes. It too was sufficiently different, ballistically speaking, from HE to cause trouble getting target hits at medium ranges once an adjustment had been secured with HE.

Besides using WP as an aid in observation, we also used it to soften up the opposition. PW reports indicated that the inmates of a bunker tagged by a round or two of WP found life inside most intolerable, especially if earlier rounds of HE had knocked the ventilating system out of order.

Charge super was almost always used to secure the desired terminal velocity and also to minimize dispersion. We used charge normal only once—when, because of a large minus angle of site, we were trying to overcome a high mask. It enabled us to fire at a quadrant that cleared the tree mask, but the hits dropped off due to range dispersion.

Muzzle flash and blast were two of our greatest headaches. No matter how cleverly concealed a gun might be for a direct-laying mission, the tremendous muzzle flash and the billowing clouds of white smoke immediately compromised the position. Our only solution was to seek defiladed firing positions.

The M12 is equipped with a telescopic as well as a panoramic sight. Whenever we were engaged in direct laying the gunner would lay the gun with his telescopic sight and then take a referred reading with his panoramic sight on another distant point. This not only enabled him to set off corrections to the mil, but also gave him an alternate aiming point in case the target became obscured. On the "direct-indirect" and straight indirect missions the panoramic sight was used exclusively.

The gunner's quadrant was always used to secure greater accuracy. (We never once fired without lowering and fully engaging the spade to achieve greater stability.) One-tenth of a mil can make a world of difference in an attempt to get solid hits on a cupola-type pillbox that is 2,500 or 3,000 yards away. We even went so far as to desist from our usual practice of elevating the tube slightly to facilitate loading in our efforts to disturb the laying of the gun as little as possible.

Observation was conducted from any one of several positions. On direct laying jobs the officer in charge observed from the general proximity of the gun. On one "direct-indirect" mission the observer was uphill and a good 200 yards directly behind the gun. On the indirect missions the observer's position naturally varied. Whenever it became necessary to install communications, preference was always given to wire because the dense evergreen forests made radio unreliable.

As long as it appeared as though the situation would remain fluid, 9th Division Artillery, which kept control of the battery, had the guns stay with the cannon companies of the infantry regiments with which they were working. This policy kept the guns in easily accessible yet comparatively safe positions, and also permitted any one of the regiment's three battalions to expect fairly prompt answers to their requests for help. At one time the battery was split up and one platoon of two guns each assigned to each of two regiments.

When it became apparent that the situation had stabilized, division attached the battery to its medium battalion and had it fire normal, general support missions as a fourth battery of the battalion. Whenever all preparations had been completed for a "can-opening job," a gun was pulled out of conventional firing position for whatever time it took to accomplish the mission. This procedure prevented the waste of the battery's potential fire power during the comparatively long periods of reconnaissance and preparation.

21-cm Mortar (Mörser or Mrs.), short tube type. Photo at left was taken on the Marne in 1914.

Know Your Enemies' Weapons -:- German 21-cm Characteristics

By Lt. Col. G. B. Jarrett, Ord.

In the last issue of this JOURNAL the German 17-cm gun was discussed. As it and the 21-cm use the same carriage, the latter will not be again described in detail.

For many years 8″ weapons have been favorites with Ordnance designers. The caliber is a desirable one for military operations. With the Germans, use of this diameter commenced at the turn of the century.

BEGINNINGS

In 1902 a bronze mortar was first introduced. This weapon was used throughout the early part of World War I, until supplies were exhausted.

When in action the carriage was supported on very small wheels which rested on a platform usually made of heavy timbers. Preparation of such a position took a long time. Recoil was checked by these small wheels' having to run up inclined planes placed on the timber, a method which naturally required much re-laying of the piece.

To prepare the piece for transport the tube was removed and placed on a traveling wagon. The carriage was jacked up and fitted with larger diameter wheels. Both units were pulled by teams of mules.

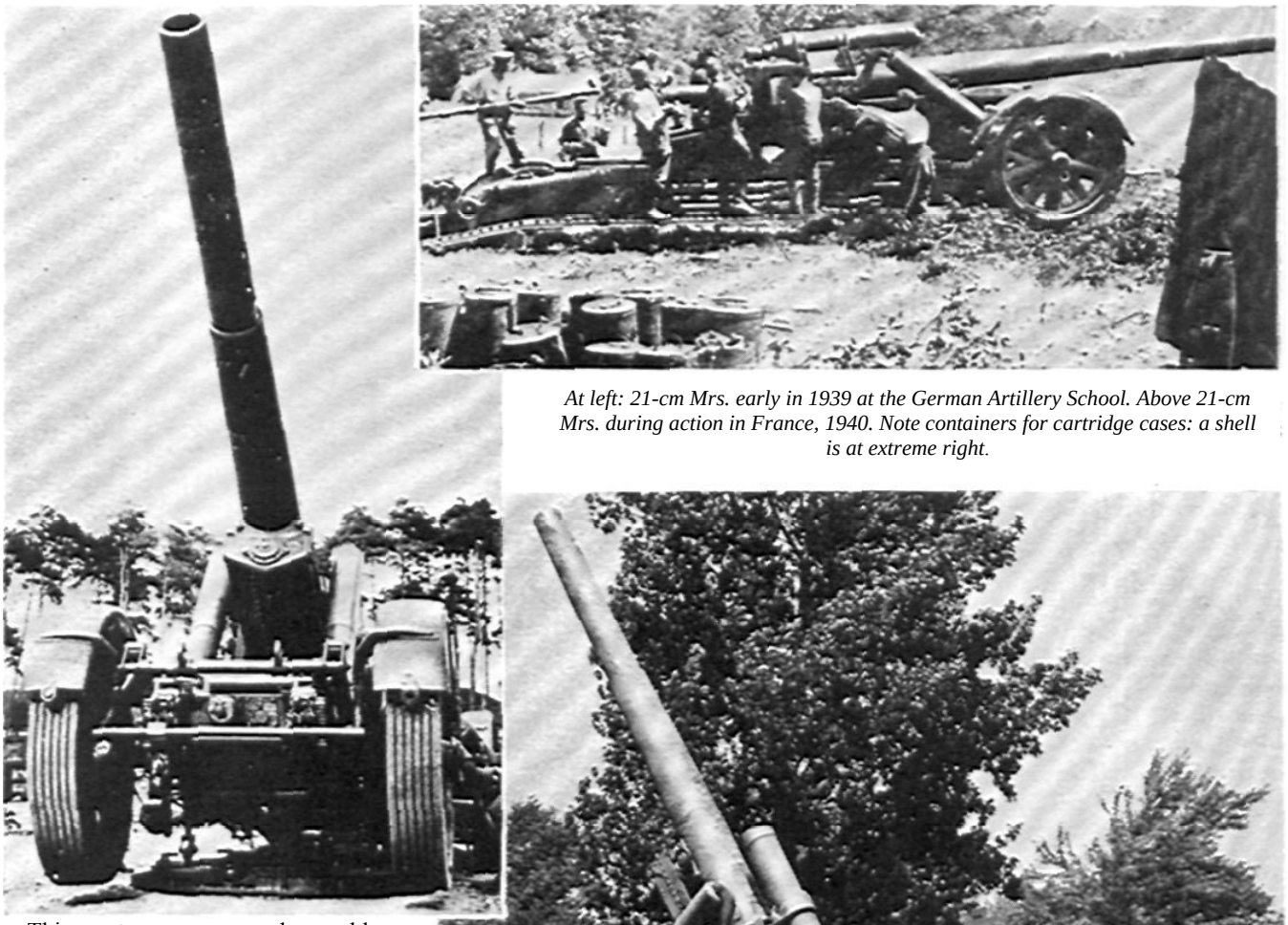
21-cm lange Mörser along the Aisne Front in 1918. Ammunition at left is the short 1914 HE shell, that in center is the 1912 n/A or long pattern, that at right is the base-fuzed shell intended for anti-fortification bombardments. Wicker shell baskets are scattered about, and at left are both wicker and wooden cartridge case boxes.

WORLD WAR I MODEL

In 1910 an entirely new 21-cm piece was introduced. Although inherently a good weapon, it was modified in 1916 by lengthening the barrel four calibers to provide more range.

Long 21-cm barrel of the 21-cm Mrs. in Paris after the Armistice.

21-cm Mrs. of 1918 modernized (note rubber-tired wheels), on maneuvers in 1939.



At left: 21-cm Mrs. early in 1939 at the German Artillery School. Above 21-cm Mrs. during action in France, 1940. Note containers for cartridge cases: a shell is at extreme right.

21-cm Mrs. at maximum elevation. Note firing base and spade.

This mortar was a normal monobloc tube with shrunk-on jacket. The usual German type of sliding wedge breech block with percussion striker was provided. As this breech when in firing position stood rather high (5′3″), platforms were attachable to the sides of the modified box trail to enable the crew to load easily. A loading tray was used and the shell rammed by hand. The cradle encircled the tube with the buffer above and rotated on rear trunnions on the top carriage, which was pivoted on the main carriage just to the rear of the axle. The trail was 14′9″ long. The carriage stood on steel wheels 4′7″ in diameter with treads 5″ wide; the wheels also had brake shoes. In World War I photos the piece was seen with and without shields, which were issued as detachable items.

Sights were mounted on an oscillating bracket and canted to allow for drift. The range drum was graduated in degrees and in 100-meter units for the nine charges.

The long mortar was the same save for a longer tube. It used the same ammunition but had a slight range increase when using the 1914 type shell (short pattern).

Ammunition for these weapons was not unusual, although the shell was issued fuzed which was a departure for the Germans at the time, in so heavy a shell. Four patterns of shells appeared during World War I:

1. The 1896 n/A shell weighing 262 lbs. and with 40 lbs of pressed TNT.

GENERAL 21-CM CHARACTERISTICS

	21-cm Mrs. 1902	*21-cm Mrs. 1910*	*21-cm Mrs. 1916*	*21-cm Mrs. 18*
Caliber	21.1-cm (8.3″)	same	same	same
Tube length in calibers	10	12	16	30 (approx.)
Wt. of unit in action (lbs.)	9,500	18,000	18,500	36,740
Traverse	6°	8°	8°	360°
Number of charges	11	9	9	6
Wt. of full charge (lbs.)	6.8	12.3	12.3	34.76 (Zone 6)
Max. range (yds.)	1896 shell: 8,421 1914 shell: 8,968	9,952 10,280	10,280 11,150	18,300 (Streamlined modern shell)

2. The 1914 (short shell) with 17 lbs. of pressed TNT.
3. The 1914A, a cast iron shell with only 14 lbs. of amatol (both 1914 and 1914A weighed about 184 lbs.).
4. A base fuzed shell intended for heavily fortified targets. Little is known of this shell, though an accompanying photo shows a specimen at a gun position.

Gas shells used in this weapon were modified 1896 n/A pattern projectiles. All shells were packed in wicker baskets.

Charges for this howitzer were made up in flat, washer-like rings, and of a double base powder, stitched in bags for zone fire. A brass case was used, packed 2 per wicker basket. Late in 1917 steel cases were resorted to, packed 2 per wooden box.

PRESENT MODEL

The present 21-cm Mrs. 18 has a reputed range of about ten miles with a 200-lb. shell. This modern shell is itself streamlined and so does not have a false ogive.

Carriage principles of the 21-cm mount have been covered in the recent 17-cm article.* The fact of relatively easy installation remains the same, and of course as an 8″ howitzer it does have a normal potentiality.

*See page 49 of this JOURNAL for January, 1945.

"WOE IS THE L. O."

By Capt. Eli G. Gifford, Jr., FA

The most unhappy officer at a Division Artillery Headquarters is the Liaison Officer. He holds a non-TO job, yet is a "must" in all corps' SOPs. He is *persona non grata*, being always in the way, butting in for information, crowding up the operations tent, and then is accused of spending the rest of his time joyriding about the countryside or hiding and sleeping in his own pup tent. He is the man who is always present when he is not wanted and never handy when needed. His day is not complete unless he is told at least once he should "back-up" to the pay table. All this is true when he sleeps at home, but when he bivouacs at a strange headquarters his position becomes even worse and he slips into the category of a necessary military evil.

The remedy for this sad situation rests with the officer himself. What it calls for is nothing but a little personal salesmanship based on tact, common sense, and knowledge. Of the three, tact is the most important. Treading the thin line of saying or doing the proper thing and not offending or disturbing even the lowliest is an art in itself. Common sense covers the method of approach to, attack for, and reorganization of the information you seek. All the facts your headquarters needs are available if you hunt them out—but the extraction must be painless, or on your next visit you will discover that your source is uncooperative. The old approach of "I have something for *you* that *you* will be interested in" always works, human nature being the same in military life as in civil. Your neighboring division artillery headquarters is interested in what your division is doing if you present the facts to show how it affects them. Once you have delivered your situation all the details of theirs are available to you—without getting the quick brush-off.

The Division Artillery Commander, his Executive Officer, S-3, and S-2 are the best sources of information, but you approach them in reverse order only after having "read yourself in" with the latest G-3 and G-2 reports, Sitreps, Field Orders, Letters of Instruction, Operations Memoranda, etc. Once you have digested these you can approach the operations officers with an intelligent background and get the "latest."

A friend to cultivate is the enlisted man who keeps the situation map. He can make your job very easy by pointing out any important changes or developments and saves you asking the S-2 and S-3 many unnecessary questions. In turn, you can make his job easy by carrying two sheets of acetate paper, one for the overlay showing your positions and front lines and one to use to get the dispositions of their troops. The acetate eliminates the daily hunt for overlay paper (always hidden away in an unlocatable and unopenable map case tube); unrolling the paper on a table (which everybody in headquarters will suddenly want to use and stand by impatiently waiting for); tearing off a small piece (to the tune of "don't waste that, it's hard to get now")—all of which contributes immensely to the nuisance value of a Liaison Officer.

The information you procure must be complete or it is useless. Ask yourself the four "W's": Who, What, Where, When. "Who" calls for the specific designations of divisions, regiments, combat teams or commands, leading elements, and patrols or reconnaissance elements. "What" are the friendly troops doing: if attacking, how (on foot, in vehicles, cross-country, astride roads); if halted, why (assembling, coiling, reorganizing, held up, pinned down)? "What" is the enemy doing; how many and with what weapons? "Where" and "When" call for correct coordinates, correct spelling of the names of towns (a rough job in some countries), and the correct times. After you believe you have gathered all the necessary information, put a check on yourself to see if you are entirely familiar with the present situation and present plan of operation. Unless you are the exception, there are a couple of points you have missed. You'll find, however, that you can't win and when you get back "home" someone will ask you a question for which you have no answer but your own guess. It's no good; keep it to yourself and say "I don't know." It will save lots of grief. Don't forget also to check that No Fire Line. Check their division boundary and see if it matches yours. Locate their troops fighting in its vicinity; you may prevent some casualties in your own infantry. Finally—check the code the headquarters is using, especially the Slidex Card Number and its wording.

When you walk into the operations tent of your next door division artillery headquarters and receive a friendly greeting and all the help you need, you feel very good inside. It is a lot better than having someone demand, "What do you want? Liaison Officers will stand outside, *please."* The job can be pleasant or otherwise. It's up to you.

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

THE WEST GERMAN FRONT (19 Nov to 18 Dec 44)

Allied Armies (Gen. Dwight D. Eisenhower), with Supreme Headquarters near Paris, on 19 Nov were disposed in line as follows:

21st Army Group (Field Marshal Sir Bernard L. Montgomery):

Canadian First Army (Lt.-Gen. H. D. G. Crerar): Hollandsch Diep—Maas River.

British Second Army (Lt.-Gen. J. T. Crocker): Rhine River (with bridgehead at Nijmegen)—Mook (G)—Maas River to Vierlingsbeek — Venray (A) — Amerika (G) — Venlo (German, with bridgehead on west side of the Maas)—Maas River (both banks in German possession to Maesyck)—Sittard (A)—Geilenkirchen (G).

12th Army Group (Lt. Gen. Omar N. Bradley):

U. S. Ninth Army (Lt. Gen. William H. Simpson): Immensdorf (A)—Euchen (?)—Stolberg (A).

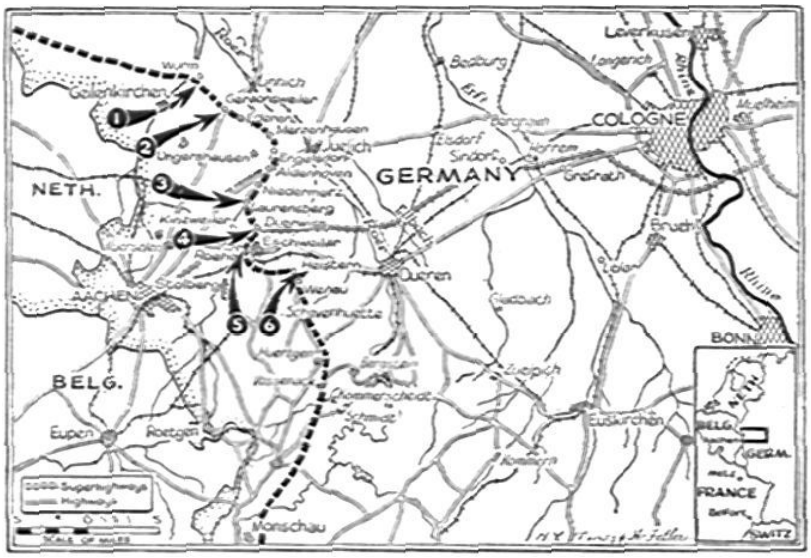
U. S. First Army (Lt. Gen. Courtney H. Hodges): Huertgen (?)—Monschau (A)—Our River.

U. S. Third Army (Lt. Gen. George S. Patton): Mosel River (US bridgehead at Koenigsmacher and German bridgeheads at Thionville and Metz)—Augny (A)—Peltre (G)—Sanry-sur-Nied (A)—Remilly (A)—Arriance (A)—Morhange (A)—Conthil (A)—Juvelise (?).

6th Army Group (Lt. Gen. Jacob L. Devers):

U. S. Seventh Army (Lt. Gen. Alexander M. Patch): Foret de Parroy (A)—Veho (?)—Migneville (A)—Ste. Pole (A)—Raon l'Etape (A)—Meurthe River—St. Die (G)—Taintryx (G)—la Houssiere (G)—Geradmer (G).

French First Army (Maj. Gen. Jean de Lattre de Tassigny): La Bresse (?)—Cornimont (?)—Le Thillot (?)—Champagney (?)—Chenebier (A)—Chazey (A)—Luze (A)—Hericourt (G)—Ste. Marie (?)—Dampierre-sur-le-Doubs (A)—Audincourt (A)—Dampierre-les-Bois (A)—Delle (A).



Early in the period, above Aachen British units around Geilenkirchen pressed to the outskirts of Wurm (*1*). *American troops on their right advanced along an are between Gereonsweiler* (*2*) *and Laurensberg* (*3*), *taking more than half a dozen towns. Just north of Eschweiler our infantry struggled forward to Duerwiss* (*4*), *while other troops cleared Roche and pushed deeper into Eschweiler itself* (*5*). *To the southeast the Americans moved beyond Heistern* (6) *and fought near Wenau*.

Their mission was the strategical offensive—to conquer Germany. This called for a tactical offensive, which was under way. The active and quiet sectors were

***21st Army Group*—Right supported the offensive of the 12th Army Group. Balance of the command, largely covered by stream lines which could not be crossed by either side without extensive preparations, was on the tactical defensive.**

***12th Army Group*—Left, supported by the right of the 21st Army Group, was engaged in a major offensive from Geilenkirchen on the north to Monschau on the south, a distance of 30 miles. This offensive had started on 16 Nov. Its immediate mission was the capture of the Cologne area.**

On the right the entire U. S. Third Army was engaged in a second major offensive on its entire front south from near Thionville. This front was about 56 miles. The battle had been in progress since 7 Nov.

Between these two attacks, the center of about 65 miles was assigned to the U. S. First Army, which was on the tactical defensive, holding with about 4 divisions.

***6th Army Group*—Its left was supporting the attack of the Third Army with the mission of driving the enemy out of the north part of Alsace.**

Its right was attacking toward south Alsace with a similar mission.

There was no inactive center. The entire front of the Group was about 100 miles.

AACHEN CAMPAIGN

On 19 Nov this battle had already been in progress three days. The enemy had been aware that the Allied attack was coming, having noted the preparations. He was making a very strong resistance. The area favored this. There are numerous stone villages, at only short distances from each other. Each constituted a strong point, having been prepared for defense. Experience has shown that bombing and shelling will not suffice to cause the abandonment within a reasonable time of a prepared stone village held by good troops. Generally it has been necessary for the infantry to capture stone villages through a street and house battle, which is long and frequently costly. There were numerous woods, also prepared for defense; here too the main burden fell upon the infantry, as tanks could be used to only a limited extent.

Weather was wintry, with a temperature usually around the freezing point. Clouds were the rule, and fogs occurred occasionally. Cold, misty rains, snow, or sleet fell almost every day. Ground was mud, and even tracked vehicles were often helpless in it. Air observation was uncertain or absent; ground observation was poor. The Allies had air superiority but could not employ it to maximum advantage. On many days planes were grounded for hours.

On the 19th the battle broke with unparalleled intensity, with maximum employment of artillery. During the night 18/19 the British entered Geilenkirchen, but were later thrown out by a counterattack. Renewing the attempt after daybreak, they reentered the town but made no progress until noon, when the enemy was driven out. South of Geilenkirchen enemy attacks were repulsed, gains being made only in limited areas for short advances. One of these reached the edge of Eschweiler, 7 miles east of Aachen.

On 20 Nov the British, whose attack included the Venlo area, made progress against German positions west of the Maas. Slight progress was made beyond Geilenkirchen. Enemy counterattacks were numerous, and elsewhere only slight gains were made.

Next day further slight advances were made in very heavy and continuous fighting costing (according to German claims) the loss of 40 tanks, in addition to 65 the day before. At the end of the day the line was Wurm (G)—Engelsdorf (2 miles from Juclich) (A)—Eschweiler (G)—Vossenack (?)—Monschau (A).

On the 22nd the battle, which had slackened, was renewed with great intensity by an attack launched at 0300 hours in a cold driving rain. Main effort was against Eschweiler. It was found that the enemy had withdrawn, and the town was occupied before 0700. It had not been bombed, not badly shelled, as the Allies had selected it for future use. Except for this success, not much was gained elsewhere.

On the 23d the British made progress opposite Venlo, reaching a line 3 miles from their objective. The main front was engaged in continuous bitter fighting between Geilenkirchen and Vossenack. In the south Americans entered the Huertgen Forest, but this gain was balanced by German recapture of minor points in the north.

The attack was renewed on the 24th, in part using fresh divisions. Progress was made in the Huertgen Forest, but it was small. Elsewhere the enemy's artillery was extremely severe, so no significant gain was obtained. Next day the fighting was directed more against the town of Huertgen, which was shelled. Minor advances were secured.

The enemy attacked opposite Juelich on the 26th. This attack was stopped by the Ninth Army. Further south the First Army cleared Weisweiler after a three-day street and house battle. There was no appreciable change in the line.

The Aachen battle was a dogged mud battle in cold, sleety weather with poor visibility which materially interfered with proper artillery and air support and cut down the ability of armored troops to maneuver. By the end of the 27th the line had through extraordinarily hard fighting been advanced to

Gereonsweiler (?)—Koslar (?)—Juelich (G)—Altdorf (?)—Langerwehe (?)—Grosshau (?)—Huertgen (?)—Monschau (A).

At places marked (?) both sides had troops in the town, engaged in street and house battles. The advance since the commencement of the operation on the 16th had been in 12 days:

British Second Army—3½ miles to northeast of Geilenkirchen;
U. S. Ninth Army—7 miles to Koslar, inclusive;
U. S. First Army—3 miles in the north to 2 miles beyond Eschweiler and in the south into the Huertgen Forest.

These distances give some idea of the fierceness of the battle, which was being contested with an unprecedented amount of artillery and materiel. The Venlo bridgehead had not yet been taken.

On the night of the 27th and again on the following night, the First Army made night attacks toward Juelich, less than 2 miles away. The country is a net of towns which run into or are close to each other. Elaborate trench systems connected them. When the trenches were brought under artillery fire the defenders withdrew temporarily to nearby house cellars, where they were fairly safe. As soon as the artillery lifted fire the defenders sallied out again. Each town to some extent protected the foreground of adjacent towns and prevented the attacking infantry from easily closing in behind the artillery barrage. The night attacks netted a gain of about 800 yards.

In the morning of 29 Nov the weather was fair and the Air Force heavily bombed towns before the Ninth and First Armies. At noon low clouds prevented further air activity. The Ninth Army attacked in twin attacks, one northeast toward Lindern and the other east toward some high ground. The east attack was stopped after an advance of about 400 yards. The northeast attack gained 1,000 yards, but it took all day to do it. This attack was opposed by enemy who occupied numerous pill boxes. This term really does not fit the modern work which goes by this name. The German pill boxes held 30 to 40 men, armed with machine guns and some with 88-mm guns. Walls are of concrete up to 4 feet thick. They are located inside buildings, in woods, and in sides of hills, and are carefully camouflaged. The First Army continued with its effort to clear Huertgen Forest, while maintaining the attack on the remainder of its front. The Germans still held the far side of the Maas about Venlo.

As November closed the Allied offensive continued in full vigor. At this date the line was (places marked with a ? partly in possession of both sides):

Lindern (?)—Koslar (?)—point I mile west from Juclich—Altdorf (?)—Lamersdorf (?)—Grosshau (?)—Kleinhau (?)—Huertgen (A)—Brandenberg (?)—Huertgen Wald (?).

The foregoing indicates that the capture of defended stone towns is extremely difficult. In 15 days of the battle the maximum advance had been 9 miles in the north. In the center an advance of about 5½ miles had been made to a line through Merode (half way between Eschweiler and Dueren, which are 7½ miles apart).

December opened with the left of the First Army practically stopped along the Inde River. The center was advancing very slowly toward Dueren. East of Huertgen strong attacks gained less than 400 yards.

On 3 Dec the Germans blew dams in the vicinity of Arnhem on the south (Allied) side of the Neder Rijn (Lek) River. This resulted within the next few days in flooding a considerable area on the Allied side, causing a withdrawal of the line out of prepared trenches into country subject to enemy artillery fire. It widened the area of water between the lines, thereby increasing the difficulty of either side's undertaking a major offensive within this area. The enemy thereupon withdrew a certain number of divisions from Holland to in rear of the Aachen sector. The Allies noticed this movement, but did not at that time place any particular weight upon it. The Allied offensive continued as before. It kept on making small daily gains with tremendous efforts. The plan was that the enemy's forces were being slowly destroyed in the heavy fighting, and that he soon would have insufficient forces to defend his lines. It was officially announced that 6 German divisions had already been destroyed.

On 4 Dec the enemy's bridgehead at Venlo fell, the enemy having withdrawn to the east bank. This released certain small enemy forces for other operations. By this date the main Allied attack was just outside Juelich. According to German reports, fresh divisions were being inserted in the Allied line. According to American press reports this change was not completed until the night of 5/6 Dec.

During this period German attacks were repelled. The enemy secured sufficient prisoners to enable him to identify divisions in line. On 7 Dec the First Army made small gains in the Huertgen Forest. Next day the Germans abandoned the west bank of the Roer opposite Juelich. There followed a decrease in Allied offensive activities between Linnich and Juelich pending preparations for crossing the Roer River, which was in flood. Below Juelich the battle was pushed with heavy fighting in the Huertgen Forest, which was a tough objective.

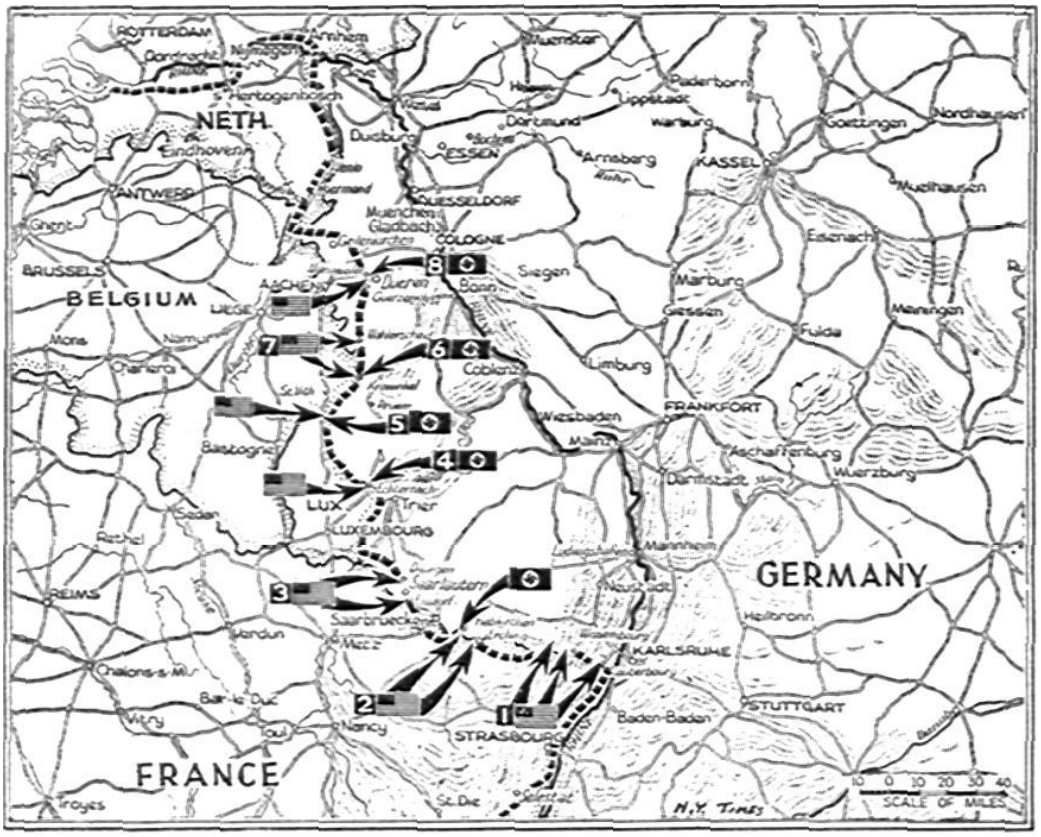
A new coordinated Allied attack was launched on 10 Dec in that part of the former battle zone south of Juelich. A very strong artillery preparation was fired by night, and the infantry jumped off on a 10-mile front at 0630 hours. About 100 tanks were in line. An all day battle resulted. Mud was deep. Enemy mine fields were numerous. To avoid them the tanks moved very slowly. Some became mired; the majority went forward, but not always with their infantry. A maximum advance of 2,500 yards was gained about half way between Juelich and Dueren. A ½-mile advance was made directly toward Dueren, with the enemy lines holding on both sides. American infantry entered Pier but were chased out by a Panzer counterattack, own supporting tanks not being available. Merode was reached but was not taken. An advance of about a mile was made north of Huertgen Forest.

The attack was continued on the 11th. There was a great artillery support, with which it was possible to get the center forward about a mile directly toward Dueren. This included the capture of Merode. The flanks did not do so well: their progress was slight or none.

During the night 11/12 Dec the enemy (less rest guards) withdrew from the vicinity of Dueren. Most of that town is on the east side of the Roer River. The 12th was a raw day, with wind and snow which melted as it fell. The infantry was caked with mud and stiff from cold. They pushed ahead, always with their strong artillery support, and closed in on Dueren and the villages to the north. In each of these a terrific street and house battle was fought. The enemy surrendered no town without fighting for it.

On the 13th the U. S. Ninth Army discontinued the attack in its zone, while the First Army concentrated its main effort in the vicinity of Monschau. Gains of as much of a mile were secured.

Next day the First Army attacked at noon, on the front from Juelich (exclusive) to Monschau (inclusive). Gains were made just south of Dueren, but not all could be held. The enemy counterattacked almost at once and recovered certain sectors. The terrain



As the period closed the American Seventh Army captured Lauterbourg and Wissembourg, made another crossing into the Palatinate west of Lauterbourg, and expanded its toeholds on German soil to the west (*1*). *The Third Army invaded the Saar north of Erching and repulsed assaults near Habkirchen* (*2*). *It also inched forward in Ensdorf and Dillingen* (*3*). *Against the First Army the Germans launched a series of counterattacks. The foe was halted at Echternach* (*4*), *at a point ten miles south of St. Vith* (*5*), *at Krewinkel* (*6*), *at Wahlerscheid* (*7*), *and at Guerzenich and Mariaweiler near Dueren* (*8*).

of this fight was shell and bomb-cratered fields of mud, under all kinds of cross fire from enemy-held stone towns and pill boxes.

On the morning of the 15th the First Army did not attack, H hour for that day having been designated as noon. The enemy made two small attacks north of Dueren, which appear to have been made to secure identifications: having taken some prisoners, the attacks were not pushed. The American afternoon attack was in strength. It met an enemy who was strong and fought back. Not much progress was made, despite support by over 500 planes.

On the night of 15/16 Dec, just prior to the start of the German counteroffensive, the Ninth Army held a front of 12 miles along the Roer River northward from Juelich, inclusive. Less some small German forces on the west side of the Roer, the First Army held the next 15 miles southward to Monschau, inclusive. Nothing unusual had been observed indicating any change in the general situation. Local enemy counterattacks were normal and expected, but large scale attacks were not foreseen. The plan continued unchanged: to attack the enemy and secure a penetration through which Allied armor could plunge deep into Germany; or if this was unobtainable, to attack constantly with a view of inflicting such losses on the enemy that his lines would fall away. The situation seemed so secure that for the first time the position of certain divisions was made public. These were 82nd Airborne Division, with 5th Armored Division, just south of Dueren; and the 2nd Division, near Monschau.

On 16 Dec very heavy enemy artillery fire fell on the entire front, commencing at 0530 hours. At or before daybreak numerous enemy attacks were reported along the entire front from Dueren all the way south. All were on narrow fronts. Those near Dueren were repulsed rather easily, but one near Monschau resulted in heavy fighting as the enemy broke through the line, opened up for him by his pre-dawn artillery preparation. This fight lasted all day, with the enemy held to only a slight gain. The day was a gloomy one. Air reconnaissance was lacking or unsatisfactory. Word from sectors to the south indicated that as at Monschau some local enemy attacks had succeeded in passing minor elements within our lines. It was assumed that as at Monschau they would soon be rounded up. Neither the Ninth nor First Armies made any serious attacks of their own, however.

By morning of the 17th it was definitely known that the enemy was making a major attack toward the south, and the Ninth and First Armies discontinued their attacks. The Ninth Army headquarters were not alarmed. They considered it doubtful that the German attack was intended to drive a deep salient. According to G-2's information there was no indication that the enemy had such reserves as to make this possible. They felt encouraged, as for the first time during this campaign sizable German Air Forces appeared overhead. Reports indicated that they were so badly beaten that it seemed unlikely that the Germans could furnish cover for a major offensive, and without that it was not believed that it would have much chance.

On the morning of the 18th it was generally recognized that the German offensive to the south was dangerous. The Ninth and First Armies discontinued for the present their offensives.

THE BATTLE OF LORRAINE

As this account opens the U. S. Third Army was engaged in crossing the Moselle River north of Metz, and in reducing that fortress, which it had nearly encircled. Our Seventh Army with its left was covering the right of the Third Army.

On 19 Nov a pincer movement, previously started, closed around the east side of Metz. It was estimated that about 3,000 enemy were trapped, but they were in strong forts which circled the city. The forts mutually supported each other and their guns had enfilade fire on the main roads. Until these could be taken the value of Metz, an important road and railroad center, was reduced. The enemy's main force was retiring eastward. Without much fighting the line of the two armies reached Gros-Tenquins—Dieuze—Rechi-court-le-Chateau—Badonviller. Sarrebourg was reached next day. On the 21st the north end of the advance met resistance west of Merzig; the center passed Sarrebourg, before a rapidly withdrawing enemy.

On the 23d the enemy being seemingly everywhere weak, the French 2nd Armored Division of the Seventh Army passed through Saverne and continued on into Strasbourg, which was undefended except for a bridgehead. Next day the first strong enemy resistance was encountered northwest of Saverne. The enemy made some slight gains, and next day recaptured Drulingen. It was found that the Germans were using a Panzer division newly arrived from rear areas, where it had been completely reconditioned. It was equipped with 1945 model tanks. To the northeast the enemy was still withdrawing, with the advance following close behind, but on the 26th the enemy was found in a position which necessitated a formal attack. It did not have much success. The line was just west of the German frontier from opposite Sierck to St. Avold.

A new attack was made next day. St. Avold was found abandoned, but there was considerable opposition farther north. On the 28th the Germans attacked the left of the Third Army opposite Merzig and made some gains. In the center they resisted as far south as the Sarrebourg area, where there was considerable German armor. To the east as far as the Rhine the enemy was withdrawing northward. Strong American attacks on the 29th advanced the front to near Sarre-Union. Slight further advances were made next day.

As November closed the Third Army was meeting strong resistance along its entire front. Its divisions included the 10th Armd, 90th Inf, 95th Inf, 80th Inf, 6th Armd, 35th Inf, 26th Inf, and 4th Armd Divs. The line was the Saar River from Merzig to Saarlautern — Forbach (G) — Sarre-Union (G) — La Petite Pierre (A) — Brumath (A)—Strasbourg (A). The 5th Inf Div was at Metz, attacking German forts.

On 1 Dec the Third and Seventh Armies attacked to secure initially the line of the Saar River from Merzig to Saareguemines, thence to Haguenau. Very strong opposition was met; the advance was slow. In the area south of Saareguemines German armor counterattacked frequently. By 3 Dec the Saar had been generally reached between Merzig and Saarlautern, and at the latter a small bridgehead was secured. On the same day Sarre-Union was entered. Attacks on Haguenau failed.

As November closed, in the area of Saarlautern (*1*) *the Third Army passed Rammelfangen and Kerlingen and captured hills below Felsberg. Southwest of Saarbruecken* (*2*) *our troops took Carling and smashed back a counterattack near Fareberswiller. The railroad town of Sarre Union was being enveloped by American units that reached Rexingen and Struth* (*3*). *Similarly, the rail center of Haguenau was being threatened* (*4*) *as our forces reached the vicinity of Bischholz, took Uhrwiller, advanced close to Niedermodern, and seized Niederschaeffolsheim. French units of the Seventh Army pushed south to Osthouse* (*5*). *To the south the Americans reached Zellwiller and Hohwarth* (*6*) *in the direction of Selestat. French columns northeast of Belfort and west of Mulhouse joined at Burnhaupt-le-Haut* (*7*).

A savage street and house battle developed in Saarlautern, which was mostly on the north side of the river and in enemy possession. River crossings were started on both sides of the town, that near Dillingen being the more important. The weight of the attack against Haguenau was shifted to its west side, where Mertzwiller was reached on the 5th. Sarreguemines was reached on the 6th, and another street and house battle began. On the 7th German counterattacks recovered some parts of the ground lost in Saarlautern and at Mertzwiller.

On 8 Dec a bridgehead was established at Sarreguemines. This was advanced next day to a depth of 2 miles to Neunkirch. The Seventh Army tried a night attack to the east of Haguenau, omitting an artillery preparation. This worked. Bischwiller, including an intact bridge, was captured by a double envelopment. As a result of this success the Germans evacuated Haguenau, which was secured on the 10th. The line then ran almost straight northwest to Rohrbach, held by the enemy. The violent street and house battle in Saarlautern continued. Some fighting continued in Sarreguemines.

On the east flank the Germans withdrew to their West Wall, which was inside the old German frontier. The right of the Seventh Army on the 12th advanced 8 miles along the Rhine to Seltz. The Germans held on to Bitche as an advanced post. This was a part of the Maginot Line. Although they faced the wrong way for them the Germans used the forts, which were in part suitable for all-around defense.

On 13 Dec the 5th Div completed the capture of the German-held forts about Metz. Their final removal cleared Metz, an important road and railroad center. On the 16th heavy attacks against the Bitche forts were under way. With this exception the Third Army was nearly stabilized along the Saar River line. Although bridgeheads were held near Saarlautern and at Sarreguemines street and house battles were yet in progress there so it had been impossible to develop the bridgeheads. The Seventh Army followed the retreating Germans, not without some serious delaying actions, and reached Wissembourg, just in front of the West Wall.

On 17 Dec, unaffected as yet by the German counteroffensive of the preceding day, progress was made in the reduction of the Bitche forts. Troops at Wissembourg advanced across the frontier into Germany. These operations were continued with some success during the 18th.

THE SOUTH ALSACE BATTLE

On 19 Nov the French First Army had arrived on a line 8 miles west of the fortress of Belfort. Armored troops had penetrated the

enemy-held forts encircling that town, and were in the city. Other troops had by-passed the fortress by slipping along the Swiss border; their leading elements were at Delle. Continuing along all day they reached the Rhine at Huningue, just north of Basle, at 2200 hours. North of Belfort Allied troops arrived at Gérardmer. On the 20th the French captured two forts on the west side of Belfort to reach the outskirts of the city. Fanning out, the troops who had slipped by captured Altkirch. Disregarding enemy attacks directed south and southeast from the line Belfort—Dannemarie which temporarily interrupted their line of communications, the French moved north and entered Mulhouse on the 21st. A street and house battle started in Belfort. To the north St. Dié was occupied.

On the 22nd the Germans closed around Mulhouse and temporarily isolated the French therein. This situation was relieved by the end of the street and house battle in Belfort on the 24th, which opened the way for the advance of supporting troops. Other troops pushed from St. Dié toward Saales.

On 27 Nov troops of the Seventh Army commenced an advance southward from the Strasbourg area with a view to joining the French near Mulhouse and thereby clearing all of Alsace. The Germans started a counteroffensive southwest against the line Belfort—Mulhouse. Very stiff fighting resulted. On the 30th the French in Mulhouse expanded eastward toward the Rhine, through the Harth Forest.

On 1 Dec armor moving south from Strasbourg against light opposition reached the line Kogenheim—Boofzheim, while troops from the west reached the vicinity of Ste. Marie-aux-Mines, west of Sélestat. Sélestat was reached next day; a street and house battle started. On the 3d this force also reached Ribeauville to start another street and house battle. Further south the enemy held a considerable part of the main Vosges Mts. A beginning to pierce this was made by troops which crossed north of the Schlucht Pass to the upper Thur valley. The pass was cleared on the 5th by Algerian troops. The Germans recovered part of the Harth Forest, taking several hundred prisoners.

Meanwhile the fight in Sélestat continued. The armored force from Strasbourg bypassed that place and on the 6th was at Ost-heim, 5 miles north of Colmar. On the 7th the French reached Thann, where still another street and house battle started. An attack against Muenster by troops coming from Gérardmer failed. The Germans were now attacking frequently. Heavy fighting raged all through the south Alsace area. It spread to the vicinity of Kaysersberg, which was attacked by Allies coming from the west.

On 10 Dec Thann was cleared, the enemy remaining just outside of the town. Strong German reinforcements were now reported to be arriving in the sector, and the enemy's tesistance was very vigorous. By constant fighting Kaysersberg was taken on the 17th.

THE GERMAN COUNTEROFFENSIVE

At the beginning of December the Allies had concentrated strong forces in the Aachen area and in Alsace, both of which had been engaged since mid-November in severe and constant fighting. They left the interval between these two zones of offensive operations weak. According to German reports only 4 American divisions were holding a 60-mile front from south of Monschau to the vicinity of Trier.

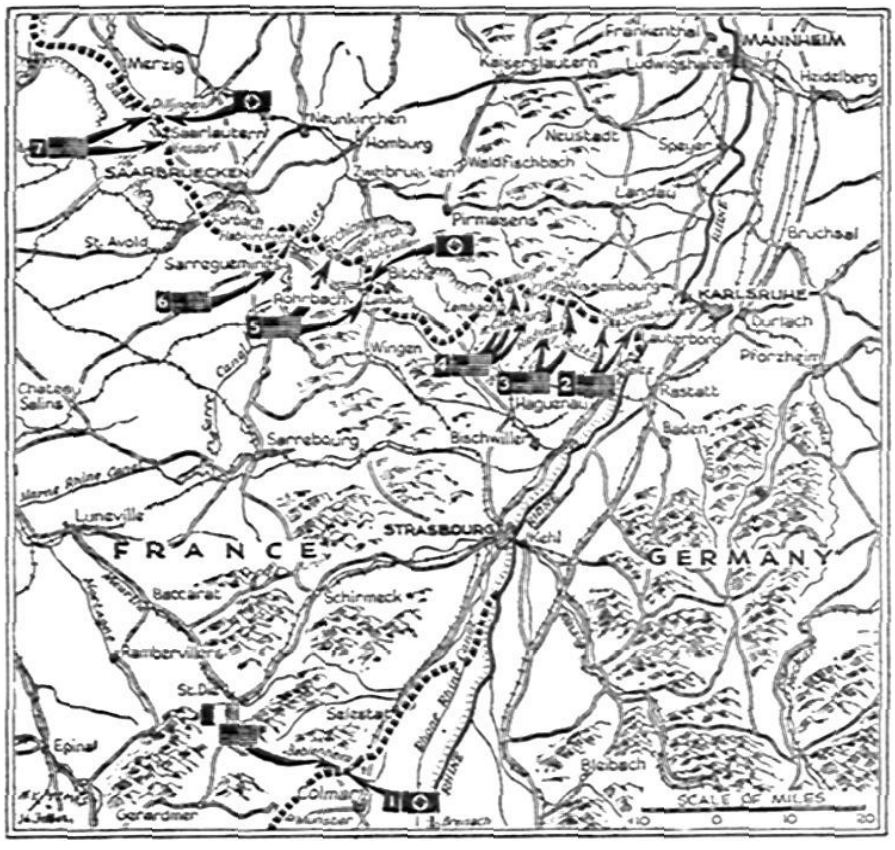
The German decision to attack this front appears to have been made during the latter half of November. The movement of German troops to the Eifel (area just east of the intended attack zone) was known to the Supreme Command at the Paris CP about 4 Dec. Whatever attention was paid to this information, it did not occur that a German attack was to be expected.

The Germans protected their flanks. On the north they flooded areas below Arnhem along the Rhine, and below Dueren along the Roer, sufficiently to preclude Allied offensives without first making considerable preparations for river crossings, almost certain to attract attention in advance. On the south they reinforced their troops in south Alsace, while in north Alsace they had withdrawn to the protection of the West Wall.

A new German Army—the Fifth Panzer—entered line in the north part of the attack zone, leaving their Seventh Army to the south. This was also known to the Allies.

On 16 Dec at 0530 hours the Germans attacked with a force estimated as 10 infantry and 5 Panzer divisions. A powerful but short artillery preparation was fired, after which the Panzers led the attack. They went right through the front before day, in certain narrow sectors. After passing the front they fanned out. In rear of the Panzers infantry divisions followed. Those on the north turned right into line to establish a north corridor wall, while those on the south turned left into line for a south corridor wall. Infantry in the center exploited the penetrations secured by the Panzers. The day was a gloomy one, and Allied air observation was lacking.

Not only was the German offensive not foreseen, but there was failure to recognize it when it came. No special measures to meet it were taken on the 16th or the ensuing night. The Allied communique issued on the 17th, but covering events of the 16th, reported that local enemy attacks were repulsed in the area southeast of Monschau. Press reports filed late on the 16th claimed that on a 70-mile front a series of sharp German attacks had occurred and that some penetrations had been made, but that all attacks had been checked.



Near the period's end hard fighting was reported northwest of Colmar (*1*) *after the enemy had launched counterattacks. Battling into Lauterbourg and seizing Scheibenhard and Salmach* (*2*), *the Seventh Army crossed the border into the Palatinate. Shaping a trap around Wissembourg, it took Riedseltz and Cleebourg* (*3*). *It also drove across the frontier north of Climbach and Lembach* (*4*). *Farther west Lambach, Guiderkirch and Erching* (*5*) *were reached as the foe counterattacked in the Bitche area. Fierce resistance was encountered beyond Habkirchen* (*6*) *and progress in street fighting in Saarlautern and in battling around Dillingen* (*7*) *was again measured in yards*.

It was not until after reports of the events of the night 16/17 had been received that the High Command realized that anything unusual had happened. The Germans thereby gained a 24-hour start. The Germans had dropped numerous small groups of parachutists in rear areas to disrupt lines of communication. They seem to have had some success.

On the 17th, meeting relatively slight opposition, the Germans crossed the boundary into Belgium and Luxembourg in considerable force. They did not dash forward, and they built their corridor walls to the north and south as they advanced. First Army Headquarters reports were that the German attack looked like the real thing. Yet they were not certain. Ninth Army Headquarters thought that the Germans were not trying to drive a deep salient as there were no indications that they had sufficient forces for such an ambitious program. The First Army took measures to start a counterattack against the German north corridor wall, at that time believed to be the enemy's main body headed for either Aachen or Liége. The attack started during the night 17/18.

On the 18th the German Panzers in the north reached a point about 6 miles west of Stavelot, while in the south they nearly reached the west boundary of Luxembourg. The German center was held back near St. Vith by the resistance of American troops who had rallied in that area. The attack against the north corridor wall by the First Army made no noticeable gain. The south corridor wall was not seriously attacked, and the German troops assigned to it were able to occupy a position without much interference. Many groups of Americans were at this date holding in rear of the German advance. Against these the German infantry divisions were operating. As this account closes the fate of these detachments is unknown.

At the end of 18 Dec, the line was approximately

Rhine River from the sea to Nijmegen (A)—Mook (G)—Maas River to Roermond (G)—Roer River to Monschau (A)—Malmedy (?)—Stavelot (?)—Vielsahm (?)—west boundary of Luxembourg to Sauer River—Sauer River—Mosel River to Wellen (G)—Saarburg (G)—Saar River to Sarreguemines (A)—Bitche (A)—Wissembourg (A)—Rhine River to Strasbourg (A)—Selestat (?)—Colmar (G)—Kaysersberg (A)—Muenster (G)—Thann (A)—Mulhouse (A)—south part Harth Forest (A)—Rhine River to Swiss frontier.

THE WAR IN ITALY (19 Nov to 18 Dec 44)

A change of command occurred effective 26 Nov. General Sir Harold R. L. G. Alexander was promoted to Field Marshal and assigned to command the Med terranean Theater, vice Field Marshal Sir Henry Maitland Wilson, relieved and ordered to duty in Washington on the Allied Chiefs of Staff Board. Replacing Gen. Alexander in command of the Allied Central Mediterranean Force (which comprises the fighting forces in Italy) is Lt. Gen. Mark W. Clark, who in turn was succeeded by Lt. Gen. Lucian K. Truscott as commander of the U. S. Fifth Army.

The other army in the command—the British Eighth—is under Lt.-Gen. Richard L. McCreery, who replaced Lt.-Gen. Sir Oliver W. H. Leese, relieved and ordered to the Southeast Asia Command.

The enemy consists of the Tenth and Fourteenth German Armies, totalling about 25 divisions, under Field Marshal Albert von Kesselring. Their mission was to prevent the Allies from advancing into the valley of the Po River. The Allied mission was to drive the Germans completely out of Italy.

On 19 Nov the line was

Viareggio (Allies)—Gallicano (A)—Barga (A)—Fanano (A)—Montese (German)—Vergato (G)—point 3 miles north of Loiano—Valsenio (?)—Modigliana (A)—Forli (A)—Ravenna (G)—Ronco River.

This front was about 130 miles long. 25 miles on the right were on low land, some of which was flooded and intersected with numerous canals and irrigation ditches. The balance of the line, less 5 miles close to the west coast, was in the mountains for just 100 miles. These mountains are very rough. At this season snow had commenced to fall; cold rain has been more common. Cold and water have materially interfered with supply. Roads are not infrequent, but they were not designed for heavy truck traffic. Many bridges have gone out due to sudden rises of mountain streams which quickly change into raging torrents. The mountain sectors have been nearly stabilized.

Both in the mountains and in the lowland armored vehicles have seldom been able to operate off the roads, which have become the center axes of battles. All towns and villages are of stone construction. The enemy has been highly proficient in organizing these as centers of resistance. Each has been a problem in itself, requiring much preparation and hard fighting. Clouds which were often low and constant over extended periods, prevented good air support and interfered with air and ground observation. Operations have recently been materially slowed.

On 20 Nov the British Eighth Army launched an attack against Forli with British troops on the right and Poles on the left. The offensive extended into the mountains, the right of the U. S. Fifth Army attacking north from Modigliana with an Indian division. Not much progress was made the first day, but on the second after an almost unprecedented air and artillery preparation the Allies made progress. According to German reports the two Allied Army Corps participating in the attack around Forli were opposed by the single 26th Panzer Division commanded by a colonel.

Greatest advance was on the left in the mountain section, which reached the south edge of Faenza on the 24th. The Germans then withdrew from the vicinity of Forli to in rear of the Lamone River, which the Eighth Army reached on the 25th. Instead of attacking across that river the British changed the direction of their attack toward Ravenna with their left on the Lamone. The battle on the front Faenza—Lamone River—Ravenna continued daily without intermission, with the Germans making a very determined resistance based upon their stone towns and villages and numerous stream lines. The latter particularly impeded that part of the Allied advance which was directed toward Ravenna.

On 4 Dec the last of these water courses was forced and a Canadian tank corps pushed north, close to the Lamone River on the cast side. This move so threatened Ravenna that the Germans withdrew from there and Canadian troops entered on 5 Dec. That ancient city was found practically undamaged.

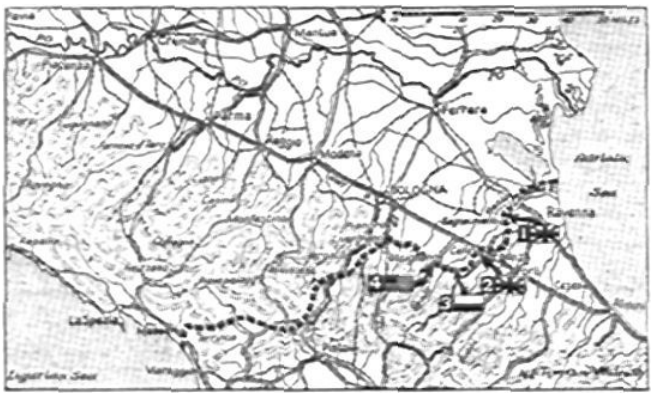
Allied efforts were reoriented to an advance across the Lamone both north and south of Faenza, while the attack upon that city was intensified. First success was south of Faenza where by the 7th a substantial bridgehead had been secured. The Germans promptly counterattacked with great vigor. On 9 Dec a German Panzer attack south and southwest from Faenza gained several miles and cleared the city on that side.

A bridgehead north of Faenza was secured by British troops on the 11th. Next day the 1st and 5th Canadian Tank Divisions established two additional bridgeheads further north. Again the Germans counterattacked and there was heavy fighting, resulting in the Canadians' enlarging their bridgeheads over the Canale Naviglio. On the 13th the right of the Fifth Army with British troops entered Tossignano (8 miles southwest of Imola). Everywhere the German resistance was severe. A British tank battalion which penetrated into enemy rear areas toward Imola on the 14th was intercepted and lost. Due to large numbers of hedges, ditches, streams, vineyards, and similar natural obstacles, motorized troops are confined to restricted areas. Interception is thereby facilitated.

At Faenza fresh divisions were placed in line. On the 16th a New Zealand Division captured Celle, just west of Faenza. British troops attacked on the right, Poles and Indians on the left, toward the Senio River. The attack from the bridgeheads north of Faenza failed to advance. A very great amount of artillery was used by the Allies.

On 17 Dec Faenza was entered but the fighting decreased on this flank. It increased on the right, where the Canadians made progress. No important change occurred on the 18th except that Faenza was cleared of the enemy.

On that day the line was



Canadian troops have established a 3-mile-wide bridgehead across the Naviglio Canal, which runs just east of the Lamone River (*1*). *New Zealand units captured Faenza and pressed on through Celle* (*2*). *On their left Polish forces captured some heights below the Senio River* (*3*). *The Americans were still near Tossignano* (*4*).

Viareggio (A)—Gallicano (A)—Barga (A)—Fanano (A)—Montese (G)—Vergato (G)—9 miles south of Bologna—Tossignano (?)—Faenza (A)—Ravenna (A).

The front was about 115 miles long, of which all except the 40 miles on the east was quiet. The maximum advance during the period was opposite Faenza for a gain of nearly 12 miles.

COMMENTS

According to Russian reports two German divisions which had been in Italy for a long time were identified in Hungary, through prisoners taken. This leaves the number of German divisions in Italy as about 23. Of these one is guarding the Italo-French frontier, 2 are watching the Ligurian coast, and 2 the Venetian coast. About 3 are in rear areas preserving order and guarding lines of communication. This leaves 16 available for the front.

According to a speech by Mussolini, who now appears to be in good health and who has established his headquarters at Milan, 4 Italian Fascist divisions are about to enter line. These divisions have been training in Germany. Advance elements of these divisions were in action near Faenza, and were cited for excellent conduct. These were probably training cadres.

Also according to Mussolini, 700,000 Fascist Italians are serving in Italian divisions, are incorporated within German units, are serving as MPs in rear areas, or are serving in labor units.

THE WAR ON THE RUSSIAN FRONT (19 Nov to 18 Dec 44)

FINLAND

At the beginning of the period the German forces were withdrawing from Finland via north Norway and were on the line Palojoensuu (Finland)—Enontekioe (German)—Kaamanen (F)—Lake Ii—head of Varanger Fjord. A Russian army which had had 12 divisions, plus several armored brigades, held the front from Lake Inari to the Arctic Ocean. Finn troops held the balance of the line.

By 23 Nov the Germans had cleared Finland in the south sector. The Finns followed to the border but did not attempt to cross. It has been officially announced that in accordance with armistice terms the Finn army has completed demobilization. Only the usual peace establishment is active. Any offensive on their part therefore seems improbable.

No activity has been reported by the strong Russian army close to the sea. It outnumbered the Germans by about two to one, but may have been decreased. The line at the end of the period was west border of Finland from the Swedish frontier to Polmak—head of Varanger Fjord.

According to Norwegian reports, the Germans have prepared a main line of resistance from the Swedish border to the head of Lyngs Fjord. This is less than 30 miles. It is 240 miles beyond the present Russian positions at Varanger Fjord. All people and resources are being removed from in front of Lyngs Fjord Line, which is being strongly fortified. The actual German position along the Finn boundary is held as a delaying position, to be evacuated in case of a major attack. At this season of the year north Norway (Finmark) is snow bound. Military operations are difficult. The Germans have one fair road across Finmark. This has numerous bridges which if destroyed would require rebuilding, with little material available in the country.

LATVIA (INCLUDES ESTONIA)

The Germans on 19 Nov held the south end of Oesel Island—the Sworbe peninsula. They held a large beachhead on the mainland covering the ports of Ventspils and Liepaja. The Sworbe and mainland positions on opposite sides of the main entrance to the Gulf of Riga denied the use of that bay and of the port of Riga to Russian shipping. It forced Russia to limit herself to Gulf of Finland ports.

The Germans were of the opinion that if Russia secured use of the Baltic Sea ports amphibious expeditions might be launched against the north German coast, which is nearly 400 miles long. The number of divisions required for that long stretch was greater than the 30 divisions detailed to hold 150 miles of line on the Latvian mainland. Sworbe had a special small garrison.

On 19 Nov Russia launched an attack against the isthmus connecting Sworbe to the main part of the island of Oesel. A very strong artillery force was used to shatter the German defenses. On the 21st the Russians broke through the front lines. With the help of their naval forces the Germans held for one more day. On the 23d the Russians forced them back again. During the night of 23/24 Nov the German garrison was withdrawn. The Russians did not claim capture of prisoners. This victory unblocked the north side of the main entrance to the Gulf of Riga. The Germans still held the south side.

The line in Latvia was

Mt. Tyupkaim (on coast south of Liepaja) (?)—Shkudy (Russian)—Mazeikiai (R)—Auce (German)—Jelgava (R)—Lielupe River.

At the same time that Sworbe was attacked the main German beachhead was attacked by a total of 70 Russian divisions, which was more than double the German strength and does not include armored forces, the strength of which has not been ascertained. These Russian forces were divided among 8 armies, in turn assigned to two Army Groups—the 2nd Baltic on the north and the 1st Baltic on the south. Most of the fighting that followed seems to have been at the south end, the main effort having been made against Liepaja. A secondary attack was near Auce and vicinity.

First day of attack was 19 Nov. Not much progress being made, it was continued through the next two days. The Germans fought hard and counterattacked promptly against some penetrations which the Russians accomplished. On the 23d a regrouping of Russian divisions was made; the attack was renewed, in part with fresh divisions. This also lasted three days, ending on the 25th. It was not thereafter reundertaken.

This battle was a hard one. It left the situation substantially unchanged, with no appreciable change in the line.

POLAND

There has been no fighting, other than usual raids for reconnaissance purposes, on the front of Poland.

HUNGARY (INCLUDING YUGOSLAVIA)

On 19 Nov the line was

Jasiotka River—Humenne (G)—Csap (R)—Tisza River—Miskok (G)—Mezoe Koevesd (R)—Hatvan (G)—Budapest (G)—Danube River—Sabac (?)—Valjevo (G)—Cacak (G)—mountains east of the Ibar River—Pristina (G)—Tetovo (G)—Debar (G)—Tirana (G)—Adriatic coast—Dubrovnik (British)—Dinaric Alps to head of the Adriatic.

The German commander on this front was General Woehler. He appears to have been relieved by Colonel General Freissner, in the sector between Budapest to Miskolc (both inc.). German commanders south of Budapest were not ascertained. The German C-in-C for the entire Eastern Front is Colonel General Guderian, who has been relieved from duty as Chief of Staff at German GHQ.

A strong force of Russians, estimated by British forces as 500,000 men, is fighting with the Germans. Their leader is General Vlasov, whose headquarters appear to be in Prague. From that place a radio propaganda is broadcast daily in Russian urging Russian soldiers to desert their cause. Similarly Russia maintains in Moscow a broadcasting station which daily exhorts the Germans to desert their present colors. The speakers are represented as being German prisoners

of war, but no Germans have been identified as fighting in Russian ranks. There is no evidence that either German or Russian radio efforts have had any material success. The Russians fighting on the German side are split among German organizations, and no complete Russian unit is known to exist other than special reconnaissance bands.

According to Russian reports there are about 70 German divisions on the Hungarian and Yugoslav front, plus 20 Hungarian divisions. This is an increase of about 10 German divisions and a decrease of 4 Hungarian divisions, compared with previous estimates. There is little information of the Russian strength. Russian Army Groups in line are the

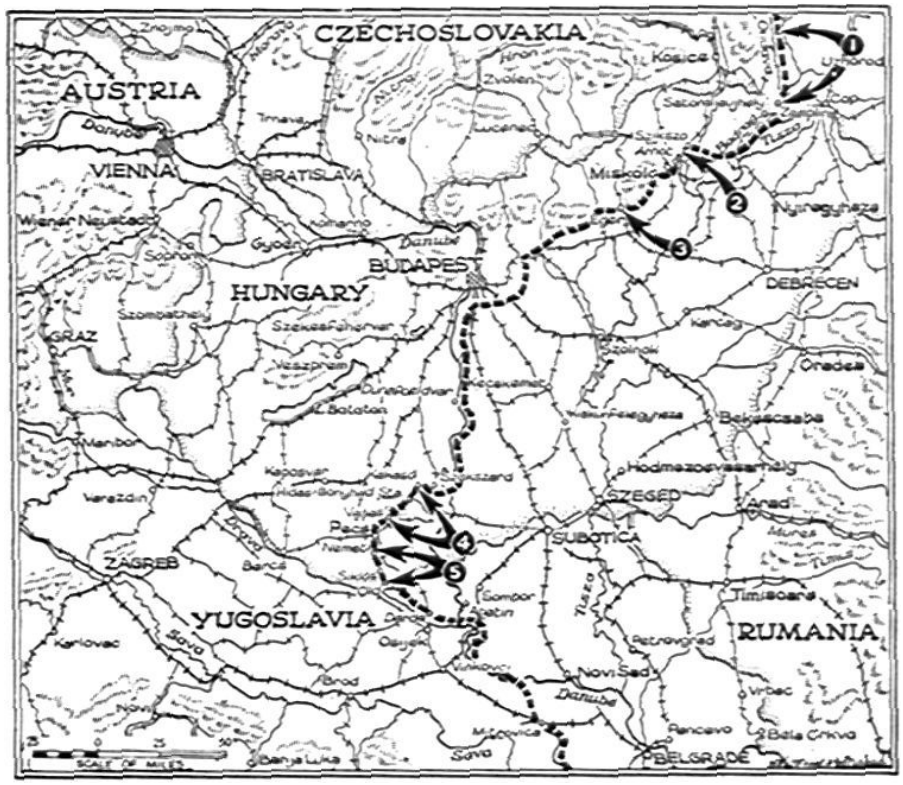
4th Ukraine (Colonel General Ivan Y. Petrov) in Slovakia.

2nd Ukraine (Marshal Rodio Y. Malinovsky) in Hungary north of Budapest inclusive.

3d Ukraine (General Feodor Tolbukhin) from Budapest (exc.) to the Sava River.

A force of Romanian troops estimated as at least 12 divisions is included in the 2nd Ukraine Army Group. According to German reports, this Group contained 61 Russian Infantry divisions and 7 Tank Corps. Yugoslav Partisans, owing allegiance to Marshal Tito, of unknown strength are aiding the 3d Ukraine and conducting a guerrilla warfare within occupied Yugoslavia. A Bulgar force estimated as about 8 divisions was at the beginning of the period in line on the sector between Pristina and Skoplje.

The Germans were withdrawing from south Yugoslavia, where their line formed a huge salient. The flanks of the salient were defended until the head had passed.



As November ended, in Czechoslovakia the Russians reached the Ondava River along its entire length from the Polish border to its confluence with the Bodrog and crossed the latter stream, taking Zemplin (*1*). *In Hungary Soviet troops captured Arnot, near Miskolc, which is now half-encircled, and Szikszo* (*2*). *They also won the important base of Eger* (*3*). *In the Pecs area the Red Army took Kakasd and Vasas* (*4*) *and Nemeti and Old* (*5*).

On 19 Nov the Russians were in process of driving a major offensive along the 90-mile front between Miskolc and Budapest and another against Budapest by the 2nd Ukraine Army Group, while the 3d Ukraine was seeking to force a crossing of the Danube in the vicinity of Apatin, where it had a bridgehead. The Bulgars were attacking on a line from Mitrovica-Kosovska 30 miles southward to near Pristina. The 2nd Ukraine made a gain near the center of its line, reaching Gyoengyoes.

On the 23d, not much progress having been made in the offensives which continued without interruption, the front of the attack was extended to include the 4th Ukraine, which started major efforts southward through Dukla Pass and westward from Uzhorod. As German intelligence had noted the preparations for these new attacks, they did not at once gain ground. The Russian advance from Uzhorod was confronted with the fact that the ridge and stream lines, as well as the roads, ran at nearly right angles to the direction of advance. There were next to no roads in the east-west direction. The mountains were rough, and there were numerous woods. The technical difficulty of advancing through that kind of country and establishing lines of supply were considerable.

Notwithstanding the difficulties of the mission the Uzhorod attack reached Humenne on the 26th. The 2nd Ukraine on the same day captured Halvan, but on the rest of its long front the advance was slow and meeting strong resistance.

The 3d Ukraine, having failed in repeated efforts to break out of the Apatin bridgehead, on 27 Nov commenced a new operation by forcing a crossing at Mohacs. This sector was found to be weakly guarded. The Russians made considerable progress at once. They reached Pécs, 25 miles away, the next day. The Russians organized two forces—one to proceed from the Pécs area northwest to around the south end of Lake Ealaton, while the other moved north toward the line from north end of Lake Balaton to the Danube.

With Lake Balaton at their rear, and with weak forces, the Germans could only delay the Russians. They too divided their forces and fell back to the two ends of Lake Balaton. At the same time new divisions were ordered to the Lake Balaton area. Two divisions were taken from Italy, one from the west German front, and an unknown number from the GHQ reserve. It is doubtful whether as many as three divisions came from the latter source.

Continuing its steady attacks, the 2nd Ukraine captured Eger on 30 Nov. As the month closed the German retreat in the south Balkans had just cleared the north boundary of Albania.

The 4th Ukraine made little progress in the Dukla Pass. But the Uzhorod offense gained. On 1 Dec it reached the next valley, that of Ondava.

By 4 Dec the 3d Ukraine, opposed by German rear guards, was approaching Lake Balaton, at both ends. A new offensive was launched this day by a new crossing of the Danube into Slavonia near Vukovar. Again initial resistance was moderate and a fair bridgehead was secured. It was not until the 7th that the Germans were able to assemble enough troops in this area to stop the Russians. By this time a good sized bridgehead had been built up. In the meantime Miskolc had fallen to the 2nd Ukraine.

On 8 Dec the 2nd Ukraine attacked strongly with its left, just north of the Budapest area. This broke through the hostile front for a gain of 28 miles, reaching Vacs, at the Great Bend of the Danube where the river turns southward. This battle started with a powerful artillery preparation which punched holes through the German defensive zone, through which armored columns dashed. This was the first complete success that this Army Group had had in this campaign. Nearly 6,000 prisoners were claimed to have been taken. An attack at the same time directly against Budapest from both the south and the north, failed.

Now the 2nd Ukraine directed its major attention to the north. An offensive was started from the Miskolc area almost due north, in order to aid the 4th Ukraine still pushing slowly west from Uzhorod. The second offensive was from the new area gained north of Budapest; it too was directed northward. The latter reached the Ipoly River just south of the CzechoSlovakia boundary on the 9th, meeting but slight resistance.

By 12 Dec the 3d Ukraine was well established along Lake Balaton. The Germans in this area had received the divisions ordered forward, and their new line southwest to northeast through the lake held against rather strong attacks. So did Budapest. The 2nd

Ukraine renewed their attacks along their entire front.

By 14 Dec the Russian bridgehead near Vukovar was withdrawn. This entire operation may have been a feint. It did attract German forces to that area, for a Russian breakthrough in this area would have menaced the line of communications through central and western Yugoslavia. The offensive of the 2nd Ukraine north of Miskolc made a slow advance up the Hernad valley, reaching Galvacs on the 14th, Szendroe on the 15th, and Putnok on the 17th.

On 18 Dec a strong Russian attack on a front of 30 miles was launched north from the Ipoly River area. On this day it crossed a short distance into CzechoSlovakia.

As this account closes the line was **Jasiotka River—Dukla Pass (?)—Kis Szeben (?)—Eperjes (R)—southwest to Hernad River—southeast to Satoraljaujhely (R)—Szendro (R)—Eger (R)—Gyoengyoes (R)—Szecseny (R)—Sahy (?)—Ipoly River to Danube (German bridgehead at Nagy Maros)—Danube River with German bridgehead at Budapest—Ercsi (R)—Szekesfehervar (G)—Lake Balaton—Somogyszob (R)—Barcs (R)—Drava River—Siklos (R)—Villany (R)—Mohacs (R)—Danube River with Russian bridgehead at Apatin—Vukovar (G)—Mitrovica (R)—Sava (Save) River—Sabac (G)—Valjevo (G)—Cacak (G)—Raska (G)—Novi-Pazar (?)—Podgorica (?)—north end Lake Scutari—Dinaric Alps to head of the Adriatic Sea, with British beachheads opposite Mostar and Knin.**

THE WAR IN THE PHILIPPINES (19 Nov to 18 Dec 44)

OPERATIONS ON LEYTE

At the beginning of the period, the U. S. Sixth Army was engaged against the Japanese Thirty-fifth Army, on the west side of Leyte. The former had in line two corps disposed as follows:

X Corps

24th Div—facing south near Limon, on right

32nd Div—facing south near Limon, on left

1st Cav Div—attacking westward from around Jaro

XXIV Corps

7th Div—facing north along the Palanas River

96th Div—attacking westward from the Dagami—Burauen area

The enemy had about 4 divisions (identified as the 1st, 16th, 30th, and 102nd) holding Ormoc and a sizable beachhead about that place.

Leyte has no dry season at any time. It rains in every month, with heaviest rainfall usually during November and December. This year it was reported as being very much heavier than normal. This caused deep mud everywhere, and impeded air operations.

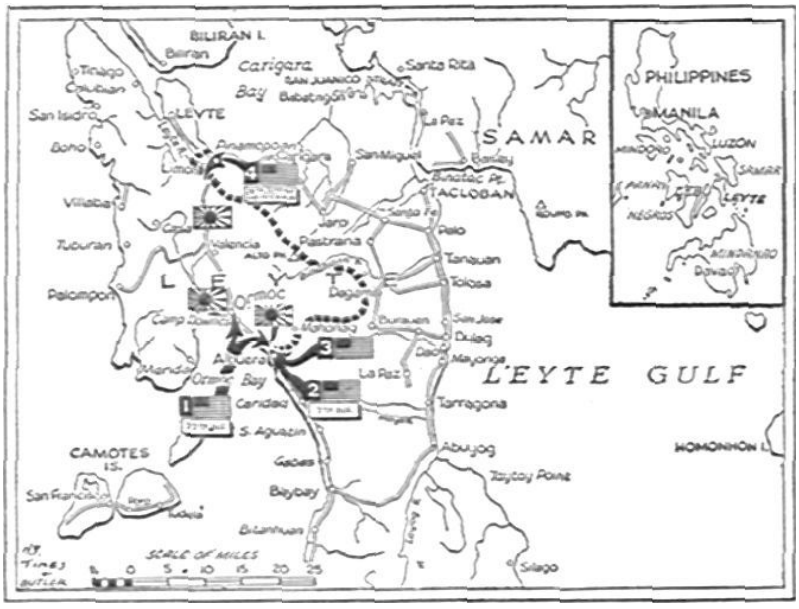
South of Ormoc the enemy held a narrow strip between the coast and the mountains, not over 3 miles wide. North of Ormoc the enemy's main position was in a valley between the main ridge of the Leyte Mountains to the east and a secondary parallel range to the west. The width of the valley varied, but averaged around 6 miles. The enemy held the entire west secondary mountain range and the coast beyond it. This coast, 50 miles long, is thickly settled and cultivated but has no good roads. A small port is Palompon, which supplemented the Ormoc base. All of the enemy area east of the secondary mountain range was subject to artillery fire by 155-mm guns. It was further frequently bombed.

In the north the X Corps had established a road block in rear of the enemy's position about Limon. It was attacking south against strong resistance of the Jap 1st Div. The enemy attempted to interrupt American lines of communication. About two battalions reached the rear coastal areas on 20 Nov between Pinamopoan and Capoocan. The 24th Div sent troops to clear the corps supply line.

On the 23d the Japanese discovered an Allied convoy coming north from Australia, passing off the east coast of Mindanao. To protect this, Jap air fields on Mindanao were heavily bombed. The Japs managed to trail the convoy.

The attack of the X Corps passed Limon on the 23d, then continued on against the Jap 26th Div, which supported their 1st Div. Two days later the left of the attack reached Hill 1525, overlooking the valley immediately to the west. This hill afforded good observation. On the same day the enemy was cleared away from the Allied line of communications.

The convoy from Australia reached Tacloban by the 25th. It was raided by Jap planes. Japan claims to have sunk 2 transports on the 26th. Our report claims the downing of 4 of the attacking planes, and acknowledges only minor damage and casualties. A continuation of the Jap attack on the 27th resulted in a further claim of having sunk 4 more transports plus several naval vessels. The American naval press report is that this action took place during the morning of the 28th. The only loss admitted is that among them was one battleship described as wreathed in fire, but the ultimate fate of which is not mentioned. 15 Jap planes were downed.



Early in Dec, in a 4-day campaign the 77th Div captured the enemy's supply port of Ormoc (1). Simultaneously the 7th Div (2) joined by another American column from the east (3) moved to within a mile of the 77th's right wing, thus trapping thousands of the foe. American troops in the north (4) resumed their pressure against the Japanese caught in the corridor between them and Ormoc.

The American Air Force was not idle. It circulated far and wide over the central and south Philippine area. Almost every day it reported having sunk ships and barges. To include 30 Nov it had reported the sinking of 7 Jap convoys of 29 transports plus 18 escorting naval ships. The loss of these transports materially influenced the Japanese position. Rations were reduced to two small meals of rice per day. Some troops failed to receive any rations for as much as two days at a time.

On 1 Dec, pushing slowly southward, the 32nd Div was approaching Tolibaw, about 6 miles from the north coast of Leyte. On the 3d American naval forces for the first time appeared in Ormoc Bay. They encountered three enemy warships not identified and sank one of them at the loss of 1 American destroyer sunk.

On 6 Dec the X Corps attack was progressing very slowly. A new attack was started by the XXIV Corps on the south, which with its 7th Div forced a crossing over the Palanas River at two points. On this day the 77th Div, a new addition, arrived on transports. This convoy had been discovered by the enemy on the 5th and was attacked on that day and also on the 6th. The Japs claim to have sunk several transports, but this has not been confirmed. The convoy arrived off Ormoc during the night 6/7 Dec, and on the morning of the 7th, after a short artillery preparation fired by the Navy and supported by the Air Force, landed about 3 miles south of Ormoc almost without resistance. At the same time an enemy convoy of 6 transports plus naval and air escort was discovered coming from the north. The two air forces mutually attacked each other's ships. All the Japanese ships are reported to have been sunk before unloading.

We lost 1 destroyer and 1 transport after it had unloaded its personnel. About 200 Jap parachutists were dropped near airfields on Leyte and accomplished some damage. Some Japs landed in transport planes, and left in the same way.

On 8 Dec both the 7th and 77th Divs attacked northward. The 7th reached Balogo, 1 mile south from Albuera, while the 77th reached the south edge of Ormoc. Continuing this attack the 7th Div reached the area of the 77th on the 11th, the enemy withdrawing eastward to the mountains. At the same time the 77th Div, attacking daily, completed the capture of Ormoc.

On 12 Dec another Jap convoy of 4 transports was attacked near northwest Leyte; 3 were sunk with as many escorting destroyers. Next day 3 small enemy transports were sunk off Ormoc. Now the 77th Div attacked northward while the 7th Div operated against those enemy troops who had withdrawn to the main mountain chain east of Ormoc, found to belong to the Jap 26th Div. This latter mission was completed by the 16th. On that date the 77th Div. reached Cogos, south of Valencia. The 32nd Div was still engaged in heavy fighting to the north, without making any substantial advance against very strong enemy positions.

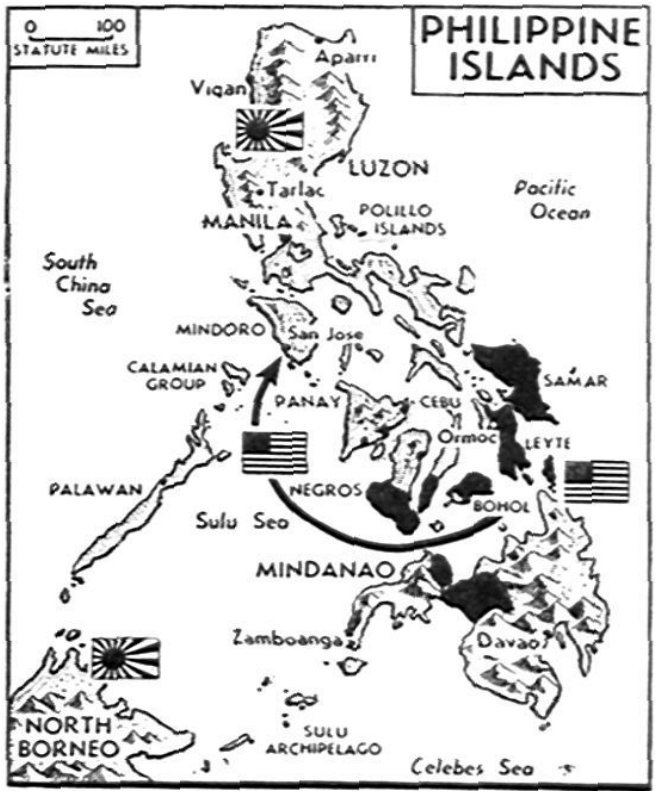
On 17 Dec the 77th Div was 2 miles south of Valencia, and on the 18th reached an airfield west of that town. As this account closes the 7th Div (completing the XXIV Corps) was in the Ormoc area. Of the X Corps, the 32nd Div was still near Tolibaw and the 1st Cav Div was on the main mountain chain to the east thereof. The 96th and 24th Divs were unreported.

Operations on Mindoro

On 13 Dec an Allied convoy of about 150 ships carrying one division was en route from Leyte, passing south of Negros, when it was discovered and attacked by enemy planes. The enemy thereafter trailed it, operating against American air cover provided from fields on Leyte. The enemy air attack was continued on the 14th. By that time the convoy had passed south of Panay and was steaming northward.

On 15 Dec the convoy arrived off the southwest coast of Mindoro, and after the usual air and naval preparation the troops were landed. Except for a patrol there was no opposition. Five miles inland is the town of San José. An airfield is close by. These were secured on the 16th, no enemy being found. By the 18th a beachhead had been firmly established to a depth of about 11 miles.

The southwest section of Mindoro is isolated from the eastern part by rough mountains, with no road connection. West of the mountains, but not east thereof, a dry season extends from December to June. During this period the airfield can be expected to operate with maximum efficiency.



Arrow indicates American invasion of Mindoro Island, just south of Luzon in the Philippines. Black areas show territory wrested from the Japs by Yank troops on Leyte and Samar and by guerrilla forces on Panay, Negros, Cebu, Bohol, and Mindanao—seizures of ports and airfields which facilitated the invasion leap from Leyte to Mindoro.

Except for air attacks, which have occurred daily, there has been no enemy resistance. American and Australian troops are engaged in establishing an Allied air base.

THE WAR AGAINST JAPAN (less the Philippines) (19 Nov to 18 Dec 44)

Southeast Asia

Active operations have been limited to Burma, where the Allies are engaged in a concentric advance from the southwest, west, north, and northeast. The mission of this offensive is to (*a*) reopen the Burma Road, and (*b*) drive the enemy out of Burma.

Arakan is a thin province between the Bengal Sea and the mountains at the southwest of Burma. It is densely populated near the coast, and has heavy jungles and mountains inland. Mangrove swamps largely border the shore.

On 19 Nov the XV Corps, with the 25th Indian Div on the right and the 81st West Africa Div on the left, held the line Maungdaw (inc.)—Buthidaung (exc.)—Paletwa (inc.).

On 23 Nov the 81st West Africa Div started an offensive headed south from west of Paletwa and the Kaladan River. There was considerable opposition the first day; only one mile was gained. Thereafter opposition decreased and in general disappeared, the Japanese withdrawing except for contact detachments which fell back as the British advanced. By the 29th the British were in the vicinity of Kaletwa. The enemy fell back to the east side of the Kaladan River.

On 7 Dec the 25th Indian Div attacked on the line Maungdaw—Buthidaung. This made slow gains from the beginning, the enemy not seriously contesting the advance. Buthidaung was occupied on the 13th.

By 18 Dec the line was point on coast 20 miles SSE of Maungdaw—point 5 miles south of Buthidaung—Paletwa (Jap).

On the *West Sector,* opposite Manipur, the British Fourteenth Army at the beginning of the period was advancing into Burma in two columns:

south: the 5th Indian Div plus the 11th East Africa Div (less 1 combat group) was northeast of Kalemyo.

north: 1 combat group (11th East African Div) was on the west side of the Chindwin River, near Mawlaik.

Both columns were advancing toward Kalewa.

Considerable resistance was encountered. It was necessary to call upon the Air Force to repeatedly bomb enemy positions. The north column was stopped 4 miles north of Kalewa. The south column took 11 days to make the last 11 miles through high mountains and deep gorges. It reached Kalewa on 2 Dec. On the next day a junction was made with the north column.

The 11th East Africa Div now moved castward via Sittaung. Meeting very little resistance, it reached Pinlebu on 17 Dec. Next day it made contact with the North Force located in the Naba Area.

The 5th Indian Div operated against the enemy south of Kalewa. On 10 Dec the Japanese abandoned the high ground in the loop of the Chindwin River southeast of Kalewa. By the 12th a bridge (Bailey type) 1,000 feet long had been constructed across the Chindwin River at Kalewa and supplies were moving forward.

At the end of the period the line was

With the Chinese force that is advancing down the Burma Road toward Wanting (1), 75 miles from other units well south of Bhamo, that stronghold (2) was captured by Chungking troops after a siege. British forces were consolidating their positions in the Indaw-Katha area (3) and others took Shwegyin (4) and pushed toward Yeu. In a new drive in the Arakan region the British cleared Buthedaung and reached a point 14 miles southeast of Maungdaw (5).

Ft. White (Br)—Kalewa (Br)—Mingin (Jap)—Indaw (Br)—Pinlebu (Br).

In the *North Sector* the 36 British Div on 19 Nov was in the vicinity of Pinwe, with the immediate mission of seizing the Naba—Katha area. The 38th Chinese Div was besieging Bhamo. The two forces were in connection with one another.

The British troops met very heavy resistance as they started south on 20 Nov. In 10 days they were unable to advance beyond the vicinity of Pinwe, which is 7 miles north of Naba Junction. In continuous attacks they advanced 3 miles by 5 Dec. Then the enemy withdrew. A renewal of the attack on the 7th found no enemy. On the 9th Naba and Indaw were taken, and on the 16th Katha, without meeting any enemy. This force now is in liaison with the 11th East Africa Div and seems to have transferred to the British Fourteenth Army.

The 38th Chinese Div met very strong resistance at Bhamo. It kept pushing in first from one side and then from another. Its usual gains were small but steady. Still no great advance was made. On the night 14/15 Dec the Japanese garrison at Bhamo unexpectedly made a sortie southwestward along the Irrawaddy River. The movement was to escape, and apparently the majority did get away. Not, however, without some loss from Chinese artillery fire. On the 15th the Chinese cautiously advanced toward Bhamo. They seem not to have recognized that the enemy had withdrawn. It was not until afternoon that the town was entered. About 220 Japanese sick and wounded made a slight resistance.

A provisional force known as the Mars Task Force, under an American commander (Brig. Gen. John P. Willey) was detached from the Bhamo area and moved south across country with the mission of attacking enemy lines of communication in the Mandalay area. On 18 Dec this command reached the vicinity of the Shweli River near Molo.

On the *Northeast Sector,* formerly the Salween front, on 19 Nov the Japanese withdrew from Mangshih (a road block on the Burma Road) about 27 miles to the vicinity of Chefang. Chinese troops following reached Chefang on the 22nd. On 1 Dec the Japanese withdrew 28 more miles to the vicinity of Wanting, just across the border from Burma in China. The U. S. 14th Air Force has been aiding this Chinese force, and has repeatedly bombed the enemy positions and their line of communications. On 18 Dec the situation was stabilized at Wanting.

COMMENTS

The Ledo Road has been paralleled by a pipe line, which enables gasoline and oil to be delivered in necessary quantities in forward areas of the North Sector.

North Burma is practically clear of Japanese north of the line Kalewa—Katha—Bhamo—Wanting. The Allies are in a good position to push toward the center of Burma. The dry season will continue until about May, leaving some 5 months of favorable weather available for military operations. In Arakan the enemy has a base at Akyab. There is no information as to whether that place will be defended.

SOUTHWEST PACIFIC COMMAND (LESS PHILIPPINE ISLANDS)

The Allies hold bases along the north coast of New Guinea interspersed between Japanese bases. Same situation is found on Morotai, where the Allies hold the south and the enemy the north of the island. On New Britain the Allies hold the west and the enemy the east end. On Bougainville in the Solomon Islands, the Allies hold a beachhead on the west side about Empress Augusta Bay. Around these widely scattered places some ground activity has occurred. No details have been made public. A statement of casualties issued covering an unstated period ending 4 Dec, and without details as to places or dates, reports that the enemy lost 1,821 killed and 180 prisoners. No report was made as to our casualties.

The enemy base around Wewak, New Guinea, covers a greater area than before. Sizable forces are on Kairiru Island off the coast, in the Sepik valley, and in the Torricelli Mountains. These Japs were supposed to be cut off through loss of their line of communications. They appear to be receiving some supplies, notwithstanding.

Enemy air activity has been limited for offensive purposes to occasional raids against the Morotai base. Allied air activity is on a large scale and includes,

Borneo: oil plants on cast coast; sea and air bases in north sector
Celebes: air bases, including 6 large ones
Halmahera: airfields and supposed enemy bivouacs
Timor: same
New Guinea: airfields and ground troops.
New Britain: same
New Ireland: same
Bougainville: same

A considerable quantity of enemy shipping has been reported sunk.

PACIFIC FLEET COMMAND

There have been no notable operations. Support has been given to the expeditionary force in the Philippines. In connection therewith Fleet planes have heavily raided Luzon, and some Visayan islands.

The entire Pacific Ocean is kept under surveillance. Enemy bases are regularly reconnoitered. In connection with reconnaissances opportunity is taken to do some bombing. Major air raids for destruction have been made against Babelthuap in the Palau Islands, Iwo in the Bonin Islands, and Matsuwa in the Kurile Islands. The latter two places were also shelled by surface ships.

Other places visited regularly by planes include Paramushiru in the Kurile Islands, Marcus and Wake Islands, Yap, Truk, and Ponape in the Caroline Islands, Nauru, and the Marshall Islands.

Ground operations have been limited to Peleliu and Guam, where some enemy troops continue to hold out. No details have been released. A casualty report for the period 20 Oct to 26 Nov, for Peleliu only, shows losses as follows:

Japanese—1,300 killed, 142 prisoners
American—92 killed, 622 wounded, 5 missing; total 719.

JAPAN

Air raids by the new super-heavy bombers have been made from bases on Saipan Island and in China, by the 20th Air Force, as follows:

21 Nov: against an airplant on Kyushu

24, 27, and 30 Nov and 3 Dec: against Tokyo

7 Dec: against Mukden and Dairien in Manchukuo

18 Dec: against plants at Nagoya.

No reliable information is available as to damage caused. The enemy reports it was negligible. Our loss of super-bombers was 7 or an average of 1 per raid. Bombing was from very high altitudes, beyond effective AAA range, and some of it was through clouds.

The enemy retaliated by raiding the base at Saipan on 27 and 29 Nov and 7 Dec. On the latter occasion he succeeded in destroying 1 super-bomber and damaging others. The air base in China was also raided, the enemy claiming following the returning super-bombers and attacking them as they landed. No reliable information as to this is available.

CHINA

In the last issue of this JOURNAL account was given of the active Japanese campaign in Kwangsi, which culminated on 10 Nov in the capture on the same day of the two American air fields and Chinese bases at Kweilin and at Liuchow. In exploitation of this success, Japanese forces spread out and by 22 Nov reached Hochih (near the border of Kweichow), which is an important road junction.

Since that date no important Japanese expeditions have been made in this area. A reconnaissance force advanced into Kweichow and reached Tushan. Meeting opposition, and too far from its base, it withdrew on 7 Dec, leaving the front substantially along the border between Kweichow and Kwangsi.

A major Japanese expedition was launched in south Kwangsi on 28 Nov. It started from Nanning astride the road to Indochina. At the same time another Jap column started from Indochina along the same road, but in the opposite direction. There seems to have been no substantial Chinese resistance, and the two columns met on 10 Dec. Theoretically this opens an overland route all the way from Fusan in Korea to Singapore and Burma entirely under Japanese control.

The military value of this route is only partly known. From Fusan to Peking there is a good railroad on American lines (standard gauge and American rolling stock) covering 1,000 miles. It is about 1,500 miles further from Peking to the Indochina border. The first half of this distance has a railroad to Hankow on the Yangtse River. This is subject to interruption by Chinese Communist forces and to bombing by the U. S. 14th Air Force. Its useful capacity is believed to be small. South from Hankow the railroad is functioning for about 550 miles as far as Liuchow, but is subject to frequent attacks by American planes. There is also water transportation over this section, fairly reliable but slow. From Liuchow to Indochina is 250 miles with a railroad surveyed and partly graded.

The Japanese have built hard-surfaced roads behind their advancing forces, using impressed Chinese labor. Work includes widening the narrow Chinese bridges to a width suitable for standard trucks. Provided the Japs have the trucks, gasoline, and oil, their line of 1,500 to 1,600 miles south from Peking might work and be of considerable military value.

On 22 Nov General Yasuji Okanura was appointed the Jap C-in-C for all of China. According to Chinese reports his main mission is the establishing of bases (including airfields) back of the coast between Shanghai and Hong Kong. Evidently the reason for this would be to prepare to oppose an Allied invasion from over the seas. The airfields would be useful to furnish air cover for Jap convoys hugging the China coast. The new overland route would furnish supply communications for these new bases.

From the north Indochina border there is rail and road connection all the way to Saigon. This follows the coast and is liable to interruption by an oversea expedition. North from Singapore there is a good railroad to Bangkok and beyond for a total distance of about 1,200 miles. A rail connection with the Burma railroad system has been built and is working. There is a 250-mile gap between the end of the railroad in Thailand and the nearest point of the Indochina RR south of Vinh.

From the Thailand railhead to the China border overland is 500 miles. According to latest available information there is no truck road for 125 miles of this distance. It is possible that the enemy has, or will, build this section, which would be across mountains and no easy job. But it would be possible.

The differences between the Kuomintang and Communist parties in China continue. Each maintains its own armies. They do not cooperate. Each has had sizable forces in positions of readiness against possible unexpected actions by the other side. Under American influence there are indications that this unfortunate internal dispute may be settled. Earnest attempts to do so are being made.

FLYING IN COMBAT—LONGER

By Lt. Warren R. Behm, FA

These points are offered from my experiences through France, and with the hope they may help minimize losses.

Flights in new forward areas should be made mainly by contact, not by compass.

A good altitude at which to fly when observing over enemy territory is between 1,800 and 2,500 feet. In this zone the pilot is relatively safe from small arms fire and 20-mm ack-ack, yet is too low for heavy ack-ack.

Avoid flying over wooded areas and seemingly deserted towns in enemy territory. The Nazis seem to prefer to shoot at a "Cub" when it is directly over their positions, presumably with the thought that we can not see whence their fire is coming.

On cloudy days, with a ceiling of 1,500 feet or less, be careful when flying over enemy territory, especially if the situation is static or semi-static. Enemy infantry will usually take pot shots with small arms and machine guns. Apparently their fire is induced by the low altitude at which the plane is forced to fly, and their feeling that the poor visibility makes their own position safe from ground observation.

After flying many missions himself, the writer finds that probably the best time to fly deep (5 to 10 miles) into enemy territory is during a general advance by our own elements. At such a time the enemy appears to be too busy with our forward ground troops to fire at us, and also are in danger of revealing their positions to our advancing troops if they do open up.

Ground fire of all kinds can be successfully avoided if the pilot will fly a completely irregular flight path—that is, to the left, to the right, and up and down—but at the same time fly in the general direction of his own lines. This procedure seems to induce the enemy to try to follow the ship's erratic path, in doing which his fire becomes very wild.

A pilot should avoid flying too close to other liaison planes, to avoid giving the enemy a possibly more profitable target.

Red Army Artillery Tactical Trends—1944

A Summary, Condensed from the Soviet Press

Artillery Screen (Soviet AT Tactics)

Artillery is the most effective means of combating tanks—and the most economical. Therefore the Red Army is using massed artillery fire to counter enemy tank groups. This is called the "artillery screen."

This screen is artillery massed on sections where the enemy makes a tank thrust. Sometimes these sections can be determined beforehand, sometimes they are discovered in the course of an engagement. Where the Red Army sees the possibility of large enemy tank attacks it protects the area with a powerful artillery screen. For example, just after the Soviets have made a river crossing they anticipate the enemy will counterattack with armor. An artillery screen is therefore placed to protect the bridgehead.

Example. Near Iasi Soviet units crossed the Prut River. The enemy tried to throw the Red troops back. The Russians established an artillery screen. Four German panzer divisions attacked on a narrow front, ran into the screen, lost more than 400 tanks, and were forced to give up the attack.

The artillery screen preserves your own striking force while allowing you to deal an offensive blow against the enemy just after he has been severely mauled.

Example. In December, 1943, on the First Ukrainian Front just after the capture of Kiev, Red units advanced west of the city and had to beat off counterattacks of large enemy tank forces. In view of this the Soviets established a strong artillery screen which was many kilometers in depth. Enemy armor was drawn into a protracted battle and consequently suffered heavy losses because of the screen. Finally, when the enemy had been weakened by the artillery screen the Soviet tanks were able to launch their own attack. The enemy was driven back beyond Zhitomir and Berdichev.

The artillery screen is used to neutralize enemy armored thrusts while at the same time providing cover for own armored forces so that they can either continue their actions or re-group for new offensives.

Example. In the Korsun-Shevchenkovsky district the Soviets encircled the Germans by a two-pronged tank thrust. Deep in his defenses the enemy was known to have large panzer reserves capable of severing the Russian pincers. Therefore Red forces covered their armored pincers with a flanking artillery screen. When the Germans discovered their groupment was being threatened with encirclement (by Red armor) they hurled four of their reserve panzer divisions at the flanks of the Red armor, and in doing so they ran into the Russian artillery screen. This allowed the Soviet armor time and security enough to tighten their ring around the already pocketed Germans.

Soviet Artillery on the Karelian Isthmus

Soviet artillery was used extensively against the permanent fortifications in the heavily fortified Vyborg area.

Grouping. The Soviets massed all types of guns and mortars. For every kilometer of breach 500 artillery pieces [nearly 42 U. S. battalions] were in action.

Fire Power. After the Finnish fortifications were destroyed the Soviets did not encounter a single Finnish soldier who had survived the barrage (artillery and air) in the first two belts of enemy trenches.

Artillery Action. Main action was a two-hour barrage on 10 June 1944, although some fire had been delivered the day before. During this two-hour barrage the smaller guns were moved up to within 77 to 130 yards from the enemy's forward entanglements—something the Soviets report has not been done before in this war. The gun crews who moved up this close were provided with special shelters to protect them from the fragments of their own long range shells. The small caliber guns fired at point-blank range, as did a reported large number of heavy guns.

Infantry Attack. This began after the two-hour preparatory barrage, whereupon the infantrymen followed a rolling barrage. The entire attack was well coordinated. Earlier the infantry had rehearsed the attack behind their own lines, where they were trained to overcome all obstacles and mine fields, with the result that in the attack they did not have to rely on the engineers.

Self-Propelled Guns

A discussion (May 1944) by a Lt. Col. P. Kolomeitsev points out the following.

Large numbers of Soviet and German self-propelled guns met recently on the battlefields of the Ukraine and the Crimea. In various sectors they had been clashing daily for over a period of several months.

Col. Kolomeitsev states that "The Ferdinand is by no means a *vulnerable* fighting machine."

All major enemy tank attacks were supported by Ferdinands, but neither the Ferdinand nor the Tiger won the Germans supremacy in battle. The Germans used Ferdinands to fill gaps between tanks and artillery which usually occurred in the fighting.

On more than one occasion Col. Kolomeitsev had seen Tigers attacking with an escort of Ferdinands. At times the latter's armor enabled them to push ahead in the face of AT rifle and 40-mm AT gun fire when even the tanks hesitated.

Since the battle of Kursk (introduction of the Ferdinands) the Germans have added considerably to their number of self-propelled guns and have sent them into action *en masse*.

The Germans have begun to avoid encounters with Soviet self-propelled artillery.

Soviet Artillery at Sevastopol

The German Defenses. These were the last word in fortification engineering. Sevastopol was belted by three lines of defenses. The Germans made good use of the terrain, especially in the mountains where MG to heavy cannon emplacements were hewn out of rock. About every 28 yards throughout the three defense lines there were large pillboxes covered with a double layer of logs and two to three layers of sand bags; some of these roofs were 8 to 12 feet thick.

In one 8-kilometer stretch the Germans had 362 MG nests, 70 rifle grenade positions, more than 30 batteries dug deep in the earth, plus numerous AT and mortar positions.

Soviet Action. The Russians took their time to conduct a thorough reconnaissance. A special map of the enemy's defenses was made, and ground scouts contributed a good deal of the information. Lt. Gen. Ivan Strelbitsky was the general officer commanding artillery in the Crimean campaign. He

and his staff studied the enemy defense map for two days while working out the plan for artillery attack. On the third day he moved his CP to a specially equipped and located OP offering a complete view of the enemy terrain.

Some 500 observation points had been established on the front line as well as numerous sound detection platoons. These corrected the fire during the actual artillery barrage.

The Soviets used 22-mm AA, 45-mm AT, and other guns up to the 203-mm. The 1½-hour artillery barrage was supplemented by air bombing.

MASS EMPLOYMENT OF ARTILLERY

By Lt. Gen. Georgi Nadisov

Chief of Staff of Artillery of Troops on the First Belo-Russian Front

BY RADIO FROM MOSCOW DIRECTLY TO THIS *JOURNAL*

Artillery has never been employed on such a mass scale as by the Red Army in this war against Nazi Germany. In the 1914-1918 war artillery also played a conspicuous part, but only in the very rare cases of breaking through prepared defenses were more than a hundred field and trench guns concentrated on any one kilometer of front. Only in three operations was this number exceeded—near Verdun, in Flanders, and at Malmaison, where for every kilometer of front 137, 153, and 161 guns were massed. During Red Army operations 150 to 200 medium and heavy caliber guns and mortars per kilometer of front became more or less common, and in some cases the number was well over 300.

This mass artillery must not only be concentrated on one sector or another. This must be done secretly, without arousing the enemy's suspicions, so that the blow might fall with surprise: only thus will it be possible to develop initial success.

In this connection it is worth recalling the operation of French troops on the River Aisne in April, 1917, when 5,597 French guns in nine days hurled 200,000 tons of metal at the Germans, covering each meter of front with 150 shells, without, however, achieving success. This happened because the Germans had ample time to bring up their reserves and engage the attacking French infantry from new positions.

It is of course not a simple task to launch a surprise action and develop a dashing success when in the course of battle huge numbers of guns have to be manipulated and controlled. This is particularly difficult under the conditions of mobile warfare, when there is often little time to prepare for operations, yet the Soviet command solved this problem.

In July, 1944, troops of the First Belo-Russian front, led by Marshal Rokossovsky, dealt the Germans a crushing defeat east of Bobruisk and, continually increasing the force of their blows, went on routing the enemy. The Germans were quite confident of the soundness of their defenses at the point of breakthrough and expected no attack in that sector. But in the space of a few hours a mighty Soviet barrage knocked cut of action the greater part of the enemy force, paralyzing his operations to the extreme.

To prepare this action on two narrow sectors of front (12 and 14 kilometers) it was necessary to bring up secretly and speedily 130 train loads of artillery and nearly 1,000 freight cars with the shells which were expended in the first two days.

Matters didn't end there, however. To achieve maximum effectiveness of fire it was essential in a very short time to spot enemy firing points and assign to every crew a definite target. Reconnaissance revealed 1,668 targets, including 790 enemy gun emplacements. The fine work of the scouts will be evident from the following: on one comparatively narrow sector of the breakthrough (6 kilometers) 272 targets were charted, among them 40 gun batteries. In the course of a two-hour bombardment Soviet gunners, manning over 1,000 guns, disabled 203 targets, among them all 40 German batteries.

After reducing the enemy's defenses the Soviet gunners set up a wall of fire behind which the infantry rose for the attack. This accompaniment of the infantry by fire did not cease even when most of the pieces had used up their range. This was because positions were changed not by the whole mass of the artillery simultaneously, but gradually, one group following another; and also because hundreds of guns moved with the infantry, firing direct.

It is now common practice for our gunners to establish their guns close to enemy positions and during the artillery preparation to fire direct from short range and move forward with the infantry. Only recently many held the opinion that such employment of artillery would lead to unnecessary loss and would not yield the desired effect. This proved wrong. Soviet gunners have learned to steal up to the foe, camouflage, and when necessary knock out targets from positions from which the foe does not expect gunfire.

Artillery is likewise used for smaller operations. The fact of the matter is that the infantry itself is well equipped with guns and mortars. Therefore the infantry divisional, regimental, or battalion commander is able, if conditions call for it, to bring together all his guns and thus set up a strong fire force.

Soviet artillerymen have benefited greatly from battle experience, finding new solutions to many operational and tactical problems. They are supported by a strong rear which supplies all their needs. Soviet industry has kept pace: for example, when the Germans introduced their *Tigers* and *Ferdinands* in 1943, our gunners already had modernized shells which would pierce the strong armor of these tanks and self-propelled guns.

Our fine artillery technique is in the hands of skilled and brave men. All have been reared on the tradition of Russian gunners: Better perish by the gun than yield it to the enemy.

On one sector near Bobruisk, on the 5th day of the operation and when the Germans in the town were already encircled, an infantry division was ordered to prevent the Germans from escaping north. After a 70-kilometer march it began organizing a position, when it was attacked by a German force of 4,000 men and 60 tanks striving to break through to Minsk. A heavy battle ensued on a 1½-kilometer front. The enemy overpowered our infantry and approached the emplacements of the artillery regiment. Our gunners fired direct with all their guns. Despite severe losses the Germans continued to attack. Our advanced battery was attacked by 600 Germans. Crews of two batteries were killed; their places were

taken by staff officers, one of whom was twice wounded but continued to man his gun. Next to them on the Minsk highway a fourth battery was engaged, and a little further down a fifth battery, where after all crews had been killed the guns were manned by Chief of Staff Captain Korzh and Battery Commander Captain Zhukov. The artillerymen fought on stubbornly until relieved by tanks. After the battle we counted over 3,000 German dead, 70 disabled trucks, and 4 tanks. In addition the gunners took 197 Germans prisoner.

I could have cited many examples of brave action by our artillerymen. Suffice it to say that 160 artillerymen on the First Belo-Russian Front alone have had conferred on them the covered title Hero of the Soviet Union, and tens of thousands of officers and soldiers have been awarded other honors. Our people are proud of their artillerymen. In recognition of their great services against Nazi Germany, an annual holiday called "Artillery Day" has been established, to be celebrated each November 19th.

SELF-PROPELLED GUNS IN AN OFFENSIVE

By Col. V, Smirnov

BY RADIO FROM MOSCOW DIRECTLY TO THIS *JOURNAL*

Self-propelled guns generally begin their operations when the infantry rise for the attack. Until then they remain behind cover. Let me describe a recent action.

A certain Soviet rifle unit assembled for attack. Our field artillery was pounding the German positions. A regiment of self-propelled guns under Lt. Col. Sidorenko was then 1,000 or 1,200 meters from the enemy lines. Just before the artillery ceased firing these SP guns left their concealed positions to join the infantry, which had already raced into action.

Our field artillery had seriously disabled the enemy fire system and pinned the Germans to the ground. But when our fire was shifted deeper into the German defenses a number of machine gun nests and a gun on the left flank renewed their activities. That was when the self-propelled guns played their part. Machines under Lts. Seryuk and Petrov made short work of the gun, while the remainder dealt with the machine guns, crushing them with their tracks. Our gunners used their ammunition sparingly, for it is not easy to replenish supplies during a battle.

Supported by self-propelled guns, our infantry easily and with only slight casualties seized the first line, penetrated to the second, and were soon fighting among the enemy gun emplacements. Part of the SP gunners naturally operated on the basis of a plan previously worked out with the infantry.

Fighting in the battle positions of the German artillery differed from the usual attack: Soviet long range guns were still blasting the position, and an engagement with enemy artillery was more complicated and dangerous. Therefore, utilizing folds in the ground, self-propelled gunners stealthily approached the enemy's batteries, establishing ambushes among the wayside trees. Our infantry dropped flat, but the moment our long range guns ceased firing when the German gun crews were still under cover a number of self-propelled guns rushed forward, firing on the way. This action stunned the Germans, who were unable to use their guns. They succeeded in carrying off only a few guns; the rest were crushed by self-propelled guns. Altogether the Germans lost 11 guns.

Not all our self-propelled guns were employed in this action. Some remained in their places of concealment. This measure was fully justified, for it was soon learned that the Germans had also concealed four guns. When our infantry closed to a short range these were rolled out to pound the attackers—but before the enemy gunners fired many shots they themselves fell under the aimed fire of our self-propelled guns in hiding.

Soon afterward the enemy commenced to withdraw, and Soviet troops set out in pursuit. During this period the action of self-propelled guns varied. In one case they pushed retreating German columns, crushing them with their fire. In another, they and light, mobile infantry detachments pursued the foe along parallel roads to head him off. More often this was accomplished with the help of tommy-gunners borne on self-propelled guns and armored carriers. These machines raced at top speed along parallel country roads to crossings in advance of the retreating enemy columns and there awaited the enemy from concealed positions. The Germans, believing they had broken contact, moved in all haste and unexpectedly fell under the fire of these self-propelled guns and tommy-gunners. No matter how strong the column, it generally found no time for disposing for battle even when our SP guns left their hiding places and moved along the road to meet it.

Sidorenko's regiment also rendered strong support to the infantry when they breached the enemy's intermediate defenders. Our SP guns virtually rammed the enemy positions. Their part is particularly great when a breakthrough has to be effected without delay, before the enemy has time to bring up his main artillery forces. In such cases SP guns operate in strength on narrow sectors where the breakthrough has been planned, and obtain best results by flanking fire.

On one occasion the retreating Germans succeeded under the cover of darkness in establishing themselves near a town covered by a river. Although the waterway was only 30 to 35 meters wide it was difficult to ford because of dense rifle, machine gun, and mortar fire. The Germans didn't seem to have any artillery force, for only one battery replied—and that from afar.

Sidorenko received an order to secure the advance of the infantry. He picked one unit to silence the enemy battery, and with the remainder approached the river. Paying no attention to the clatter of bullets and fragments on their armor, the gunners opened up on spotted enemy firing points. Meanwhile the infantry prepared to force the river. When the soldiers started wading across and floating over by all available means, our SP guns subjected the enemy pillboxes to heavy fire. Once they had a bridgehead the infantry began extending their positions, while the SP guns frustrated the enemy's attempt to drive them back to the river. This continued until the first echelon of our infantry got across and brought its heavy gun into action. The SP guns were gradually ferried across too, and soon the Germans were compelled to continue their retreat. During this engagement the SPs' 85-mm guns dealt with various targets, very often firing point-blank—which is very important, because that ensured good hits and also saved time and ammunition.

TRENDS in Field Artillery Organization & Equipment

By Maj. Shirley B. Metzger, FA

A new tentative Airborne Division, dated 16 December 1944, which does not supersede the Airborne Division, dated 1 August 1944, is now in the hands of The Adjutant General for publication and distribution. Among the principal changes to the Airborne Division Artillery is the addition of a Parachute Field Artillery Battalion which raises the total in the division to two (2). The armament of one (1) glider battalion may be changed from howitzer, 75-mm pack, to the howitzer, 105-mm, M3, when authorized by War Department. Battalion messes have been eliminated and the necessary personnel and equipment for separate battery messes are provided in each battery table of organization and equipment.

When one (1) glider battalion is armed with the howitzer, 105-mm, M3, the Headquarters Battery, Airborne Division Artillery, is augmented by eighteen (18) trucks, 2½-ton, with drivers, and six (6) trailers, ammunition, M10. This transportation is to be used for ammunition resupply of the 105-mm howitzer, M3. Administrative personnel, consisting of eight (8) enlisted men, is added in the Headquarters Battery, Airborne Division Artillery. The type of administrative personnel used is the same as that included in the Headquarters Battery, Infantry Division Artillery.

The battalion transportation (and drivers) which was formerly carried in Parachute Battalion, Headquarters Battery has been decentralized and is placed in the organizations where the transportation is used. In order to provide transportation for certain Parachute Battalion Headquarters Battery personnel, six (6) trucks, ¼-ton, with trailers have been added to T/O & E 6-216T. Liaison sections have been increased from two (2) to three (3) in the headquarters batteries of both the parachute and glider battalions.

Two (2) howitzers, 75-mm, without personnel have been added to the parachute howitzer battery. No personnel increase will be made to man the additional howitzers. The spare howitzers will be served by individuals available in the battery in addition to their other duties. A further purpose of the additional howitzers is to replace pieces that are lost in parachute drops. The primary weapon of the antitank platoon of the Antiaircraft and the Antitank Battery, Parachute, has been changed from the 75-mm howitzer to the gun, 57-mm, towed.

Conversion of the glider howitzer batteries from the howitzer, 75-mm, to the howitzer, 105-mm, M3, is accomplished by the addition of six (6) cannoneers and the change of weapons. Medical detachments are the same as in the Airborne Division Artillery, dated 1 August 1944.

A revised Armored Division Artillery, dated 22 November 1944, which contains all changes in personnel and equipment that have been approved to date plus combining into one table all published changes is being distributed by The Adjutant General. This revision does not include any major changes in organization and equipment. In the Headquarters Battery, Armored Division Artillery, the Radio Set SCR-528 used at the landing field has been replaced by the SCR-510 since there was no 12-volt vehicle available from which the SCR-528 could be operated. The Information and Education Officer has been moved from the Headquarters Battery, Armored Division Artillery, T/O & E 6-160-1, to the Armored Division Headquarters, T/O & E 17-1. An athletic instructor, technician, grade 5, and an entertainment director, technician, grade 5, have been added to T/O & E 6-160-1.

Forward Observers in the Headquarters Battery, Armored Field Artillery Battalion, have been raised from second lieutenant to first lieutenant. Four (4) Binocular, M16 or M17 have replaced four (4) Binocular, M13. Remote Control Equipment RC-261 was raised from seven (7) to eight (8) in the revision. In addition four (4) more RC-261 for the Radio Set SCR-508 are approved and will be included in the next published changes to the Armored Field Artillery Headquarters Battery.

In the Armored Field Artillery Battery four (4) Binocular, M16 or M17, have been added and a like number of Binocular, M13 have been reduced. Two (2) Remote Control Equipment RC-261 were added. The Armored Service Battery revision indicates that one (1) Gun, machine, cal. .30, one (1) Gun, machine, cal. .50, and one (1) 81-mm mortar, which are now authorized in SNL for the vehicle, tank recovery, have been removed from the T/O & E. In order to furnish 110-volt electricity for the Test Set I-156, a Vibrator Pack PP-68-( )/U is included in the revision.

When specifically authorized by War Department antitank sections consisting of one (1) major, one (1) sergeant, and one (1) clerk, typist, in Headquarters and Headquarters Battery, Infantry Division Artillery, T/O & E 6-10-1, and one (1) lieutenant colonel, one (1) captain, one (1) staff sergeant, and one (1) clerk, typist, in Headquarters Battery, Corps Artillery, T/O & E 6-50-1, may be added.

Two (2) Radio Set SCR-593 for use at the Fire Direction Center for receipt of warning of the approach of hostile aircraft is being included in each headquarters battery authorized liaison airplanes. The SCR-593 will not be installed in the airplanes.

Alternate radios composed of three (3) SCR-193, two (2) SCR-508, and two (2) SCR-510 replace the standard radio sets in T/O & E 6-12, when the Field Artillery Group is composed of Armored Field Artillery Battalions.

Field Artillery Medical Detachments are authorized a Carrier, litter, for each truck, ¼-ton, in the detachment. This is a device which provides a rack for litters when wounded are being transported on this vehicle.

The Headquarters Battery of the Observation Battalion is being augmented by the addition of one (1) Switchboard BD-72, two (2) Axle RL-27 and one (1) additional Reel Unit RL-31. Four (4) of the 16 miles of Wire W-110-B on Reel DR-5 are being changed to Reel DR-4. This change will facilitate the laying of wire by hand. The equipment of T/O & E 6-77, Observation Battery, is increased by two (2) Tent, command post and one (1) Switchboard BD-71.

The Carriage, howitzer, 75-mm, M3A3, which had a rack and pinion type traversing mechanism, is being replaced by the newly standardized Carriage, howitzer, 75-mm, M3A4. The M3A4 has a fully enclosed screw type traversing mechanism. Difficulty was experienced with the M3A3 due to dirt's getting into exposed parts, which imposed detrimental strain on the traversing mechanism, which in turn caused unnecessary time to clean before getting into action. The M3A4, being fully inclosed, does not cause this trouble.

Artillery at Bougainville

Bougainville's beach posed a problem of getting equipment ashore from LSTs through a rather heavy surf.

As Lt. Col. Haines pointed out in last July's issue, motor transport was extremely scanty. Here is a good idea of how a howitzer can pinch-hit for the bed of a truck!

Before the Seabees built boulevards within the perimeter, muck would neatly bog down both howitzer and prime mover.

Tractors, sometimes borrowed from Marines or Seabees, were an enormous help.

Trail trenches and logs were essential in this rainy area.

Much of the natural camouflage had to be cut down: a 6400-mil field of fire was necessary as enemy attacks had to be anticipated from the sea as well as from all directions inland.

In the first stages of such an operation, hammocks are generally slung below ground in a trench which just fits them. Some soldiers prefer to sleep above ground, however, getting into slit trenches during "Condition red."

Artillerymen thrive on hard work and chocolate cake!

A Piper Cub of the 41st Div Arty lands at Salamaua's airfield.

AIR OPs in the SOUTH PACIFIC

By Capt. George W. James, FA

It is interesting to compare the L-4-H (Cub) to a B-24. The B-24 carries a bomb-load of approximately four tons. Once these bombs are dropped, the plane is impotent save for its light guns.

The Cub in effect carries an unlimited load of bombs with a wallop that few realize or have considered. A battalion observer in the Cub can pour into the enemy 5.1 tons of shells in three minutes. At a reduced rate the observer can continue doing this as long as ammunition remains at the gun and as long as he remains in the air. On one occasion our group of two battalions (155-mm howitzers) fired 13 tons in a 3-minute period.

Much was learned from the battles of Saipan and Tinian.

Two Cubs were put aboard a carrier. The plan was to use these planes as soon as an air strip could be secured. Four planes were crated, put aboard an LSD, and taken ashore for assembling when the situation permitted.

On D+3 the artillery could not observe adequately with the enemy commanding the high ground. Forward observers were unable to see more than 200 yards to their front. Aboard the carrier an order was received from the Corps Artillery Commanding General, to take off immediately and land at Charan Kanoa. In 1½ hours the planes were assembled and launched from the carrier. The take-off was uneventful, though each plane was loaded beyond the prescribed limit.

After taking off, the planes flew above the guns. At an altitude of 2,000 feet cumulus clouds were encountered. It was necessary to drop down to 1,000 feet to have continuous observation. From this altitude the base point and the check points—which were over 9,000 yards away, obscured by hills and heavy foliage—could not be observed. The registration was unsuccessful.

A plan that had been worked out while training in Hawaii, where there is similar terrain, was put into effect. This plan was to fly as near as possible to the impact area. In this case we flew across the Island of Saipan to Magacienne Bay. Flying in this vicinity we registered two battalions of 155-mm howitzers and one of 155-mm guns and fired on two enemy installations, all within two hours and ten minutes.

Throughout the operation the planes flew deep into enemy territory to provide accurate, rapid, and efficient observation. Of all observed fires, 85% were conducted by observers in these planes. In addition they provided general surveillance of all artillery fires and furnished the majority of information for the S-2 Sections of battalion, group, and corps.

Dawn and Dusk Patrols were scheduled. A reason for these patrols was to tempt the enemy AA to open fire, then one or both planes were able to bring fire rapidly upon the disclosed gun positions. Another reason was to spot enemy artillery fires: it was easier to observe the flash during the hours of early morning or late evening. Japanese powder has little flash and little smoke. These missions were generally flown at an altitude of 1,500 feet, seldom above 2,500 feet, and often as low as 20 feet.

Pilots and observers must expect to fly over enemy territory or to the flanks. They must have a plan whereby they can be near the target area for adequate observation. Unless this is done the Japs on these islands, who are masters in the art of camouflage, are difficult to observe or locate.

COMMUNICATIONS

Our radio was not designed nor originally intended for use in an airplane. It is too cumbersome and heavy where weight counts so vitally. It has a limited capacity in receiving and transmitting. Our sets were operating at distances greater than those for which they were designed. To aid in receiving at distances of eight and fifteen miles a whip antenna was installed; little trouble was encountered thereafter.

Night missions flown during this operation necessitated the use of the Marines' OY-1 planes, which were equipped for night flying. It is impossible for the AA units to operate unless all friendly planes are capable of identifying themselves.

It is suggested that a radio similar to the one employed by the Marines in the OY-1s, or by the Navy in the TBMs, be used. The need for several channels is vital. An observer must be able to contact ground units, other planes, and his own units. This will permit closer artillery support by means of a flexible radio net. When an operation consists of Army and Marine troops this need is further emphasized to permit a closer, more efficient coordination.

All pilots and observers should know radio procedure, the use of codes, and panels. Once airborne it is too late for an observer to familiarize himself in the methods of identification, authentication, and verification.

There is such a thing as over-emphasizing procedure. Once the stations are identified, it is unnecessary and a waste of time to continue certain phases of procedure. For example, it is unnecessary to repeat station calls prior to each sensing, command, or transmission during a mission. If at any time there is doubt as to the authenticity of any transmission the proper methods for verification can be used.

OBSERVATION

There are a few tricks in observation that may be well to remember.

Islands in the Pacific are generally surrounded by clouds. These are usually cumulus at altitudes of 1,000 to 3,000 feet.

The Japanese have a habit of registering their AAs at cloud level. Therefore, flying well below the clouds makes it possible to maneuver quickly when flak is observed above.

It is best not to approach the target from the same angle each time. The reason for this is obvious. When activity or an installation is suspected, drop a rocket or grenades—frequently the Japs will disclose their position by firing back.

Always keep the sun to your back as much as possible; it is life insurance.

Practice night flying and observation. It is difficult to locate areas and terrain features, but with practice it can be done successfully.

PILOTS

Some pilots are from branches other than artillery. Unless they are familiar with the methods and procedure of the gun section, inter- and intra-battalion communication, FDC, and radio net used, they are impatient and ignorant of field artillery operation.

It is suggested that pilots be trained in the firing battery as executive and reconnaissance officers, and thoroughly instructed in FDC operation and procedure.

There are situations where air observation is not necessary. Then the pilot trained as an observer is available as a Forward Observer. An example of this was at Kwajalein, where the Cubs were not used.

OBSERVERS

Too little emphasis has been placed on training artillery observers. *There is considerably more to observation than registration or shooting*. Training officers to report what is seen is difficult, therefore practice and experience are necessary. Reconnaissance of positions, routes, areas, and installations becomes routine.

Remember, the observer is as important as the pilot. He must be a competent and above-average field artilleryman. It is the pilot's responsibility to fly the observer to the area, at a time and in a manner to accomplish a mission as ordered. Likewise, it is the observer's responsibility to be thoroughly briefed. Therefore he must be given every opportunity to study photos, maps, and latest reports of the area.

It is important for the observer to know how to wear, adjust, use, and care for his parachute. Like any weapon utmost care must be exercised in the care and maintenance of the 'chute.

If possible, if the battalion has a regularly assigned observer, train him in the theory of flight. It would be well if he were able to land the plane in an emergency. This may some day save the plane, equipment, and (what is more important) the pilot and observer.

Prior to any operation it is advisable to have trained several officers as air observers. This training should continue throughout the operation until the battalion has a reservoir of officers. Following this plan this battalion has fifteen officers with combat experience, and each able to accomplish any mission.

S-2

All photos made available to the S-2 section of corps, groups, or battalions should be distributed as soon as practical to the air sections. Unsatisfactory results are experienced when the observer bases his search on a telephone description.

At Saidor the Jap airstrip was very crude.

It is too easy for an S-2 section to sit comfortably studying a photo, compared to an observer's long period in a cramped position while in flight at 70 m.p.h. A solution to this situation is to have the observer work closely with the S-2 section, allowing him to study and compare photos, maps, and photointerpretation reports. A well planned mission with all parties understanding the requirements is worth any number of haphazard missions.

MISCELLANEOUS

Weight is of a vital consideration to a Cub. Throughout this operation all planes were over-loaded. The pilot-observer combined average was 316 pounds. Weight of our radio is 55 pounds, and of the two seat-type parachutes 40 pounds. The total weight of 411 pounds did not include pistols, knives, grenades, rockets, or canteen of water. The planes were normally overloaded about 75 pounds.

To clarify the reference to grenades, it was found more expedient to fire a cane field with incendiary grenades than using shell. However, if personnel were suspected or observed, the batteries were fired. The rockets often would flush the enemy, as would hand grenades.

It is suggested a camera (K-20 preferred) be available, as with it much more accurate and detailed information can be obtained. This is especially true in reporting front lines, and to augment various systems of aerial survey.

THE SULU ARCHIPELAGO

By Col. Conrad H. Lanza

The Sulu Islands, the most southerly of the Philippine group, are about 500 miles northwest of the Allied base at Morotai, near the north tip of Halmahera. Their location is excellent for intermediate bases for an invasion force advancing on the Philippines from the south. For the Allies, with overwhelming sea and air superiority, they are a tempting bait, apparently available for the taking.

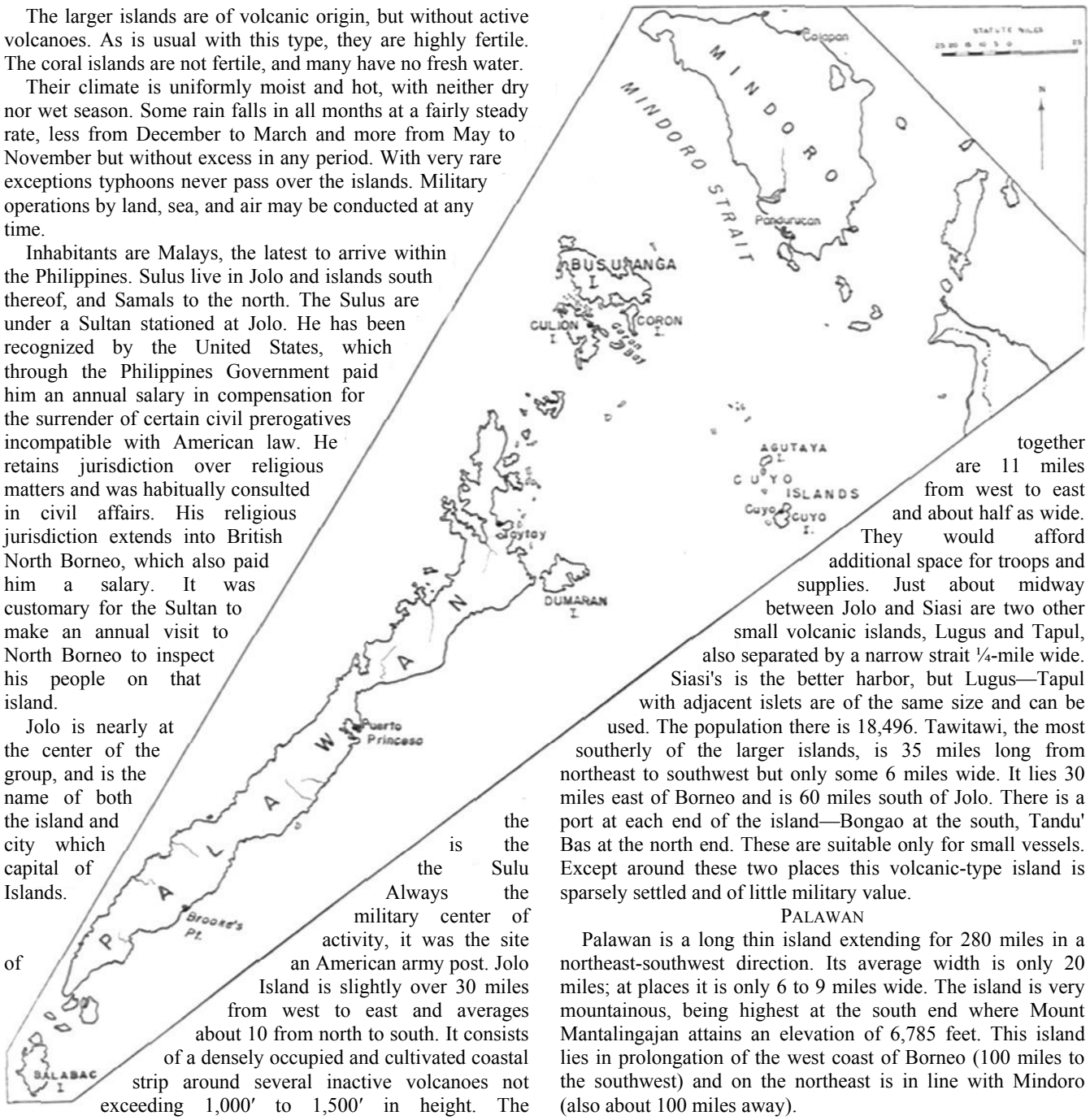
These islands are spread over a distance of 250 miles extending southwestwardly from the city of Zamboanga. All of them are small, and the majority of several hundred are islets. Only a few of the larger ones are suitable for bases or have any military importance. The area of all islands is 1,086 square miles; their population is 247,117.*

*Figures as to areas and population in this paper are from the 1939 Census.

The larger islands are of volcanic origin, but without active volcanoes. As is usual with this type, they are highly fertile. The coral islands are not fertile, and many have no fresh water.

Their climate is uniformly moist and hot, with neither dry nor wet season. Some rain falls in all months at a fairly steady rate, less from December to March and more from May to November but without excess in any period. With very rare exceptions typhoons never pass over the islands. Military operations by land, sea, and air may be conducted at any time.

Inhabitants are Malays, the latest to arrive within the Philippines. Sulus live in Jolo and islands south thereof, and Samals to the north. The Sulus are under a Sultan stationed at Jolo. He has been recognized by the United States, which through the Philippines Government paid him an annual salary in compensation for the surrender of certain civil prerogatives incompatible with American law. He retains jurisdiction over religious matters and was habitually consulted in civil affairs. His religious jurisdiction extends into British North Borneo, which also paid him a salary. It was customary for the Sultan to make an annual visit to North Borneo to inspect his people on that island.



Jolo is nearly at the center of the group, and is the name of both the island and the city which is the capital of the Sulu Islands. Always the military center of activity, it was the site of an American army post. Jolo Island is slightly over 30 miles from west to east and averages about 10 from north to south. It consists of a densely occupied and cultivated coastal strip around several inactive volcanoes not exceeding 1,000′ to 1,500′ in height. The population of the island (including adjacent islets) is 103,217.

Just north of the town of Jolo (population 12,571) several islets form a natural breakwater, affording a fair harbor for ships and a seaplane base. Near Jolo are airfields. Space is available for billets and for depots. Jolo has a pier and limited facilities for handling cargo. The airline distance from Jolo to Zamboanga is under 100 miles.

On the south side of the island is Tutu Bay, likewise protected by islands across its mouth. This could be used as an auxiliary port. There is a good road all around the island of Jolo, with several cross roads from the north to the south shores.

25 miles south of Jolo is Siasi Island, which is separated from Lapao Island by a strait only about a mile wide. The two islands have a population of nearly 30,000. Volcanic, the two together are 11 miles from west to east and about half as wide. They would afford additional space for troops and supplies. Just about midway between Jolo and Siasi are two other small volcanic islands, Lugus and Tapul, also separated by a narrow strait ¼-mile wide. Siasi's is the better harbor, but Lugus—Tapul with adjacent islets are of the same size and can be used. The population there is 18,496. Tawitawi, the most southerly of the larger islands, is 35 miles long from northeast to southwest but only some 6 miles wide. It lies 30 miles east of Borneo and is 60 miles south of Jolo. There is a port at each end of the island—Bongao at the south, Tandu' Bas at the north end. These are suitable only for small vessels. Except around these two places this volcanic-type island is sparsely settled and of little military value.

PALAWAN

Palawan is a long thin island extending for 280 miles in a northeast-southwest direction. Its average width is only 20 miles; at places it is only 6 to 9 miles wide. The island is very mountainous, being highest at the south end where Mount Mantalingajan attains an elevation of 6,785 feet. This island lies in prolongation of the west coast of Borneo (100 miles to the southwest) and on the northeast is in line with Mindoro (also about 100 miles away).

Due to the mountains there are few plains, and restricted opportunities for airfields. All towns, except minor villages, are on the east coast. About 200 islands and islets are "attached" to Palawan. The majority are in prolongation of the island's axis, with one important group—the Cuyo Islands—east of the north end. The area, including attached islands, is 5,693 square miles; the population, 93,673.

Both ends of Palawan and all of the west coast have

pronounced dry and wet seasons substantially the same as at Manila, the wet season extending from May to November. All of the east coast, less the two ends, has a short dry season starting in December and extending into March. In each of the remaining eight months there is about the same amount of rain.

Palawan is generally covered with forests. Crops of rice, corn, and yams are raised, but additional rice has to be imported. Cattle are sufficient for native needs. Cocoanuts thrive, but the hemp plant does not.

There are three ports possible for military use, all of which have sufficient flat areas and cultivated country in the vicinity to enable airdromes, billets, and depots to be organized. Excepting small airfields available in 1941, everything else would have to be constructed and equipped complete.

Near the south end of the island is Brooke's Point, located on the east coast (as are all other ports). Brooke's Point is an open roadstead—a possible base, but not a good one. The population including adjacent communities is 21,839.

Main port and capital is Puerto Princesa (population 10,887), nearly at the center of the island. There is a fine bay suitable for a base. A road net covers 15 miles of coast along which military establishments could be located. This is a penal colony having model farms worked by good conduct convicts.

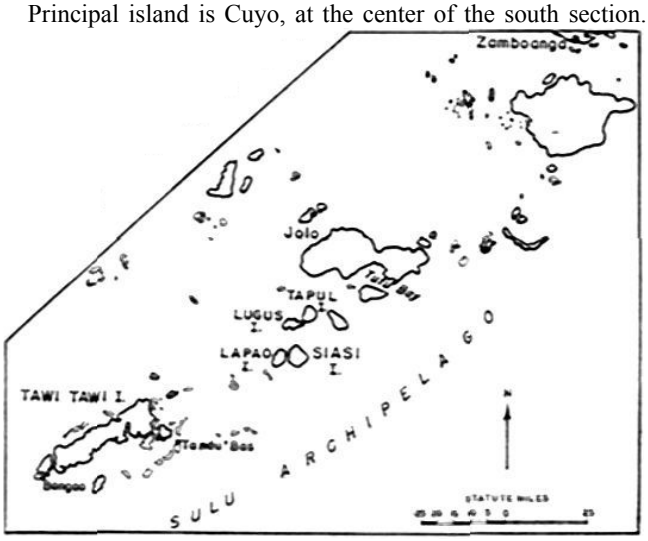
At the north is Taytay, which has a wide open bay. A road extends across Palawan to the west coast, only 6 miles off, where there is a sheltered bay without facilities. Population is 4,173.

There is no overland communication between the three ports.

Forty miles northeast of Palawan and in prolongation of it is the attached island of Culion, about 20 miles by 10 and with a population of 7,328. There is just one town, of the same name, which has a good small port and a landing field. This town, completely equipped with modern conveniences, is the leper colony. No one except lepers and necessary attendants are supposed to live on this island. Except for the lepers Culion would be a suitable place for a base, and might be more quickly established than at the other ports.

A hundred miles east of Taytay and halfway between Palawan and Panay are the attached Cuyo Islands. There are about a dozen principal islands (all small) and numerous islets, extending over a space of 50 miles from north to south and 40 from west to east. Unlike Palawan itself, the Cuyo Islands are relatively densely populated.

Principal island is Cuyo, at the center of the south section.



On it are a town of the same name and several other towns, all connected by a good road net. So far as its size permits, this little island (9 miles by 5) is suitable for a minor base. Population is 17,492. Next most important island is Agutaya, only 5 miles by 4 and near the center of the group. Both these islands have small ports.

The Cuyo Islands are one of the few places within the Philippines where oranges are raised commercially.

Northeast of Culion is Busuanga Island. It is separated from Culion by Coron Bay, large and sheltered and suitable for base purposes. It is 15 miles across this bay from Culion town to Coron town on Busuanga. Busuanga Island (32 miles by 14) is generally undeveloped. Around Coron there is settled country with a road net.

Coron Bay, with the islands surrounding it, is about as good a place as any for a base from which expeditionary forces can be prepared and launched to more northerly or easterly destinations. Although within the typhoon area, Coron Bay is well sheltered. The greater part of the typhoons pass north of Palawan. It is exceptional for typhoons to affect south Palawan.

MINDORO

Mindoro is 110 miles long from north to south and averages about 36 miles wide. It has a total population of 131,569 The island has the form of a shallow are centered at Palawar It is about 48 miles from Busuanga Island and 65 miles from Coron Bay.

A mountain range divides Mindoro into east and west parts. The mountains are rough and high, exceeding 8,000 feet in elevation. Except at the north end there are neither roads nor trails across the mountains, which form a solid jungle mountain mass occupying the entire center of the island.

Mindoro is separated from Luzon by the 7-mile-wide Verde Island Passage, and is only 85 miles by air from Manila.

Most of the people live on the east coast. The center half of this coast has the main towns, which are connected with each other by a good road net. There is no connection between this road net and any part of the west coast.

The west coast has three small ports, respectively at each end and the center. San José at the southwest is the largest with 11,788 people. There is a local plantation railroad in this sugar district.

There are several ports on the east side of which Calapan, the local capital (population 17,158) is the principal one. None of these ports are good. The central part of the east coast has a climate with neither dry nor wet season, there being considerable rain in every month of the year. Both ends of the island and the entire west coast have a climate similar to that of Manila, with a dry season from December to May and a wet season thereafter. During their season from July to November typhoons are common over Mindoro and may reach great violence. They are liable to interfere with military operations.

Mindoro is a possible site for a base for operations against Luzon, particularly the Manila area. It is probable that Coron Bay in Palawan would be superior to any base on Mindoro. The central part of the east coast of Mindoro is well culviated and inhabited; it has undeveloped facilities for depots and billets, but no good port.

The name Mindoro is an abbreviation of the Spanish *Mina d'oro*, meaning gold mine. There is no gold mine, however. Mindoro is noted as the home of the timarau, a wild, dangerous

and savage animal found nowhere else in the world. It has a head resembling a carabao and a body like a deer. Smaller than a carabao, it kills these easily. At times it attacks people. It objects to whistling and singing—consequently in going through jungles, natives habitually hum or whistle to keep this strange beast away.

COMMENTS*

The route through the Sulu Islands and Palawan to Mindoro, offers a short cut to the Manila area which would bypass important enemy forces in Mindanao and the Visayan Islands.

For an invasion based on the Netherland Indies the natural stepping stones would be in turn Jolo, Puerto Princesa, and Coron Bay. It might not be necessary to occupy Mindoro should the latter be found to be heavily defended. For an air and sea power Mindoro is not essential and could be by-passed.

Little is known of Japanese defenses in these islands. Judging from past experiences a Japanese garrison can be expected to defend Jolo. This volcanic type island resembles Saipan and Peleliu of the Palau Group. If defended as these islands have been a month might be needed to occupy it completely. After this necessary time must be allowed for establishing a base from which to attack the next objective.

If Jolo (or some other island or base in the vicinity) is taken, it must be presumed that the enemy will foresee an attack on Palawan and will thereupon strengthen whatever forces he may already have there. For a nation lacking sea and air power Palawan is hard to defend. It does not raise enough food to support a large garrison. The absence of land communication between the widely separated ports permits these to be isolated and attacked separately.

From Jolo it is 430 miles to Coron Bay, the furthest of the possible sites for bases. This is not too great for a single jump. The distance to Puerto Princesa would be 300 miles.

Recent reports are that the enemy is strengthening his air force. Provided it is increased sufficiently in both quantity and quality, a strong hostile air force in the Visayan Islands and on Mindanao would be a serious obstacle to any amphibious operations in the south Philippines.

Outside of his direct interest in retaining the Philippines, the enemy is extremely desirous of delaying an American advance to the China coast. He is therefore likely to oppose an attack to the best of his ability.

*Written in late October.—Ed.

THAT CANNON COMPANY

By Capt. James P. Barry, FA

Cooperation and coordination require mutual understanding, above all other things. Artillerymen and infantry cannoneers should work closely and in full harmony. These concrete suggestions by an artilleryman with infantry cannon experience warrant close scrutiny by both groups.

Consider the cannon company, stepchild of the regiment. It has half again the firepower of a light field battery; its weapons are more mobile and more easily concealed; its officers know the regiment and its requirements in detail. Yet how often do you find the company parked away in some forgotten corner while its trucks do somebody else's chores? How often do you find it employed as a sort of second-rate antitank company? How often do you see it put in positions where it would be wiped out before it had fired three rounds?

This infantillery outfit, properly used, throws a wallop. The man on the receiving end of a 105 shell doesn't care if the lanyard was pulled by an artilleryman or an infantryman, and the infantry cannon can put that shell in places the artillery doesn't want to fire. An artillery battalion isn't going to be happy if it receives requests for a few rounds here and a few another place—its main job is to furnish massed fires, and it can't do that if it uses individual guns for detailed fires. The cannon company can give this detailed support when it is needed, and yet can also lay down a very respectable company concentration.

The towed 105-mm cannon is primarily an indirect fire weapon, a small artillery piece. It is not designed for direct laying, and should not be required to lay directly except in unusual circumstances or in its own defense. Its sights are so designed that it cannot even track a target moving from right to left. Normally it will have only enough AT ammunition to provide for its own defense. It can fire just as effectively from a defiladed position ninety out of a hundred times, and should, whenever possible, be put in one—not so far to the rear as the positions of light artillery, but still some distance back. If the enemy once sees a cannon or the flash from one, start writing requisitions for a new gun and gun crew. A self-propelled cannon can use direct fire with more success, but when the job can be done as well with indirect fire, the advantages are obvious.

Unfortunately, cannon company terms and methods are just different enough from those of artillery to cause confusion if the observers of one must adjust the fires of the other. Cannon company observers should be taught artillery forward-observer methods, both so that they can adjust artillery fire and so that a company fire direction center can be put into operation if the situation requires it. Platoon sergeants and other personnel who normally are at the gun position should be taught to convert forward-observer sensings into commands for cannon, so that their fires may be adjusted by artillery observers. Otherwise, many valuable opportunities for the employment of both cannon and artillery will be lost. Once forward-observer methods are taught to a company it's a good bet they'll be used for most company missions, for it's not hard to demonstrate that they're the simplest and easiest methods there are for adjusting fires.

If the company can go into position as a unit, control and efficiency will be improved and the problem of fire direction eliminated. The entire company may be attached to one battalion, to act as the artillery of an advance guard; the situation may not require detailed supporting fires; or there may be one position from which all such fires can be given. It certainly is better then for the company to operate as a whole.

There should, of course, be enough dispersion of cannon, men, and equipment within the position so that one enemy concentration will not wipe out the whole company. In order, however, to perform their main mission—detailed support—it may be necessary to separate the cannon platoons. Fires still can be massed for secondary missions. It is no more necessary to have the platoons assembled in one place in order to mass their fires than it is to line up an entire battalion of artillery to get massed fire. A simplified observed fire chart, which requires the work of only one man, will do the trick.

If each platoon must choose a separate position, all that the company needs for fire direction is simple plotting equipment, which may be obtained from the nearest artillery or engineer outfit or even be improvised. Have an observer adjust the fire of each platoon on a base point; then have each platoon report what range and azimuth it fired to hit the base point, to the person directing fire. He lays off the range along the back azimuth for each platoon, and so plots each position.

When an observer sees a new target he sends back forward-observer sensings. It then is a simple job for the one-man FDC to plot the position of this new target, measure the shift and range to it for each platoon, and sends commands to each. The observer gives additional sensings if they are needed. When the bursts are on the target he sends "Fire for effect," and the fire direction officer fires as many rounds as he thinks the target requires. Experiments by the individual company will show the limits within which this procedure is most accurate, and within which only one platoon need adjust; the others may then remain silent, though following the commands, till "Fire for effect" is given. Any procedure more complicated than this will be of pretty doubtful value; our fire direction officer, if he attempts to do the full jobs of S-3, HCO, VCO, and three computers, will be a busy but not too accurate individual. If the situation is at all stable, run a telephone line from the company FDC to that of the supporting artillery battalion, and give the latter the map or photo coordinates of each platoon position. Then when the cannon are not engaged in detailed fires they may be used to reinforce or supplement artillery fires.

Some reverse liaison work should be done by cannon company officers. In combat the company commander is cannon adviser to the regimental commander, and must be familiar with artillery abilities and limitations so that he and the artillery liaison officers can plan supporting fires together. Familiarity can best be acquired in training by attending artillery service practices and field exercises. Platoon leaders must have the same knowledge, for they will find themselves making similar plans when platoons are attached to battalions.

The infantry officer should think of cannon as often as he does mortars. The company hasn't been tied to the regiment as a can to a dog; it has been made part of it because cannon are valuable. If there seems no way of employing it, it can be attached to the supporting artillery, where it at least will be useful. A slight study of cannon will show, however, that there are few times the regiment itself cannot use its cannon company to advantage.

A TANK COMPANY IN SUPPORT OF A FIELD ARTILLERY BATTALION

By Maj. John T. Monzani, FA

The Fire Direction Center completed the data—base angles had been computed for all platoons—a schedule of missions to be fired had been sent down. Only the registration of the base tanks remained. After that, all platoons recorded new base deflection and fired the massed fires of the tank company from the data determined by the company FDC.

The above may sound strange to wearers of the crossed cannons, but it is nevertheless correct. Tank companies are now being trained in fire direction technique, as well as the technique of axial precision and forward observation. Tank officers have laid down some concentrations with the massed fires of their tanks that would have looked good even in a GHQ Test II. The tank company using massed fires is a potent weapon. Therefore it is well for field artillerymen to look to the aid which may be expected from the tanks.

TC 125, 1943, directed that tank and tank destroyer companies would establish their own fire direction and be prepared to mass their fires (using prearranged data) to reinforce the field artillery. This, however, is to be done only when tanks cannot be used in their primary mission of direct fire. With that in mind the Gunnery Department of the Armored School commenced in January, 1944, a course in the use of the tank company in support of the field artillery.

It must be first understood that this is a *secondary* mission of the tank, and that only tank units which have passed the gunnery tests for direct laying are qualified to undertake training in this type of work. A tank company sets up its own FDC, does its own position area survey, and conducts its own fire on concentrations assigned it by the field artillery battalion which it is supporting. The artillery must perform the target area survey, and would do well to perform the connecting area survey also. The reason for this last statement will be seen as the duties of personnel in the tank company evolve. The artillery must lay wire communication to the tank company, although the tank company has its own telephone to hook on to the wire when it arrives. The artillery will have to designate the base point on the ground and also give its coordinates and altitude; the same is true with all concentrations and check points. In addition, the artillery will have to select position areas for the tank company—and would do well to select a position for each platoon (of which there are 3 of 5 tanks each). In selecting position areas, watch out; a minimum elevation of 50 mils means a 3,000-yard minimum range (as tanks only fire supercharge ammunition, minimum elevation is a problem). One last thing: the artillery will have to furnish the liaison, for there are only 5 officers in a company of 17 tanks and one of those five is almost permanently

engaged in maintenance work.

When it comes to registering on the base point, if the setup is axial the company commander may do it. If it is small- or large-T the artillery will have to do it. The registration may, of course, be accomplished by the company commander or the artillery using forward observation methods.

So far it sounds like a lot of work in addition to the normal and abnormal duties which are enough of a problem—but you've done all that's necessary when all that has been outlined is finished. The tanks take over here.

The survey is performed with an aiming circle and 50-yard tape. (There are three aiming circles in a tank company, one per platoon, so one platoon lays reciprocally while the survey is being done.) Personnel for survey come from the two tanks in company headquarters. One tank commander acts as recorder and is in charge of the survey party. One gunner corporal is the instrument operator, the two loaders are the tapemen, and the two bow gunners are the rodmen. The company commander prepares the survey plan (his first and most important task in this work) and gets the survey started before anything else.

While the survey is going on, the three platoons move into position and are laid by the platoon commanders. Once in position, two bow gunners from each platoon are sent to company FDC to lay the wire from FDC to the platoons. FDC and the platoons are all in a party line, one telephone being at each place. When the wire is laid one bow gunner returns as agent to company FDC and the other remains as telephone operator at the platoon position. Another bow gunner acts as recorder at each position.

All but one of the personnel in company headquarters (except the administrative personnel, who won't be along yet) have been used when the survey started. The one man left is one of the two gunner corporals, who sets up FDC while the survey is going on. (Incidentally, the other tank commander is the company commander, if you wondered.)

When the survey has been completed and the orienting line or lines established, base angles are computed and the platoons laid. At this time the sergeant tank commander who was recorder of the survey party becomes a combination HCO-VCO and plots the survey on the grid sheet, which is the firing chart. Coordinates are not computed, just as in survey short base is not used. All survey is by taping. The two gunner corporals and one loader become computers—and the FDC is ready to operate.

A tank company uses only a surveyed firing chart and fires only prearranged fires. The computers, therefore, receive the data from the HCO and enter it on data sheets. When completed, these are sent to the platoon via the platoon agent.

The center platoon is registered on the base point. A verifying round may be fired from the other two platoons (a check against minor errors) and new base deflection recorded, *K*s determined, and the corrected data sent down from FDC. From there on the platoons execute the fires called for. New concentrations assigned, by either overlay or coordinates, are plotted and firing data determined as they are furnished company FDC.

When you get right down to it, it will be a great help to be reinforced by fifteen 75s. In addition, there will be a platoon of 105s in the tank battalion (there being one 105 in each of the three tank companies) and three 105s in Headquarters Company. They will be formed into a separate 105 platoon for this work.

A few additional items of information. The sequence of commands is much the same as artillery, except that words like "adjust" and "shell" have been left out; so too are the charge and fuze. When using the 105s, omission of the charge means Charge 7. If you want Charge 5, say so in its proper sequence in the order, but expect a slight delay as the clearance for changing charges inside a medium tank turret is scaled in thousandths of an inch. After that problem it goes right back to Charge 7. If you want FQ it appears in the normal sequence, but again omission of the fuze automatically brings fuze delay. The word "elevation" is always repeated and "fire" is the authority to fire. A sample of the sequence of commands looks like this: "Platoon, HE, Base Deflection Right 135, Platoon, (1), El 124, Fire."

It will pay well to help the tanks in this work. For instance, if your own survey crews are not too "bushed" at this time, their aid will be most welcome. Tank companies are not field artillery battalions, and the proper coordination and understanding necessary for effective teamwork will rest heavily on the field artillery battalion, which has the personnel and equipment and training.

An artillery commander expecting the support of a tank company will considerably minimize misunderstandings if he consults a T/O of a medium tank company or listens to the wails of the short-handed company commander in deciding how much he can aid the tanks. He should also:

(1) Select a position area for each platoon and show it to the company commander, indicating the approximate direction of fire.

(2) Establish a place mark (coordinates and altitude) for the tank company near its general position area, and in addition furnish the tanks with the coordinates of a visible point so they can compute the base angles.

(3) Point out the base point on the ground, furnish its location by coordinates, and give its altitude in yards; also furnish the coordinates and altitudes of concentrations to be fired.

(4) Be prepared to register the platoons if the setup is not axial or if the OP is too far from the company position area.

(5) Lay and maintain a wire to the company FDC.

(6) Furnish liaison with the company.

"NORTH ARBUCKLE" IN EUROPE

On 19 Dec 44 a former editor of this JOURNAL wrote us,

"The big news here is, of course, the German attack on First Army. We here know little about it. But our work goes on. Have recently had an interesting time shooting at some of the big forts of the Maginot Line which the enemy chose to defend. The pictures in "Signal" were quite accurate, and we found these forts to be much as we had imagined them. It was a surprise, however, to find the surrounding terrain so much like the North Arbuckle range. Yesterday as I stood at an OP I could almost imagine myself on Kiowa Hill. Someone was shooting the hell out of Elgin, however."

Road Measurements With Tracing Paper

By Maj. Joseph C. Hazen, Jr., FA

For those who require a rapid, accurate method of measuring the road distance between two widely separated points on a map, we introduce the tracing paper method. Its advantages over the methods set forth in the field manuals are:

1. *Accuracy*—It is the only known method whereby a long, crooked road distance may be measured twice with exactly the same results.

2. *Speed*—It is as rapid a method as the others (except the method involving use of the mechanical "road runner").

3. *Flexibility*—It permits interruption of the measurement operation without requiring that the entire operation be repeated. The measuring device in this new method is always fixed to the map.

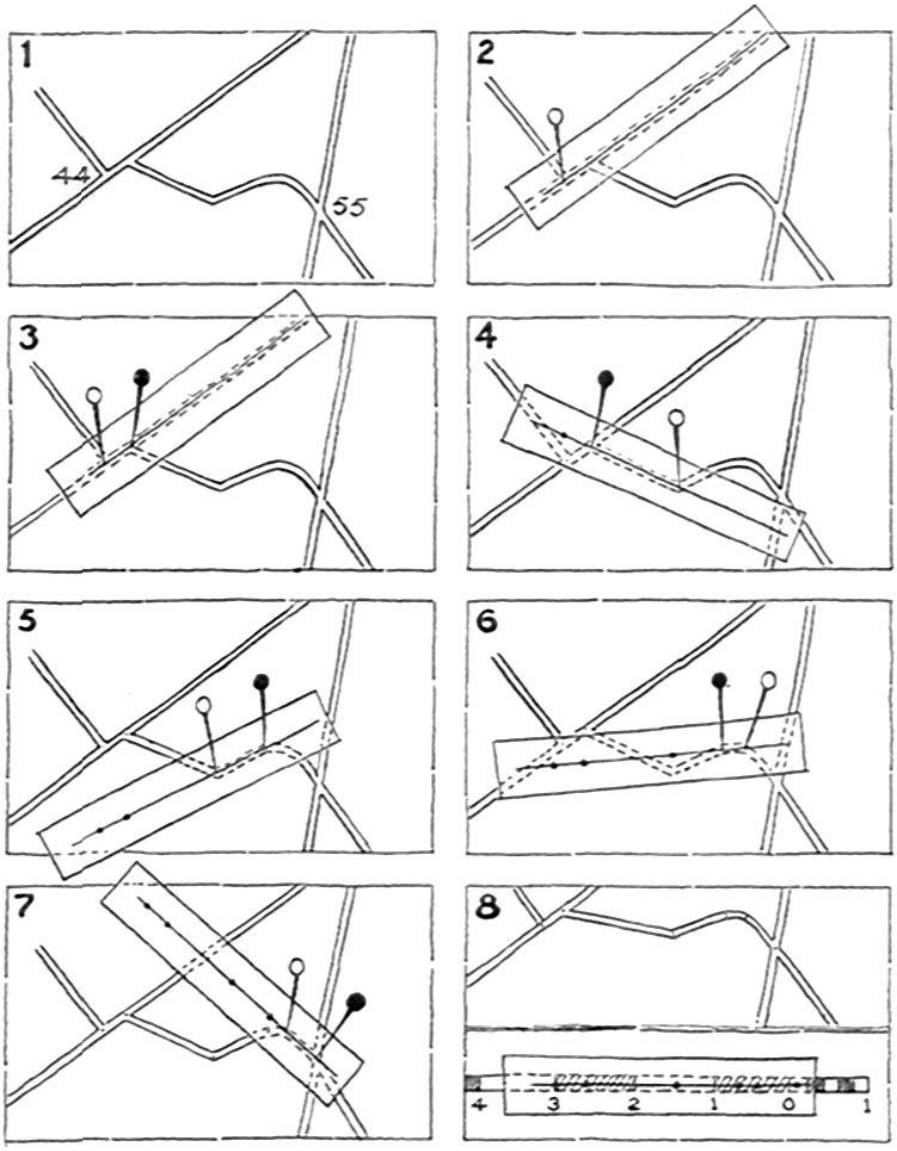
Employment of this new method of road measurement requires only this readily available equipment: A strip of tracing paper with a straight pencil line drawn from end to end, and two pins.

Here is how it works (paragraph numbers refer to the accompanying illustrations):

1. Problem: To determine the road distance between RJ44 and CR55.

2. Lay the strip of tracing paper on map so that one end of the straight pencil line is over RJ44; stick white pin through RJ44 and rotate strip until line extends down center of road to be measured.

3. Stick black pin in line where it diverges from center of road to be measured.



4. Remove white pin; rotate strip around black pin until line again extends down center of route to be measured; stick white pin in line at point where line diverges from center of road.

5. Remove black pin; realign the strip by rotating it around white pin; stick black pin in line at point where line and road diverge.

6. Repeat same operation for next segment of road.

7. Repeat same operation for final segment of road, placing black pin through line into CR55.

8. Remove strip from map; place it so that straight line falls over graphic scale of map; read distance between first and last pin holes, which is the road distance between RJ44 and CR55 (in the accompanying example: 3.1 miles). Q.E.D.

OVERSEAS TRIBUTE

Not only Artillerymen read and profit from this JOURNAL. A Medical Corps captain assigned to an Infantry regiment wrote us as follows, last October:

"I want to keep the JOURNAL, especially Col. Lanza's *Perimeters,* as a sort of record. In reading his accounts of actions we have taken part in, I was surprised at his accuracy. For a long-distance, censorship-veiled account, they're good—better than the papers or "Stars and Stripes" seem to be able to do.

"Am very interested to see the September and October issues. I wonder if he's going to say the war is 'about over,' like all the rest of the USA seemed to say. We think it will last 'til next summer.

"All the doughfeet know that without our artillery we would be swimming the channel instead of being in Germany. And I am sure the Germans fear that more than any other Arm of our Army."

Determination of Position by Resection From High Air Bursts

By Col. Newton W. Jones, FA

The following method of rapidly performing Field Artillery position area and connection survey under conditions when normal survey methods are not feasible, was recently devised by Maj. Gen. Orlando Ward, then Commandant of the Field Artillery School.

This method is not intended as a substitute for the target area survey. The most practical and efficient use of this method will be when, due to the tactical situation, only very small survey parties can be brought forward during daylight hours. These small survey parties can perform the target area survey; the following technique will enable the battalions to prepare firing charts of reasonable accuracy and the common control that is established will enable the division artillery commander to mass the fire of all units.

Briefly the survey consists of the establishment of a target area base (1/1,000 minimum accuracy), the location of high air bursts by triangulation, and the location of battery positions (or points immediately accessible thereto) by resection from the determined location of the high air bursts.

The technique described requires the following procedure:

(1) *Performance of the target area survey.* This survey must be tied to the target area by definitely locating a terrain feature in the target area from the target area base. If the entire survey is performed during hours of darkness, which it well might be, this tying of the base to the target area must be done at the earliest practicable moment.

(2) *Accurate determination of the coordinates and altitudes* of several identified air bursts or flares by the division artillery survey section employing the established target area base line.

(3) *Determining the direction and measuring the vertical angle* to the identified high air burst or flares with angle measuring instruments from occupied stations in the division artillery area. This step is simultaneous with the observation necessary for (2) above.

(4) *Rapid dissemination of the information* obtained in (2) above to all interested Field Artillery units within the division artillery.

(5) *Determining the coordinates* of occupied stations by resection.

(6) *Computing the altitudes* of occupied stations.

(7) *Staking or marking of a line of direction* on the ground which establishes a known direction at the occupied station.

Selection of Points

In the discussion of procedure the points used as a basis for resection are termed "Known Points." These may be high air bursts, vertical beams of light, flares, star shells, airplanes, or perhaps stationary points within our lines or those of the enemy which can be seen by several observers. The points to be located by resection (battery position, observation posts, or other points) will be termed "Occupied Stations" or "Sought Points."

For resection the most favorable locations for the known points are such that the occupied stations are enclosed within a triangle formed by the known points. The next best locations for known points are such that the occupied stations are outside the triangle formed by the known points but nearest the center known point, and the angles of intersection are not less than 500 mils. Accurate results from resection cannot be expected when the three known points are so located that the circle determined by them passes through the area of the occupied stations, or when the known points are so close together that the angles of intersection at the occupied stations are small (300 mils or less). If an occupied station lies on the circle determined by three known points its location cannot be determined by the tracing paper method of resection; it may, however, be determined by the back azimuth method.

Every effort should be made to obtain one or more known points in rear of the occupied stations. More accurate results will be obtained if these known points are fixed (as in the case of a point of light from a church steeple, radio tower, or similar point).

To establish direction one known point may be designated. This known point, if a high air burst, should be fired to burst in the center of the division's zone of action or sector and at as great a distance in enemy territory as will permit its accurate location by triangulation from the division artillery target area base line. This point serves to determine the basic direction at all occupied stations. Its direction from each occupied station should be staked or otherwise marked on the ground.

Direction can also be established by orienting all observers' instruments prior to the firing of the high bursts. The observer at one end of the target area base can select a star that could be readily identified to all observers. He should point his instrument a little ahead of the star and give all observers the azimuth read from his instrument. All observers set off this azimuth and tighten upper motion of their instruments. They then track the star with the lower motion until the observer at the target area base gives "Ready, take" at the instant the star crosses his vertical cross hair. They then tighten lower motions and leave the instrument oriented for further readings. The line established in this manner can be staked or marked on the ground as a line of direction. Azimuths can be read to all known points and the resection done by back azimuth method instead of the tracing paper method, with probably more accurate results.

Procedure

Having selected the general position for the known points from which the locations of the occupied stations are to be located by resection, the following steps must be taken.

(1) Establish target area base

The length of the division artillery target area base must be selected and its position established so that the observers at each end of the base line can see and obtain instrument readings on the high air bursts fired to determine the location of the known points. If the desired degree of accuracy is to be obtained, an angle of intersection of at least 150 mils must be obtained at each known point from the instrument readings on the high air bursts fired to determine the location of the known points. If the desired degree of accuracy is to be obtained, an angle of intersection of at least 150 mils must be obtained at each known point from the instrument reading taken at the ends of the base line. The length of the base

must be measured or computed to a minimum accuracy of 1 yard in 1,000 yards. Coordinates and altitude of one end of the base and the azimuth to the other end must be determined or assumed as the basic control for all subsequent survey operations.

(2) Secure necessary personnel

Sufficient personnel must be obtained to operate instruments, communications, and make necessary computations at all observing stations. Also, sufficient personnel to launch flares, rockets, or operate vertical light beams, etc., within our lines must be obtained and trained.

(3) Establish control

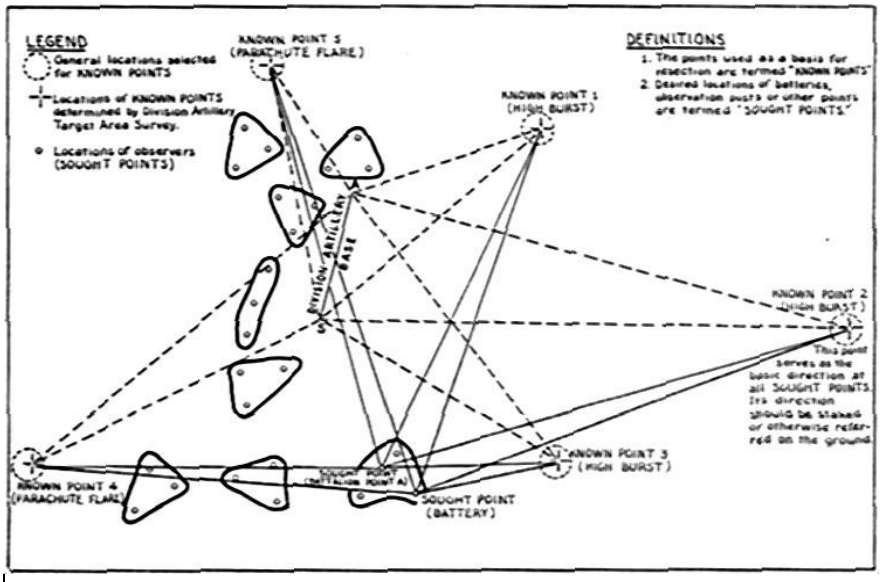
In order to control and coordinate the operation of this method of survey, the division artillery commander must establish a central point from which to control the firing of the rounds for the high air bursts, to alert the observers and identify the high air bursts to them, to receive reports from the observers, and to receive and broadcast the coordinates and altitudes of the known points. This central control point may be the division artillery fire-direction center or any other convenient point.

(4) Establish communication

Communication is by the prescribed radio channels within the division artillery. Successful operation of this system of survey requires a high state of radio discipline within the unit. A simple system of communication results if the division artillery commander directs that each battalion establish the net control station of the battalion radio net at the division artillery control station. This system eliminates the necessity for the relay of messages by the battalions and avoids many opportunities for misunderstandings.

(5) Take certain precautions

The firing of rounds for high air bursts must be so regulated that observers have sufficient time to read and record instrument readings and to change from the position of one known point to another. The division artillery target area survey personnel should report coordinates and altitudes of known points as soon as determined. This information must be transmitted without delay to the occupied stations within the battalions.



ESSENTIAL SURVEY

Control determined or assumed by Division from which to initiate its survey consists of coordinates, altitude, and ground location of one point (A) and azimuth to another intervisible point (S), both of which can be occupied and used as a target area base. All KNOWN POINTS must be visible from A and S, and the angle of intersection must be at least 150 mils. Minimum accuracy for length of base: 1 yard in 1,000 yards.

BROKEN LINES:

Division survey to place battalions on common control. The grid coordinates and altitude in yards of each KNOWN POINT are determined by the target area base (intersection) and sent to all observers. KNOWN POINTS may be high air bursts, terrestrial objects, vertical beams of light, or simultaneous readings on flares or airplanes.

SOLID LINES: Battalion survey.

1. Observers at or near each battery position and at each battalion Point A record instrument readings and angles of site to each KNOWN POINT. Angles subtended at the sought points should be 300 mils or greater.
2. Each observer plots on a grid sheet the coordinates and altitude of each KNOWN POINT furnished by Division.
3. Each observer locates his position on the grid sheet by tracing paper resection using the instrument readings obtained in "1" above.
4. Each observer determines the altitude of his location from the angles of site measured in "1" above, the ranges from his resected location to the KNOWN POINTS, and the altitudes of the KNOWN POINTS furnished by Division. The mean of the altitudes as determined from the KNOWN POINTS is used as the altitude of the observer's location.
5. The line of direction to the most distant KNOWN POINT is materialized on the ground by each observer and serves as the basic direction at all SOUGHT POINTS.
6. An orienting line is established on the ground and base angles computed to lay the batteries on their base lines. (Base Point can be the most distant KNOWN POINT.)

ADDITIONAL SURVEY

Division should establish as soon as possible:

1. Grid coordinates, altitude in yards, and location on the ground of points (X) convenient to the battalion areas and a line of known direction from each Point X.
2. Grid coordinates, altitude in yards, and location on the ground of division artillery check point.
3. Grid and photo coordinates and altitude in yards of at least two restitution points. These points, termed R1, R2, etc., are for transferring targets from the photomap to the grid sheet.

Battalions should survey from Point X:

1. Grid coordinates and altitude in yards of base pieces of all batteries.
2. Battalion Point A for target area base.
3. Check points and terrain features in the target area.

EXAMPLE

Situation: The —— Div Arty, reinforced by four battalions, has been ordered to occupy positions after dark to support the attack. Time and terrain are such that normal survey required to mass fires of all batteries cannot be completed before the attack.

Position areas having been assigned to battalions, the CG, Div Arty, issued the following extracts of Div Arty order:

"x x x x x

"Connection and position survey by resection on high air bursts and flares from within our lines.

"Div Arty survey party establish target area base line and furnish coordinates and altitudes of known points.

"Known points will be air bursts on each flank and center of zone of action, numbered 1 to 3 from left flank, fired in numerical order; and two parachute flares, numbered 4 and 5, to rear of positions. Take readings to flares after firing air bursts.

"Orienting rounds will be fired at each known point location. 2nd FA Bn will fire air bursts.

"Direction will be taken from point 2.

"Control point. Div Arty fire-direction center.

"Battalions will establish net control stations of battalion radio nets at the control point.

"x x x x x"

Observers are placed at each battery position and at one end of each battalion target area base. Instruments are oriented on a reference point selected by each observer.

When observers are ready to observe they report to net control station, "*Ready to observe*."

When all observers have reported ready to observe, control point broadcasts, "PREPARE TO OBSERVE ORIENTING ROUND KNOWN POINT ONE, TIME OF FLIGHT 20 SECONDS," and sends to the piece, "NO. 1 ADJUST, SHELL HE, CHARGE 7, CORRECTOR 30, TIME 20.0, COMPASS 4000, SITE 330, NO. 1 ONE ROUND, ELEVATION 260." When the piece fires the control point broadcasts, "ON THE WAY."

This burst will give the observer the general direction of known point 1.

When this round has burst, control point broadcasts, "PREPARE TO OBSERVE ORIENTING ROUND," and sends to piece "ELEVATION 260." When the piece fires, control point broadcasts, "ON THE WAY."

The observers should set their instrument cross hairs on this burst.

After this round has burst control point broadcasts, "PREPARE TO OBSERVE AND RECORD FOR KNOWN POINT ONE," sends "ELEVATION 260" to piece, and when the piece fires broadcasts, "KNOWN POINT ONE ON THE WAY."

After this round has burst, control point broadcasts, "DOUBTFULS REPORT."

If any observer reports a doubtful reading on the air burst, control point broadcasts, "IGNORE KNOWN POINT ONE. PREPARE TO OBSERVE KNOWN POINT ONE," the piece is fired, and "KNOWN POINT ONE ON THE WAY" is broadcast. Additional rounds are fired until all observers get readings on KNOWN POINT ONE.

The control point then broadcasts, "PREPARE TO OBSERVE ORIENTING ROUND FOR KNOWN POINT TWO, TIME OF FLIGHT 25 SECONDS," sends commands to piece, "TIME 25.0, RIGHT 400, ELEVATION 340," and when the piece fires broadcasts, "ON THE WAY."

Firing of KNOWN POINTS TWO, THREE, FOUR, and FIVE proceed in the same manner as for Known Point 1.

Observers materialize on the ground the direction from their occupied stations to rounds fired for record at KNOWN POINT TWO.

When firing has been completed, control point notifies personnel at Known Point 4 (parachute flare) to fire flare according to plan.

The division artillery survey party immediately computes the coordinates and altitudes of the known points and this information is broadcast as soon as possible.

The location of the occupied station at each battery position and at each battalion target area base line is then determined by a tracing paper resection. If instruments have been accurately oriented, the back azimuth method may be used. Altitudes of the occupied stations are then computed from the vertical angles measured to the known points.

The mean of the computed altitudes is accepted as the altitude of the occupied station. Any computed altitude which appears to be in gross error should be eliminated.

Determination of the coordinates of the battery positions and stations on the battalion target area base line by resection, and the determination of altitudes of the same points by computation, have established a common horizontal and vertical control throughout division artillery area. Battalion firing charts based on a common survey control can now be prepared and the division artillery commander can mass the fire of his unit effectively.

This method of survey should be checked by usual survey methods at the earliest possible time.

To secure results by this method of survey requires a high degree of training by all concerned.

RECENT RELEASES OF INTEREST TO ARTILLERYMEN

Film Strips

6-65—The 8-inch Howitzer M1 and the 155-mm Gun M1: Part II—Mechanical Functioning
6-67—The 8-inch Howitzer M1 and the 155-mm Gun M1: Part IV—Care, Cleaning, and Lubrication
6-68—Field Artillery Conduct of Fire—Forward Observation Methods
6-69—Field Artillery Conduct of Fire—Base Ejection Smoke
9-252—Truck, 2½-ton, 6×6, GMC, Preventive Maintenance
9-262—Truck, 2½-ton, 6×6, GMC, Preventive Maintenance, 1,000 and 6,000 miles: Part VII—Battery and Generator
10-53—First Echelon Maintenance
11-35—Radio Sets SCR-609 and SCR-610: Part V—Presetting
11-63—Telegraph Set TG 5-B
11-64—Use of Repeating Coil, C-161
11-66—Message Center Forms, Records, and Equipment
19-6 —Military Traffic Signs

REALIGNMENT OF AIMING POSTS

1. Rear post moves to tt of far post, decrease ∠ to target by amount and lay on far post and realign near post
2. Near post moves to left of far post, increase ∠ to target by amount and lay on far post and realign near post

COMPUTATION OF MINIMUM ELEVATION

1. Select greatest elevation to mask reported by chiefs of section
2. Add elev for piece-mask range
3. Add two cs at piece-mask range
4. If mask is occupied by friendly troops, add value in mils of a height of 5 yds. at piece-mask range. Use formula $\frac{W}{R}$ = W/R

TO LAY (USING AC)

On Base ∠

1. Set up AC over battery place mark on OL
2. Set off announced base ∠ on AC (UM)
3. Sight along OL (LM)
4. Command B. Adj., AP this instrument, deflection zero
5. Turn vertical hair of AC to center of gunner's periscope (UM)
6. (*a*) If reading on AC is less than 3200 $\frac{W}{R}$, subtract reading from 3200 $\frac{W}{R}$ and command TR the difference
   (*b*) If reading on AC is more than 3200 $\frac{W}{R}$, subtract 3200 $\frac{W}{R}$ from reading and command TL the difference
7. Command, Aiming point, aiming posts refer, deflection zero

B—Battery
TR—Traverse Right
TL—Traverse Left
OL—Orienting Line
UM—Upper Motion
LM—Lower Motion
∠—Angle
AC—Aiming Circle

On Compass (*CA*)

1. Set up AC 100 yards from nearest piece and where it can be seen by all pieces
2. Subtract announced Y-azimuth from declination constant of AC (adding 6400 to decl const, if necessary)
3. Set remainder on AC (UM)
4. Release compass needle and center it (LM)
5. Command, B. Adj., AP this instrument, deflection zero
6. Turn vertical hair of AC to center of gunner's periscope (UM)
7. (*a*) If reading on AC is less than 3200 $\frac{W}{R}$, subtract reading from 3200 $\frac{W}{R}$ and command TR the difference
   (*b*) If reading on AC is more than 3200 $\frac{W}{R}$, subtract 3200 $\frac{W}{R}$ from reading and command TL the difference
8. Command AP, aiming posts refer, deflection zero

TO MEASURE

Adj Base ∠

1. Command, Base piece, AP, this instrument, measure deflection
2. (*a*) If gun turns left to sight on AC subtract reading that gunner gives from 3200 $\frac{W}{R}$ and place remainder on AC (UM)
   (*b*) If gun turns right to sight on AC add 3200 $\frac{W}{R}$ to reading that gunner gives and place this summation on the AC (UM)
3. Turn vertical hair of AC to center of gunner's periscope (LM)
4. Sight along OL (UM)
5. Report reading as base ∠ (so much)

Base ∠ never over 3200 $\frac{W}{R}$

Adj Compass (*CA*)

1. Command, Base piece, AP, this instrument, measure deflection
2. (*a*) If gun turns left to sight on AC subtract reading that gunner gives from 3200 $\frac{W}{R}$ and place remainder on AC (UM)
   (*b*) If gun turns right to sight on AC add 3200 $\frac{W}{R}$ to reading that gunner gives and place this summation on the AC (UM)
3. Turn vertical hair of AC to center of gunner's periscope (LM)
4. Center the needle (UM)
5. Subtract reading of AC from declination constant (plus 6400 $\frac{W}{R}$ if necessary) and report Adj CA (so much)

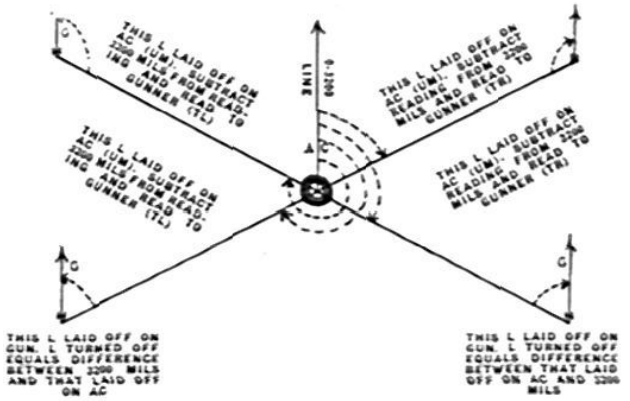
INDIRECT FIRE POCKET REFERENCE CARDS

For Key Tank Destroyer Personnel

By Lt. Eugene T. Oborn

With the growing importance of the Tank Destroyer secondary mission (indirect firing) it has become imperative that key personnel be thoroughly familiar with the duties of the executive and be able to perform the same without any additional training.

High casualty rates in these trained key personnel while performing the primary Tank Destroyer mission (direct firing) have suggested the advisability of having a pocket reference card, the size to fit a shirt pocket, with information for laying, firing, and obtaining adjusted data of the firing



TO LAY GUNS EQUIPPED WITH AZIMUTH INDICATORS M-18 OR M-19 IN ANY GIVEN DIRECTION
THIS DIRECTION IS NOT CHANGED DURING LAYING

USING M-2 COMPASS

To lay battery on mag Az

1. Set up M-2 compass to left front of guns
2. Take a "back-azimuth" reading to sight of base piece
3. Subtract "back - azimuth" reading from mag azimuth sent down
   (*a*) If mag azimuth is greater than the "back-azimuth" TR the difference
   (*b*) If "back-azimuth" is greater than the mag azimuth sent down TL the difference

BATTERY EXECUTIVE'S REPORT

1. Battery is ready
2. Battery is laid on CA .....
3. Minimum elevation .....
4. Battery front .....
5. Ammunition—amount and kind

To measure adj mag az

1. Set up M-2 compass to left front of guns
2. Command Base piece adjust, AP this instrument, measure deflection
3. (*a*) If gun traverses left to sight on compass, add reading gunner announces to "back-azimuth" read to gunner's periscope
   (*b*) If gun traverses right to sight on compass subtract reading gunners announces from "back-azimuth" read to gunner's periscope
4. In either case the answer is the adj magnetic azimuth

battery upon completion of a registration. This is particularly true in view of the dearth of complete instructions for laying a battery equipped with the azimuth indicator M-18 parallel in any given direction or for measuring adjusted data upon completion of registration.

The accompanying material was photographed to pocket size by the Signal Corps from two 8″ × 11″ typewritten sheets. The drawing covers all possibilities of gun positions in relation to location of the aiming circle laying the gun. The aiming circle is in the center, the guns are at the four corners. The card gives instructions to (1) lay (using aiming circle) on base angle or compass; (2) measure adjusted base angle or compass; (3) realign aiming posts with azimuth indicator M-18; (4) compute minimum elevation; (5) submit the Battery Executive's report; (6) lay (using M-2 compass) on magnetic azimuth; (7) measure adjusted magnetic azimuth. Directions for the use of the M-2 compass are given so that the platoon leaders will not overlook the possibilities of this compass in indirect firing.

Platoon leaders, platoon sergeants, and section sergeants all carry one of these pocket reference cards. The card is intended primarily to be used with the standard M-18 azimuth indicator (0-3200 mils each way) but with the application of a little mental arithmetic by the gunner the procedure with the M-19 azimuth indicator (0-6400 mils clockwise) remains the same.

Directions for laying are based on the assumption that the 0-3200 line of the aiming circle is established parallel to the direction of fire; i.e., 0 toward operator, 3200 toward target. When the reverse is true (3200 toward operator, 0 toward target) obvious modifications in laying the battery and in measuring adjusted data upon completion of registration must be made.

For guns which must traverse left to form parallel with the "3200-0" line of the aiming circle, the amount to traverse left is read directly from the aiming circle (i.e., without deducting 3200 mils from reading). For guns which must traverse right to form parallel with the "3200-0" line of the aiming circle, the amount to traverse right is determined by deducting the aiming circle reading from 6400 mils! the difference is the correct amount to traverse right.

Measuring the adjusted data is, of course, just the reverse of laying the battery in any given direction.

COMBINATION MOUNT FOR DUAL .50s

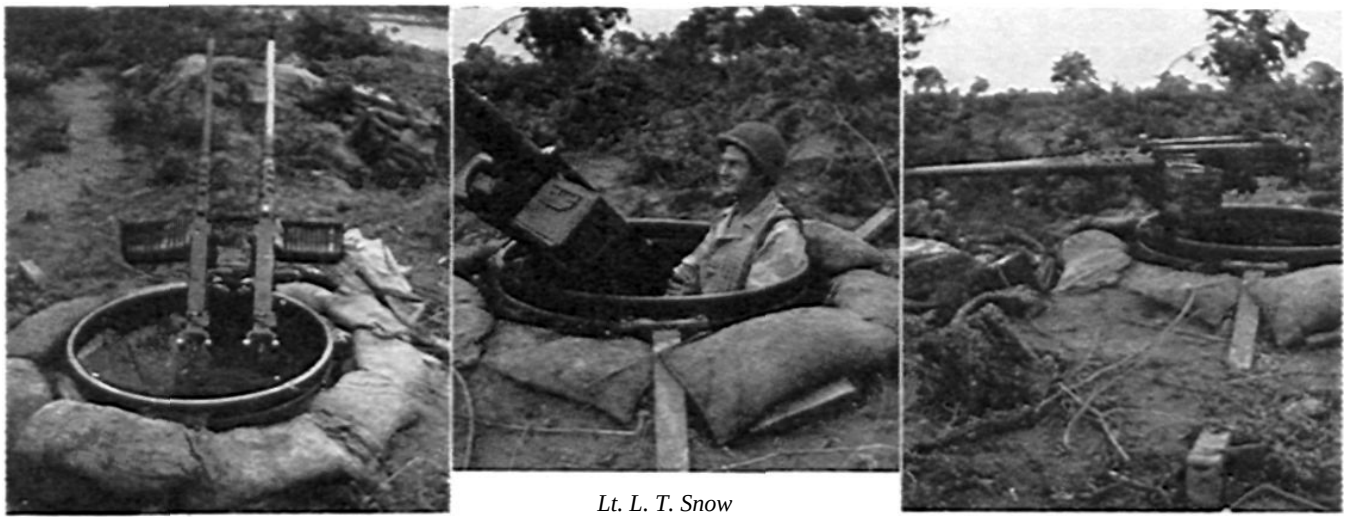
By Maj. E. A. Raymond, FA

Ground use of the vehicular ring mount for .50 caliber machine guns in the Pacific Area is illustrated on page 450 of this JOURNAL for July, 1944. A similar improvisation has been used within the Central Mediterranean.

One medium battalion in Italy is the veteran of as much aerial attack as the average soldier would care to see in half a dozen wars. It is more than holding its own and is proving again that necessity mothers invention.

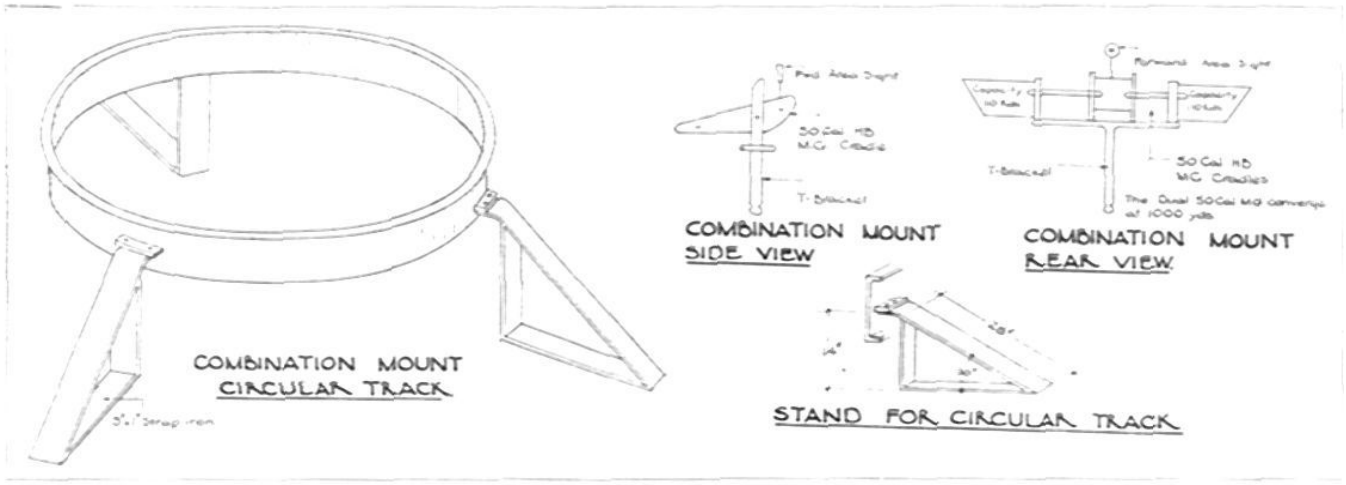
Back on November 9, 1943, the Germans were rolling grenades down on the Rangers from the heights above Venafro, and behind the Rangers were a battalion of lights and this medium battalion. In the early afternoon eight ME-109s poured through a cut west of Venafro and started for the gun positions. Attached AA and organic .50s on truck mounts opened up, and there was one plane that no one can call a "probable." Most of the men saw it coming and cleared the position. Sgt. Emory E. Hopper of Btry A hit the trench just in front of his howitzer. The plane hit Hopper's gun; its engine fell in the next gunpit, less a couple of cylinders which landed a hundred yards away. Hopper's trench had ceased to be. With the ammunition going off all around, the colonel ran up from his CP 50-60 yards away and found the boys already digging. They got Sgt. Hopper out unscathed. Only a few bizarre and unlikely fragments of the German pilot were ever found.

That experience set Lt. L. T. Snow to thinking. His .50s



Lt. L. T. Snow

It was from this position on the Anzio beachhead that the dual 50s engaged in the action described here.



were not stopping the Jerry planes soon enough—were not hitting them with sufficient force. His men at their vehicular or AA ground mounts were engaged in an unequal fire fight with inadequate protection. His thoughts were fruitful.

The battalion went to the Anzio Beachhead. A new mount, carrying twin .50s, was on a rise with pine and oak forest on two sides. Three MEs came in over the woods. Two in the lead swung around the gun position in attempt to draw attention, while the third stabbed directly in below them unobserved (he thought). The boys were wider awake than that, and the third plane came down hard—this time a hundred yards from the first gunpit. The guns were swung around sharply and the attack of the lead planes was stopped also: one crashed just over the woods, the other was surely hit.

This combination AA and ground mount for dual .50-cal. HB machine guns is made from a salvaged M-32 truck mount. A skate moving on a circular track supports two .50-cal. cradles on a T-shaped bracket. Three triangular legs or outriggers give stability to the mount.

Removed from a vehicle and placed over a foxhole, the mount permits both AA and ground fire with free 360° traverse. It is more flexible than any of the tripod or pedestal mounts used heretofore, and in addition the gunner gets more protection than he did in circular or "doughnut" ground emplacements. Since the emplacement is so small, camouflage is greatly simplified. A hinged flap, opening at the pull of a cord, has been used successfully. Where the ground is such that digging is impossible it will be necessary to use a small circular emplacement of sandbags, rocks, or debris. When time presses the machine guns are fired from a vehicle.

Both mounts constructed to date have come from closed-cab trucks. Tubular uprights of the M-36 truck mount for open-cab trucks might be used as outriggers for the conversion of that type of mount.

Heretofore satisfactory AA performance has only been obtained by the use of heavy and cumbersome mounts; a separate ground mount has been carried. Release of this cargo space is another advantage of the combination mount.

AN F. A. GROUP AT CASSINO

By Its Executive Officer

One American field artillery group fought at Cassino from start to finish. While training, it attempted to anticipate each type of situation expected in combat. Cassino was one of these. Troops who fought in Africa say that they saw nothing like it. There was only one Cassino in all Italy, and it well illustrates the special problems of a stabilized sector.

It was no routine operation, in which a group does little. By contrast, here, in the final stages, the group enjoyed great freedom of action and initiative. Higher headquarters gave broad missions. There was no aggressive corps artillery headquarters to centralize control and limit the group to providing communications, developing intelligence, and making preliminary reconnaissance for future positions. When this happens on a stable front—a condition more common than not—a group "marks time." And it marks time for more of the time than most formations.

But even then, groups are necessary. Additional ones were formed overseas. The most experienced corps artillery headquarters over here abandoned every attempt to control directly more than six headquarters. Unless communications remained perfect and the staff faced no interruptions, it failed invariably to send one or more subordinate headquarters some needed instructions or information; when the group had nothing else to do it had value by assuming this responsibility to each of its battalions, but led a full life. The contrast with Cassino, where this one group did much ordinarily in the province of the American corps artillery headquarters, made the experience especially valuable.

Initially, Cassino was expected to cause a brief delay. American troops were the first to arrive at the German defenses. French troops joined them on the north shortly after. Americans attempted a breakthrough on 20 January 1944. They directed their attack at San Angelo (a small town across the Rapido River to the south of Cassino) and at the northern part of the city. They were unsuccessful. The group supported this effort.

French troops, the 34th Division, and one combat team of the 36th Division next made a series of limited objective attacks to gain a substantial foothold in the mountains to the north, and in the city. The group supported them with counterbattery and close-in fires.

Around Cassino and Mt. Trocchio the terrain is notoriously rugged. Mt. Trocchio is in the central background.

Fresh New Zealand troops replaced the American divisions, but the American corps artillery remained. It shelled the Abbe di Montecassino after it was bombed to limit its use as an enemy OP and as a later strong point. When the town was bombed on 15 March 1944, the group participated in the artillery fires that followed. After several days of dogged fighting without advance, the New Zealanders abandoned the attack. They and the Indian troops left the sector. Other American artillery left too, but the group remained.

The British Eighth Army extended itself from the Adriatic to the Liri River and the Fifth Army continued to the other coast. Beginning with the west coast, the corps in line were the American II Corps, the Corps Expeditionnaire Francais (CEF), the British XIII Corps, the Polish II Corps, and the British X Corps. The French deployed across the mountain masses along the Garigliano to the south of the Liri River. All prepared themselves for a month prior to the coordinated attack scheduled to extend from the Mediterranean to Mt. Castellone, northeast of Cassino.

ORGANIZATION

When organized for the final attack, the group had a headquarters and four heavy battalions with long experience. Two had 155-mm guns; one, 8-inch howitzers; and one, 240-mm howitzers and an 8-inch gun. The group entered combat in Italy with the first 8-inch howitzer battalions, and had had up to seven battalions of heavy artillery attached at one time. One battalion of 155-mm guns had seen service in Africa, in Sicily, and in Italy.

MISSION

Army charged the group with general support of the British, French, and Polish Corps. An American FA Brigade controlled fires for the French Corps; the group was attached to it by Fifth Army. 6th Army Group Royal Artillery and its attached corps counterbattery office controlled fires for the British and the Poles. The Liri River formed an exposed flank, but the Germans in their rear depended upon a road net confined to many narrow defiles. Distant counterbattery and interdiction fires to isolate battlefields in front of the French therefore became an important part of the mission.

OBSERVATION

The group S-2 coordinated all observation. Each battalion established at least two OPs. They were so placed that, if need arose, the battalion could make its own center of impact or high burst adjustments. Battalions located each by accurate survey methods. Resection often checked the short base to within ten yards. These OPs supplemented the bases of the survey regiment (observation battalion), and gave excellent flash locations not only for registration but also for active enemy guns. At first the OPs were not so accurately located, but better target locations soon showed the value of extra effort. Accurate maps did not exist: such important points as two bridges along a road differed from their true locations by as much as 200 yards each, and in opposite directions. Battalions measured azimuths on a gridded chart. When another unit once objected to the attention survey drew to a general OP area, the corps artillery weighed the value of accurate locations against hazards from a survey and ordered all units to locate their observation posts with the same accuracy as the group.

Battalion observer teams manned their OPs for three to five days. They relieved each other after dark. The old observer remained after his relief arrived and departed the next night, orienting his replacement during the day. All observers had a good general knowledge of the ground, and the orientation made them aware of recent changes in the active combat area.

Each observer had a BC telescope oriented to read direct azimuths.* He had a spotting scope M19 for registration and detailed searching. A list of computed azimuths to active hostile batteries oriented the observer as to expected locations.

Observers tested their communications regularly and reported all they saw. They operated 24 hours a day. Routine reports went to the battalion S-2, and reports likely to be followed by prompt fire to the battalion S-3. A report that 15 vehicles used a road during the last hour went to the S-2 along with the type, direction, spacing, and anything else of importance. The battalion S-2 telephone operator took the report. He immediately relayed it to group, and group to the next interested headquarters. In an American corps, this was the artillery headquarters. After being collated they went forward to the artillery liaison officer with the corps G-2. Corps thus evaluated each report a few minutes after the observation.

The S-2 section needed training to ask skillful questions so it could expand every fragment of information as fully as possible. When an enemy gun flash was reported, it asked for the "Flash-Bang" time (the time from the flash to the sound of the gun firing). With the OP, azimuth, and "Flash-Bang" it located an active enemy gun along one ray to within several hundred yards. The section needed tact to welcome every scrap of information, and invariably thanked the person making the report. All too often a thoughtless staff officer or telephone operator would intimate that a report was valueless and the flow would soon stop. If the news was not all that it should have been, the section started an educational campaign. Results of the group's efforts in this direction were all very gratifying.

Air OPs supplemented the ground observers. As an observation agency they too were under the S-2. He arranged a schedule of continuous sorties. He received a report that the

*See *Counterbattery—Right Now!* on page 515 of this JOURNAL for August, 1944.

plane was in the air and at times listened to fire commands. He gave the observer his missions, briefed him when necessary, and received a report afterward. It was contrary to the teaching at Fort Sill to schedule the planes for continuous coverage over the entire front, but the conditions of terrain and the employment of the forces made this unorthodox use worth the calculated risks. All higher commanders in the theater, after a short period of action, arrived at the same conclusion. Much was published about the Air OP in Italy and there cannot be too much praise for its work. Without a continuous air patrol German counterbattery from positions defiladed to ground observers would have been much more effective. Occasional fire landing from three directions at one time was bad enough, and it boosted morale to know that we could always return it accurately.

The Air OP observer was specially selected. Not all artillery officers could shoot, and poor shots accomplished little. It took time to learn the terrain—about a week in most cases. Experienced units assigned an observer to live with the Air Section for a month or so. After an officer flew as an observer every day he developed an intuition, or rather a practical and subconscious knowledge of the ground from the air, and found many times the previous number of targets.

For the big push each British Air OP squadron served a sector of the XIII Corps front. Group so scheduled its planes that they overlapped the flights of the British squadrons and gave additional coverage into the Vallemaio Valley, deep in the French sector.

Spitfire and P-40 airplanes also adjusted fire. They worked in pairs. The pilot of one plane observed, while the other (the "weaver") searched for hostile aircraft and took over the problem if the radio in the observer's plane failed. They engaged targets not readily saturated with destructive fire. The pilot oriented himself with a marked photo, made a precision adjustment with one battalion, and followed with several volleys from all available guns. Whenever the pilot observed traffic on a distant road he reported it immediately. Before firing on a hostile battery he verified the location by dropping low enough to observe details. He located and fired upon active antiaircraft guns. After one began to shoot it was simple to observe, and a concentration soon stopped such foolhardiness. Missions with a fighter plane (known in British services as an Arty/R {Artillery Reconnaissance}) gave results and much intelligence when flown by well trained, experienced pilots familiar with artillery methods. At their base field the pilots gave additional information to the interrogator, and the valuable portions filtered down to the group through command channels.

Arty/R was requested for worthwhile targets not readily attacked by ordinary methods. When the group S-2 discovered such a target he delivered his request to the counterbattery office, if it were a hostile battery. For other targets he notified the IO if it were in the Eighth Army sector, and the S-2 if in the Fifth Army sector. British ground troops had more sorties allotted than the Americans and the group fired most of its missions with Spitfires. They were helpful in silencing 170s at the limit of our range. They consistently searched for targets and attacked them by accurate fire impossible with any other available observation. They located fleeting targets of opportunity. Some of these were lucrative and valuable for intelligence. They destroyed several dense columns of vehicles, personnel, and materiel. After shooting at a column of horse-drawn artillery in the Vallemaio Valley one pilot radioed that he could stomach no more and that fire must be continued unobserved. Few sights shake a man so much as that of dying horses in their helpless agony, and consideration for horses, according to several British horsedrawn artillery officers, allowed the Germans to bring their artillery well forward in 1940.

COUNTERBATTERY

Group fire missions were generally counterbattery. A specific counterbattery wire system joined the group, first with the American counterbattery office and then later with the British. Calls to French CBO went over the command net. In each instance the CBO established his office at a central agency directing artillery fire. The Americans located him with a corps fire control center; the British corps, with an attached AGRA; and the French, with their attached American Field Artillery Brigade.

Each CBO published a hostile battery list. He amended it frequently. He identified each located enemy gun by a two-letter symbol, such as "YE" or "CA." They were located by true coordinates to the nearest ten meters and elevations to the nearest meter. The list showed for each location the number of the guns, the caliber if known, the accuracy of the location, and the source. Each element had value. The ground observer, the air observer, and the sound ranger generally found a published location active when they had a plot nearby. Where accuracy was poorer than 200 yards, British units spread their batteries according to a fixed pattern. Americans depended upon the spread of their massed battalions for coverage. The hostile battery list never included all locations in the CBO file. German flash simulators and self propelled guns that fired from one position and then never used it again, made caution the rule before a location was published. Generally, three reports of activity decided the question. The list was so devised as to show fixed positions occupied with some permanence, and the semi-fixed positions occupied from time to time by self-propelled guns.

In addition to the usual S-2 and S-3 situation maps the

In Italy the "beavies" could get excellent defilade. This 240-mm howitzer is on a mountainside in the San Vittore area

group maintained a gridded chart with a 1/25,000 plot of each location on the hostile battery list and of the surveyed observation posts. Newly located batteries, not yet published, took their place on an overlay on top of the chart. The OPs all had BC scopes laid by one or more well known reference points. When they observed a flash, or smoke from a hostile gun, the azimuth was plotted on the chart. When two or more reported an azimuth to an active gun the intersection gave a good indication of the offender. The OPs used every bit of intelligence to an advantage. Sometimes one OP would spot a flash and another would hear the shell going overhead. This last observer reported his estimated azimuth by sound, and his report, generally correct to within 100 mils, intersected to give the active group of guns. By alerting all OPs to search in the vicinity of azimuths to the center of the group, and by checking with the sound and flash observers, the gun was soon located and taken under fire. The CBO was invariably grateful for every indication pointing to an active battery. Locations from the group OPs often intersected on his chart with rays from OPs manned by other units.

No one sacrificed speed to try for a location within the battalion or the group. An enlisted man forwarded the shellreps (shell reports) to the CBO, while the officer checked the hostile batteries on his gridded chart by laying off the reported azimuths with a string attached to a protractor set on the reporting point.

Most troops knew about the shell-rep. All troops over here, after they were in combat for a while, recognized its value to silence enemy artillery. They forwarded such information as they had and looked for shell fragments to complete the report. Fragments, especially parts that carry the rotating band, furnished much intelligence. They identified the caliber of the gun and gave information for one column of the hostile battery list. From the sequence of dates stamped on the metal over a period of time they gave original intelligence about the state of the enemy ammunition reserves and about the new ammunition developed and used. For immediate use, the furrow where most fragments were found gave another azimuth to the enemy gun. If this ray passed through gun positions of several calibers the fragments limited the possibilities to one of suitable caliber. Furthermore, the furrow often intersected with a flash location or verified an intersection obtained by using a sound azimuth.

The gunnery officer of the corps used past experience to apply counterbattery fire. When the active gun in a group could not be identified, and our troops suffered from the fire, he fired all locations in the group. Where enemy guns fired but disturbed no one, they were allowed to continue shooting. When ammunition permitted and other circumstances warranted, he attacked every enemy gun opening fire as soon as a mission could be arranged. Ordinarily, it helped matters when the enemy wasted his ammunition and no one discouraged him.

If an observer could see the enemy gun position he registered one battalion, and others joined in a time on target (TOT) shoot later. This same mass of fire fell on the position at some later period that changed with each mission. When guns were hidden, defiladed, and protected, this did the most damage. It caused casualties, and prisoners reported that artillery units were evacuated once they lost 65% of their personnel. Massed fire falling in the same instant from many battalions was most devastating; it denied men the 10-second warning needed to reach their shelter trench. American, French, and British artillery all used such massed fire. Each allowed about seven minutes during daylight from the time coordinates of a target were assigned until the initial round struck the impact area, and about ten minutes during darkness. The extra time during darkness allowed heavy artillery time to insure accuracy and to manhandle ammunition with safety. The battery computer deducted the time of flight from the TOT and gave the order to fire using an accurate watch in the FDC. It was synchronized to the second by regular BBC timing signals. For the attack of 11 May 1944, the British XIII Corps Artillery sent a special signal by a conference call to the headquarters of division artillery, AGRAs, and groups. These relayed the time to subordiante regiments and battalions.

British artillery massing fire used several practices strange to the group. For observed massed fire, designated field officers of proven experience and judgment had prior authority from the corps artillery officer (CCRA) to use the corps fire control radio net and call directly for the fire of every gun in the corps. Fifteen minutes after such a call, every gun that could reach the target had a shell in the area. To give some idea of the might entrusted to such an officer, a Canadian major asked a group observer as he came down Mt. Leuccio (near Pontecorvo) whether the hill provided an OP suitable for the control of 800 guns. His corps artillery commander had told him he had this number available to fire upon targets that were worthwhile. To call for the fire of all guns these officers used a special radio sequence, and the devil himself grew busy fifteen minutes later.

For counterbattery fires, British units often committed an impressive number of guns. Before his office was well established a New Zealand CBO visited a fire control center that had been in the area for a long time. A shellrep and several flash azimuths arrived. He grew interested, and asked a few questions about the enemy battery—whether it was a persistent nuisance and whether it was well located. It had been, so he asked to talk to his office himself. The Americans later calculated that he had fired 846 rounds into the enemy battery area within five minutes!

American, British, and French artillery used different approaches in designing their prearranged counterbattery preparation and neutralization fires to support the coordinated attack. All produced results, so there is no question of one being poor practice and another good. None organized their artillery at the corps level, as done in the past problems at American service schools. These used experience tables with requirements in terms of guns or battalions per 1,000 meters of front and were based upon previous successful engagements. Such tables are still used to evaluate the artillery needed for a broad sector or a theater. At Cassino every intelligence agency was consulted to determine the number of guns capable of shooting into the sector. Enough guns were moved in to support the attack and out-gun the enemy to the greatest possible extent. The French called for enough guns to neutralize the occupied enemy gun area. A brief study of the effect produced indicated that a ratio of three guns to each one available to the enemy generally neutralized them, regardless of the approach.

During previous preparations the Americans had fired two volleys from at least three battalions on each hostile location

and had followed with varying amounts later. The French here based their fires upon the assumption that no enemy guns would shoot from an area receiving 40 rounds per hectare (100 meters square) per hour. If this rate was too great, it was reduced to 20 rounds per hectare per hour with the understanding that most guns would be neutralized, although those served by gun crews with intestinal fortitude and the will to shoot would continue to be bothersome. The French program increased the number of rounds needed to insure neutralizing each gun as the accuracy of its location grew poorer. They thereby found another direct use for the accuracy values in the hostile battery list. The British fired 13 or more rounds initially upon each enemy gun, and followed with more later.

For the preparation of 11 May the group fired every available gun into the British sector during the first 22 minutes, and then shifted the fire of what amounted to two battalions to support the French to the south. In both sectors the counterbattery preparation was successful beyond expectation, and retaliatory rounds could be counted upon the fingers of two hands.

COMMUNICATIONS

By the time of the final attack communications of the group had long been established. Cassino developed as a special operation. Table of Equipment allowances filled only part of the needs. The other required special authority. Theater stocks at the time were such that a reasonable request supported with proof of need sufficed to draw needed available items. Wire was used liberally. Some lines had been maintained for four months. The group serviced 110 miles. Much of this was in duplicate lines that insured control regardless of the weight of enemy shellfire. Even with these, during a nasty German counterpreparation fired while an American corps was in the sector, only one line of the group net remained in operation!

In April, Army authorized the temporary loan of a BD-92 switchboard with 44 drops. This along with two BD-72s allowed the group to operate more than 60 lines. One BD-72 installed several hundred yards from the command board contained the local circuits to each battalion FDC, to the counterbattery offices, and to the group operation office. It carried fire missions, shell reports, and counterbattery intelligence messages, and nothing else. If fire from a German gun disturbed our troops, the failure of communications hardly ever delayed the measures necessary to silence it.

Although wire was emphasized by the group, radio was not abandoned. Each FDC had a speaker connected to its SCR 193 and received direct orders from the group to mass fires. All operated 24 hours a day. The S-3 acknowledged all missions over a remote control unit in the command post. If time were at a premium and secrecy of little consequence, every battalion heard the broadcast fire mission, acknowledged receipt if called, computed its data, and contributed to the mass of fire within seven to ten minutes. When the corps artillery headquarters operated it applied this procedure to mass any number of battalions, regardless of the intermediate headquarters, to obtain tremendous density with no sacrifice of speed. The net also served to rebroadcast metro messages (including the British "meteor," which was changed into an American message). Sometimes the enemy "jammed" the 193 and the 608 nets, and then the maze of wire lines showed their values.

A spare SCR 193, specially loaned for the occasion, was used to contact the French artillery CBO. The wire to his headquarters traversed rugged mountains, and a break there took longer to repair than one anywhere else.

The British CBO had a local telephone to forward his missions and an SCR 608 in the group net to send fire missions when the telephone failed. For British units he relied almost entirely upon radio, but experience coupled with the limitations of our radios and the availability of wire had taught American units to rely upon telephones for this stable phase. When the British CBO requested a mission over the local telephone line, a telephone operator ordinarily arranged a conference call over the counterbattery wire net and the battalions had part of the data before the CBO ended his message.

Every day, weather permitting, the group fired several missions with observation from a high performance airplane. Since most of these missions were flown by British Spitfires, each battalion received commands relayed from a Britsih VHF set at the CB Office over its 608 or British 22 set. The CBO listened to all of communication and sent the plane to new targets as needed. For contact with American planes flying in support of the French Corps, Army lent an SCR 522 set that moved to the CP of the battalion conducting the shoot. British planes observed fire for the primary purpose of destroying proven locations of enemy guns—especially those with an evil reputation—while American fires of this sort had as their objective interference with German transport by destroying bridges and cratering defiles.

The group operated an SCR 608 net, but mountains, distance, and interference made it unreliable. Air OPs used the group channel to report into the net and to fire battalions other than their own. When they fired their own battalion they shifted to the battalion channel and reported into the group channel upon completing the mission. Radio communication with the battalions actually depended upon the 193.

At the battalion level, the 608 net proved adequate for all but the service battery. Narrow valleys forced it to the far side of mountains and beyond range of the battalion headquarters. Sometimes telephone lines through intermediate boards worked, and at other times the battery agent and the officers maintained contact through their calls.

CONCLUSION

The group added to its knowledge of artillery as time went on. Its battalions shot from the same positions for four months. They were well protected with sandbags, quite visible to the Germans, and as far forward as any artillery. They received thousands of German rounds and returned many more. During the period 20 January 1944 to 20 May 1944 they fired more than 130,000 rounds weighing better than 11,000 tons. These all did their part to help along the cause in a number of different ways.

There were preparation fires to neutralize enemy artillery and defensive works, fires to disrupt communications, and programs like the one where a single battalion within one month leveled 200 stone buildings used by the enemy for protection and defense. There were special fires for the infantry. One heavy shell silenced enemy mortars in ravines when our own mortars and light artillery were without an exact location. The infantry asked for help from the 8-inch howitzer when it needed especially accurate fire on strong points and close-in fortified targets, and as need arose it requested that the 8-inch howitzer and the 240 silence activity in the monastery. There

were fires to destroy easily defended towns. The fates of war demanded their destruction, and San Angelo, Pignataro, Cassino, and Acquino were all leveled with dispatch and thoroughness. Acquino tells a good before-and-after story—before and after 800 rounds from the 8-inch howitzer battalion. There were fires to destroy bridges at long range, and interdiction fires on critical defiles.

Although considerable time had elapsed, the effect of the fire quite often remained. When it was outstanding, the group derived the satisfaction that comes to artillerymen from a task well done. The interdiction fires at Esperia are worthy of special study. After the war a story with the French plans, the German views and reaction, conference data, casualty figures, and photographs will make a profitable study for future artillerymen. The French Artillery Officer wanted the Esperia defile blocked to cut all communication with the battlefield in front of the French troops. He fixed the requirements for the task from his experience and, after conferences between the artillery officers of the two armies, received the group and the ammunition necessary to do the shooting he wanted. For three days the 240s cratered the road at dusk, and the 155-mm guns registered and then fired from 60 to 120 rounds per hour throughout the night. Later, after the area was overrun, it spoke for itself. Officers with experience in many wars said that they had never seen anything like the sight. Unfortunately, no published pictures made much effort to present the extent of the German loss, or used much imagination to relate the value of the artillery to the progress of the battle. The hill side below the road was covered, several deep in places, with a dense mass of men, horseflesh, vehicles, armor, and guns, all seeking to leave and fight again elsewhere. That they did not, no doubt contributed toward the later rapid advance.

GROWL FROM A DIEHARD

By Lt. Col. M. L. Curry, USMC

(The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.)

It is a weakness of human nature that we are forever seeking panaceas. We want tactical or technical rules of thumb (the fewer the better) which will enable us to solve any situation quickly and easily. Devices or plans which have brought us success in some one case we are inclined to adopt to the exclusion of everything else. As students we are disposed to grasp at a type solution to be applied generally to all problems. As a result we swing between extremes, and the extreme to which we are currently victim is the adjustment of fire by Forward Observer methods.

As an artillery battalion commander in the Pacific Area for the past two years, the writer has watched many artillery observers in action, both Army and Marine, and he sadly concludes that guilt is widespread. His first rude shock occurred on Guadalcanal as he sat in his FDC listening to lightning adjustments and the invariably optimistic reports from the FOs, and was forced to the conclusion that either he had a most remarkable group of lieutenants or else they were deceiving themselves (and everyone else concerned). The latter case, unfortunately, proved to be true, as it occurred not infrequently that some of these young gentlemen were content with lots of noise and smoke and sensings of "range and deflection approximately correct"—an expression which must make the gallant Pelham stir uneasily in his grave.

We read many reports from battle-tried observers who advocate the virtual abandonment of everything but FO shooting because that is all their outfits ever do. One states that half his artillery shoots are conducted by the infantry (we agree that letting the Doughboy shoot is an excellent practice in its place, but 50% seems a bit high). Another advocates that the infantry have people trained to do all the FO shooting, as they can be quickly taught to do it just as well as artillerymen. This is equivalent to saying that there's no use having a doctor attend a sick man as all he does anyway is administer pills and anybody can do that! The mechanics of FO shooting *can* be taught any intelligent person in a very short time, but experience, judgment, and an accurate knowledge of his weapon's capabilities and limitations *can't* be taught in two easy lessons. And the one thing that is most difficult to teach a beginner is to *know* beyond a reasonable doubt that he actually has an adjustment on his target.

Before we go any farther, let it be distinctly understood that the writer has no objection to the use of FO methods but rather to their *abuse*. He readily admits that the great majority of shoots are FO shoots and rightly so, and if properly handled, all well and good. But the dismal picture is the one of 1,500 rounds of 155-mm ammunition failing to silence a *visible* Jap battery in a recent Solomons campaign, because the shots were scattered in the vicinity by FO methods—small "r" being several thousand yards. On the other hand, a sweeping denunciation of FOs as a group would be untrue and very unfair—another incident is recalled in which an FO, failing to silence a dug-in Jap machine gun with a bracket adjustment, promptly requested one gun and proceeded to liquidate his adversary with precision methods.

There is no royal road to learning, but many young officers think they have found one when they leave the complexities of lateral conduct of fire for the utter simplicity of FO shooting, and in that illusion lies the weakness of too much emphasis on FO technique. When an observer intends to use the "old-fashioned" conduct of fire methods, he is forced to give serious consideration to gunnery factors and will generally study the terrain of the target area to see what effect it will have on his factors. He is prepared to utilize the time-tested principles of keeping his shots on the OT line for sure sensings, and of bracketing. If the FO faced his problem in the same conscientious manner, it could be fired just as effectively making range and deflection changes in yards.

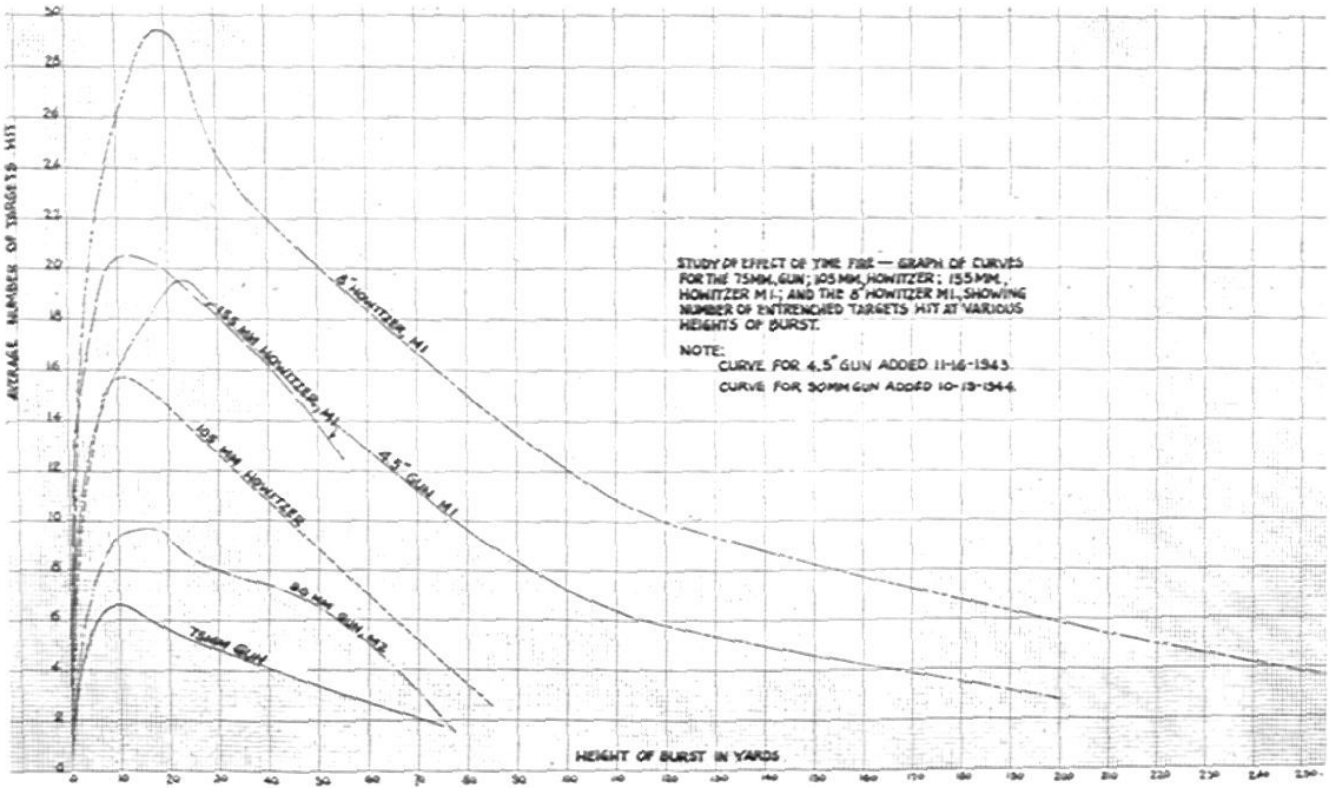
But to many an FO all this preliminary study and preparation seems unnecessary; he has only to wait for a target, grab an answer out of the hat, and fire for effect—so he thinks. If his OP is within 1,000 yards of his target he will generally get away with it, but it is a common sight to see an observer using FO methods on a target three or four or even 5,000 yards away from him. Having the "spot-to-the-target" complex he will call for fire for effect, never having established a bracket. His last sensing is a "guestimate" and he loses his gamble as

often as he wins it when small 2 exceeds 1,000 yards. Under such conditions, if he chooses to use FO methods he can do so satisfactorily if he will only *bracket* his target. How many do? And sooner or later he will be faced with the necessity of making a precision adjustment, as pillboxes are seldom put out of action by zone fire—Japs and Germans are determined people.

FO extremists defend their stand mainly on the ground that FO shooting is much faster. Unless my memory fails me, Fort Sill students in the 1930s were required to have effect on the target within 3 minutes of the time it was designated—using the "old-fashioned" methods, and "approximately correct" wasn't tolerated. Do our FOs generally beat that time limit?

The weakness is not in the system but in the officer who fails to master it. It has been my observation that artillerists thoroughly indoctrinated with the standard conduct of fire methods are generally familiar with the fundamentals of shooting because a considerable amount of thought and effort on their part has been required. Nor do they lose sight of these fundamentals when using FO methods. Contrarily, young officers who have been only briefly exposed to conduct of fire by axial and lateral methods and who have no knowledge of probability and dispersion, but who have been extensively exercised in the mechanism of FO shooting, are frequently content with mediocre or even unsatisfactory results. Again the complaint is that we don't have the time to teach that sort of thing thoroughly these days. Perhaps not before the first battle, but most artillery units now in combat have been activated long enough to master everything in FM 6-40. As far as gunnery is concerned it is the accumulated wisdom of decades, and the principles of keeping the shots on the OT line and bracketing the target are as sound as the Rock of Gibraltar.

Finally, it is not our intention in any way to belittle the heroism of our observers nor the overall performance of U. S. artillery: they certainly require no defense. Nor do we advocate blind adherence to academic rules; surely there are artillerists who seem to have stereoscopic eyes and who can spot their shots with uncanny accuracy. To such rare geniuses of proven ability, all honor! But it is wise to note that the brilliant performance of such individuals is generally based on wide experience—not reckless gambles. The vast majority of our observers these days have not, unfortunately, had the advantage of this wide experience, and must depend on a more methodical procedure to get positive results. For the same expenditure of time and ammunition we should be much more deadly than we are — or has *Cedat Fortuna Peritis* lost its meaning for the duration?



This Effect of Fire Graph brings closet to date the one shown on page 413 of this JOURNAL *for July, 1944.*

Preventive pioneer work will save many mechanics much labor.

A shovel missing from the pioneer rack on a truck will not help much in digging the truck out of the mud.

Either adjust your ax bracket on the jeep so that the ax handle is straight or learn how to look cross-eyed.

MINUTES OF THE ANNUAL MEETING OF THE UNITED STATES FIELD ARTILLERY ASSOCIATION, DECEMBER 18, 1944

In accordance with the call of the Executive Council, the thirty-fifth annual meeting of the United States Field Artillery Association was held at the Army and Navy Club in Washington, D. C., at 5:30 PM, December 18, 1944. The President, Maj. Gen. Lewis B. Hershey, presided.

A quorum was present in person for the transaction of business.

It was moved, seconded, and carried that the reading of the minutes of last year's annual meeting be dispensed with, these having previously been printed in the JOURNAL.

The Secretary-Treasurer presented and read his annual report and financial statement, which are appended hereto and made a part of the minutes.

Colonels Stuart McLeod and George M. Dean had previously been appointed to audit the financial statement. At the direction of the chair the Secretary read the report of the auditors which stated that the auditing had been performed and the financial statement had been found to be correct, and the affairs of the Association in good order; it was recommended that an investigation be made of older securities among the assets, that changes be made in the form of certain petty cash records, and that a periodic audit be made by independent (non-member) auditors. A motion was made, seconded, and carried, to approve the annual report and financial statement.

Col. Ralph C. Bishop, chairman of the nominating committee which included also Col. Verdi B. Barnes and Maj. Walter J. Preston, Jr., stated that there were three vacancies in the Executive Council caused by the expiration of terms of office of Maj. Gen. Lewis B. Hershey, the late Brig. Gen. Edmund W. Searby, and Lt. Col. James P. Hart, Jr. His committee submitted the following names to fill the vacancies:

Maj. Gen. Lewis B. Hershey
Col. Malcolm R. Cox
Lt. Col. F. Gorham Brigham, Jr.

After opportunity had been given for further nominations, a vote was taken which resulted in the unanimous election of the choices of the nominating committee.

By vote of the membership the Council was directed to employ an independent firm of accountants to make the next annual audit.

The meeting adjourned.

ANNUAL REPORT OF THE SECRETARY TREASURER FOR YEAR ENDING NOVEMBER 30, 1944

Assets November 30, 1943			
Govt. appreciation bonds, value 11/30/43	$35,721.00		
Securities, cash value, 11/30/43	12,248.81	$47,969.81	
Balance in checking acct. 11/30/43		3,113.58	
Inventory (furniture, equipment, supplies)		4,311.67	$55,395.06
Assets November 30, 1944			
Govt. appreciation bonds, value 11/30/44	$29,181.00		
Securities, cash value, 11/30/44	12,115.20	$41,306.20	
Balance in checking acct. 11/30/44		3,180.00	
Inventory (furniture, equipment, supplies)		8,828.92	$3,315.12
Net loss for year ending 11/30/44			$2,079.94
Cash value of securities 11/30/43	$47,969.81		
Cash value of securities 11/30/44	41,306.20		
Net loss in value of securities, year ending 11/30/44		$6,663.61	
Inventory (furniture, equipment, supplies) 11/30/43	$4,311.67		
Inventory (furniture, equipment, supplies) 11/30/44	$8,828.92		
Increase in value of 1944 inventory over 1943		4,517.25	
		$2,146.36	
Excess of receipts over expenditures for fiscal year 1944		66.42	
Net loss for fiscal year 1944			$2,079.94

The following is a detailed statement of receipts and expenditures for fiscal year 1944, as compared with fiscal year 1943.

RECEIPTS

	1943	*1944*
Membership dues	$58,782.74	$45,249.54
Book Department	52,264.62	25,187.77
Visiting cards	220.70	miscl.
Interest on securities	297.47	353.33
Miscellaneous	6,025.66	9,594.47
	$117,591.19	$80,385.11
Balance in checking account 11/30/43		3,113.58
		$83,498.69

EXPENDITURES

Printing and mailing FIELD ARTILLERY JOURNAL	$39,269.88	$38,575.59
Authors, artists, photographers	5,718.70	5,101.15
Job printing	351.71	561.42
Office equipment	1,377.52	46.50
Office supplies	1,026.18	599.15
Postage	3,714.95	3,281.42
Book publishers, book refunds, etc.	31,673.38	20,364.91
Services	7,742.30	7,489.42
Insurance and tax	156.15	23.57
Donations	154.00	4.00
Government bonds	21,400.00	———
Visiting cards	214.05	See miscl
Rent	2,070.00	2,040.00
Telephone	267.61	255.87
Petty cash	———	53.30
Temporary services	25.00	———
Refunds	234.13	317.51
Unpaid checks returned by bank	367.79	168.76
Miscellaneous	1,904.91	1,436.12
		$80,318.69
Balance in checking account 11/30/44		3,630.06
		$83,948.75
Receipts for year ending Nov. 30, 1944		$80,385.11
Expenditures for year ending Nov. 30, 1944		80,318.69
Excess of receipts over expenditures for fiscal year 1944		$66.42

In broad terms the past year has been marked by a series of magnificent contributions to the JOURNAL, but an unfortunate decrease in membership. This latter situation, common to all service journals, results from our fairly large turnover of membership combined with the tapering off of the Army's increase. It should be the concern of every commander and of every other friend of the Association to do all he can to encourage (1) membership by his officers and (2) unit subscription for the benefit of his enlisted men.

This past year has also brought a small-sized "pony" edition of the JOURNAL for members and subscribers overseas. Arrangements were also made whereby the JOURNAL'S delivery could be speeded and made more certain: it is now sent overseas by first-class mail to those paying the added cost of this special service.

Financial affairs of the Association are in good order, as the accompanying statements indicate. As is proper in these times, reserves have been tapped somewhat in order to produce the best and most useful publication. Increased use of the facilities of our Book Department will help your Association and aid you in solving some of your problems; if you aren't yet familiar with this department, try it out—you will be pleased with its services.

JOHN E. COLEMAN,

Lt. Col., FA. Secretary-Treasurer

Diary of War Events

(As taken from the Ameritan Press—Edited by S. M. W.)

DECEMBER, 1944

1st British carrier planes sink or damage 11 German ships off Norwegian coast.
U.S. troops advance on Leyte Island along the coast below Ormoc, repulse "suicidal" Jap counterattacks.

2nd U.S. Third Army smashes into Saarlautern.
Allied bombers raid Coblenz and Dortmund, shoot down 28 planes.
Torrential rains halt activity on Leyte.

3rd U.S. troops establish bridgehead across Saar River.
B-29s from Saipan bomb Tokyo. Lose 1 bomber.

4th U.S. Third Army advances on 17-mile front toward Saarbrucken and Sarreguemines. Both cities under our artillery fire.
U.S. First Army captures Lucherberg.
4,000 Allied planes make 12-hour assault on 8 railroad centers leading to the German lines.
U.S. and Jap naval forces each lose a destroyer in night battle near Ormoc, Leyte.

5th U.S. Third Army forces another crossing of the Saar below Saarlautern.
U.S. fliers shoot down 91 German planes in a raid over Berlin and Muenster.
Canadian troops in Italy capture Ravenna.

6th 1,300 British bombers raid German oil plants and rail targets. 1,600 U.S. planes bomb Merseburg and Brelefeld.
10 Jap bombers raid Saipan—destroy 1 B-29 and damage 2, but lose 6 of the 10.

7th Gen. MacArthur lands troops behind Jap lines on Leyte, takes up positions 3 miles south of the enemy's base at Ormoc, splitting Jap forces. Move is such a surprise that our planes sink an entire Jap convoy of 6 transports and 7 destroyers as they sail into the area; drown some 4,000 Japs.

7th B-29s raid Mukden and Dairen, shoot down 26 Jap planes, lose 3 B-29s.
R.A.F. bombs Cologne.

8th German counterattacks slow Third Army's advance near north bridgehead across the Saar.
MacArthur's troops advance to within 1 mile of Ormoc on Leyte.
Pacific fliers sink 6 more troop-laden Jap barges in the waters around Leyte.
B-29s and Liberators bomb Japan Volcano Islands.

9th Gen. Chiang Kai Shek's forces in China continue offensive that has thrown Japs back 45 miles in 5 days.

10th U.S. 77th Div captures Ormoc.
B-29s again bomb Tokyo.
U.S. 8th Air Force bombs Rhine rail centers of Coblenz and Bingen.

11th U.S. Seventh Army captures Haguenau, pushes on toward the German border. U.S. First Army advances to within 2½ miles of Dueren.
U.S. 77th and 7th Divs meet 3½ miles south of Ormoc, combine to annihilate Japs trapped in southern segment of Yamashita Line.

12th U.S. Seventh Army advances 7 miles on 10-mile front toward Karlsruhe.
U.S. planes sink 3 destroyers and 3 transports, damage 2, our of 11-ship Jap convoy.
B-29s again bomb Tokyo.

13th Superfortresses from Saipan bomb Nagoya, Japan's 3d largest city.

14th U.S. Coast Guard halts German attempts to establish meteorological bases on Greenland. Capture 60 prisoners, a ship of supplies, and equipment.
Superfortresses from India bomb Jap rail targets at Bangkok and Rangoon.
Pacific Fleet carrier planes raid harbors and airfields in Luzon area. Destroy 91 planes.

15th MacArthur's troops land on the Island of Mindoro, south of Luzon, with very little opposition.
B-29s again bomb Tokyo.
Chinese troops capture strategic Burmese base of Bhamo.

16th MacArthur's forces capture San Jose, on Mindoro.

17th German Army launches counterblow against southern flank of U.S. First Army on 50-mile front from Monschau to north of Trier.
U.S. 9th Air Force shoots down 143 German planes, loses 33.
New Zealand troops capture Faenza, Italy.

18th Germany continues counteroffensive.
British in Burma capture Pinlebu and Indaw.

19th Allied air power smashes German road and rail arteries feeding their front lines.
B-29s bomb Kyushu and Omura. 200 Liberators bomb Hankow, destroy 35 planes.

20th German offensive continues to push back U.S. First Army lines in Belgium. Bitter fighting raging along the U.S. Third and Seventh Army fronts.

21st MacArthur's forces destroy 14 Jap planes that attack Mindoro airfield now being used by Allied planes.

22nd U.S. Superfortresses bomb Jap's big aircraft center at Nagoya, on Honshu.

23rd 5,000 Allied planes blast advancing Germans' armored formation, and shoot down 171 planes.
Our fliers destroy and damage 100 Jap planes in surprise attack on Clark Field, near Manila.

24th About 6,500 Allied planes fly 13,000 sorties over German choke points and concentrations. Destroy 1,000 tanks and motor vehicles, 125 planes.
2,000 Flying Fortresses and Liberators escorted by 900 fighters from Britain drop 5,000 tons of bombs on German targets.

25th Allied planes fly 4,000 torties in support of American ground forces concentrating on Von Rundstedt's forces in Belgium. 400 heavy bombers of the U.S. 8th Air Force raid railroads and highways behind the German lines; shoot down 44 planes; lose 13 bombers, 19 fighters.
Gen. MacArthur reports Jap losses in the Leyte-Samar campaign as 113,221, all killed except 493. Our casualties total 11,217, of whom 2,623 were killed.

26th German troops continue advance despite Allied fliers.
U.S. bombers in Pacific raid Clark Field near Manila. Shoot down 39 planes, lose 4 fighters.
U.S. 14th Air Force Mustangs in China raid Tsinan airfield in Shantung province.

27th American troops assume the initiative on both sides of the German bulge, gain 5 miles, halt German drive toward Meuse.
U.S. bombers from North China again raid Tsinan Airfield.

28th German offensive into Belgium and Luxembourg brought to a halt.

29th Russian veterans of Stalingrad blast their way closer to the Hungarian capital, Budapest.

30th General Patton's troops widen their front along south of German salient to 52 miles, threaten to cut off the tip of the enemy bulge.
King George of Greece accedes to demand that he submit to a regency.

31st General Patton's men begin new offensive into southern flank of enemy salient between St. Hubert and Bastogne.
More than 2,000 heavy bombers and fighters blast oil refineries, railroad yards, bridges, U-boat yards, and a vital airplane factory in western Germany. At least 78 *Luftware* planes shot down.

For Heroism and Service

BRONZE STAR

CPL. AUSTIN J. ARNOLD, Weston, W. Va.
PVT. ARTHUR J. ARONSON, Box 252, Littlefork, Minn.
S/SGT. ROGER E. AVANT, Sperry, Okla.
LT. COL. MARION D. AVERY, 1388 Goodrich Ave., St. Paul, Minn.
S/SGT. ARTHUR R. BARTLET, Mora, Minn.
CPL. MANUEL BASQUEZ, Bennington, Okla.
PVT. WARREN W. BENKWITT, 1370 University Ave., New York, N. Y.
COL. CLINTON S. BERRIEN, 198 Crescent Ave., Louisville, Ky.
PFC. JAMES E. BILADEAU, South Portland, Me.
T/5 GEORGE J. BLAUMULLER, 52-20 92d St., Elmhurst, New York, N. Y.
T/5 THOMAS C. BOOKER, Biddle St., Chesapeake City, Md.
CPL. DESIRIE J. BOULIGNY, 1504 James St., Waco, Tex.
PVT. CASPER J. BRIDGES. Carthage, Tex.
MAJ. DELBERT L. BRISTOL, 301 Sanford, Brookfield, Mo.
SGT. BERTRAND F. BRONDI, Continental Ave., River Edge, N. J.
SGT. CLIFFORD C. BROWN, Box 236, Ojai, Calif.
PFC. WALTER H. BROWN, 42 Elm Street, Petersburg, Mich.
T/4 OTTO J. BUCHMANN, Hazen, N. D.
T/5 FRED BUSHNELL, 417 W. Seventh St., New Albany, Ind.
PVT. IRA E. CALHOUN, Pickney Station, South Gastonia, N. C.
CPL. ROCCO CALI, 228 DeGraw St., New York, N. Y.
CPL. WARREN O. CARROLL, Box 296, Bremen, Ga.
PFC. WILLIAM R. CASHION, 40 Birch St., Mount Vernon, N. Y.
Pfc. RUDOLPH F. CEBULA, Italy, 4 Mar 44. 2137 Terrace Cir., Weirton, W. Va.
Lt. Col. ROBERT W. CHAMBERLIN, New Georgia, 5 Aug 43, 3245 Chadbourne Rd., Cleveland, Ohio.
Capt. DEAN E. CHAPPEL, Casino, 18 Jan to 14 Feb 44. 744 Christy, Jackson, Mich.
T/5 JIM CLEMENTS, Italy, 13 May 44. Whitehall, Ark.
Capt. JOHN CORCORAN, Italy. 702 Barry Ave., Chicago, Ill.
Lt. Col. CHRISTOPHER C. COYNE, Rome, 5 Jun 44. Guttenburg, Ia.
Pvt. JAMES P. CURRAN, Italy, 30 May 44. 16 Eagles St., New. ark, N. J.
Cpl. PERCY DANIELS, Italy, 10 to 16 Apr 44. 1583 Macombe Rd., New York, N. Y.
Pfc. JOHN N. DAVIES, Italy, 18 Nov 43. RFD 2, Watsonville, Calif.
Cpl. ARTHUR L. DAVIS, 5 Aug 43. 1135 Islay St., San Luis Obispo, Calif.
Lt. Col. LEROY A. DAVIS, Italy, 10 Apr to 28 May 44. 4262 Grace St., Chicago, Ill.
T/5 JOSEPH J. DE COSTER, Italy, 14 Oct 43, 3342 Van Alstine St., Wyandotte, Mich.
S/Sgt. ARTHUR DENNISON, ITALY, 29 Feb to 11 Mar 44. San Jose, Ill.
Pvt. EMUEL H. ELKINS, Italy, 10 Jul to 17 Aug 43. Jasper, Ala.
Pvt. RICHARD G. ELLIS, Italy, 8 Feb to 5 Jun 44. 283 High St., North Attleboro, Mass.
1st Lt. LEWIS P. ELLIOTT, Italy, 18 Nov 43. 299 W. 12th St., New York, N. Y.
T/5 LOWELL FAIR, Italy, 16 May 44. RFD 1, Petersburg, Ind.
Cpl. ARVIE L. FOGLE, Italy, 10 to 16 Dec 43. Box 662 Waynoke, Okla.
M/Sgt. CHARLIE FOGLE, Munda, 27 Jan 43. Front Royal, Va.
Sgt. HENRY E. GODLEWSKI, Italy, 29 Feb 44. Depew, N. Y.
Sgt. ABNER L. GRIFFEY, Guadalcanal, 8 Dec 42. 212 Pearl St., Circleville, Ohio.
Pfc. HENNING W. GUSTAFSON, Italy, 10 to 16 Apr 44. Carney, Mich.
Pvt. JOSEPH C. HADLE, Italy, 1 Jun 44. 3833 Delmar Blvd., St. Louis, Mo.
Pfc. RAYMOND B. HEISER, Italy, 30 May 44. Box 159, Yelm, Wash.
Pfc. GRANT G. HELMS, Italy, 16 May 44. RFD 1, Buchanan, Va.
Pfc. LUTHER V. HICKMAN, Italy, 16 May 44. RFD 5, Palestone, Tex.
Pvt. ALLAN V. HOMER, Italy, 30 May 44. 665 Jackson Ave., Brooklyn, N. Y.
Pvt. FRANK C. HOOVER, JR., Italy, 15 to 20 Feb 44. 304 Dunkirk Rd., Baltimore, Md.
T/4 MILES A. HORNBEAK, Italy, 10 May 44. RFD 1, Isola, Miss.
Pfc. AMMIE W. HORNE, N. Africa, 23 Mar 43. RFD 1, Autryville, N. C.
T/4 ROBERT E. HOUGHTON, Italy, 11 to 13 May 44. 571 Mill St., Plymouth, Mich.
1st LT. HARVEY B. JOHNSON, Italy, 3 May 44. 2240 Grand Concourse, New York, N. Y.
Pfc. LESLIE E. JOHNSON, Sicily, 10 Jan to 1 Apr 44. 2722 N. Main St., Racine, Wis.
Cpl. CAREY E. JONES, JR., Sicily, 10 Aug 43. 524 W. Broadway, Enid, Okla.
Pfc. ALEX C. JOZWIAK, Italy, 25 Feb 44. 4604 28th Ave., Kenosha, Wis.
Cpl. RUFUS W. KING, Italy, 12 May 44. 82 Academy St., Clinton, Pa.
Lt. Col. ELMER J. KOEHLER, France. 4306 Sleanford Rd., Bethesda, Md.
Pfc. JOHN Z. KOSTIKOS, Italy, 10 Jul to 17 Aug 43. 8 Fairview Ave., Jersey City, N. J.
Sgt. FLOYD J. KRUSZKA, Italy, 28 Feb to 11 Mar 44. 167 Eighth St., Manistee, Mich.
Capt. HARRY C. LANE, Italy, 3 Mar 44. 2265 S. St. Louis Ave., Tulsa, Okla.
Sgt. THOMAS L. LANGAN, N. Africa, 23 Mar 43. 221 Kingston Rd., Upper Darby, Pa.
Capt. ARTHUR E. LARGE, Sicily, 30 Apr 44. 208 N. W. Ninth St., Ardmore, Okla.
Pfc. MONTE LEVITT, Italy, 29 Feb 44. 15385 Lawton St., Detroit, Mich.
Pvt. KENNETH LEWIS, Italy, 10 to 16 Apt 44. 1405 Dudley Ave., Utica, N. Y.
Capt. MONROE D. LITTLE, Italy, 10 Nov 43. 219 E. Sixth St., Wewoka, Okla.
Capt. WILLIAM H. McCALL, Italy, 12 May 44. 83 President Ave., Providence, R. I.
T/4 GEORGE D. McCLEES, Italy, 11 May 44. 215 Sixth St., Dravosburg, Pa.
Cpl. ROBERT McFARLAND, Mt. Austen, Guadalcanal, 11 Jan 43. St. Mary's, W. Va.
1st Lt. CHARLES A. McNAMARA, Italy, 11 to 30 May 44. 1347 E. 19th St., Tulsa, Okla.
T/5 WILLIAM R. MACDONOUGH, Italy, 28 Apr 44. 19 Orchard St., Jamaice Plains, Mass.

Sgt. HERMAN C. MEILE, Italy, 30 May 44. 1908 E. Wishart St., Philadelphia, Pa.
1st Lt. VICTOR MENSING, Italy, 30 May 44. Lowden, Ia.
Lt. Col. FRANKLIN P. MILLER, Italy, 11 to 30 May 44. Carmel, Calif.
Pvt. JOSEPH W. MONOHAN, Italy, 10 Nov 43. 1537 York Ave., New York, N. Y.
Sgt. RAYMOND B. MOORE, Guadalcanal, 8 to 26 Jan 43. 1063 W. Peach St., Atlanta, Ga.
S/Sgt. ROBERT L. MOORE, Italy, 2 Mar 44. 1109 W. Third St., Big Springs, Tex.
1st Sgt. CLARENCE M. MORGAN, Italy, 14 May 44. Plain Dealing, La.
1st Lt. LEROY B. MORLEY, Italy, 30 May 44. 2105 Falls Ave., Waterloo, Ia.
2d Lt. WILLIAM T. MORTON, Sicily, 14 Apr 44. 229 N. Gibson St., Oakland City, Ind.
Pfc. HOWARD C. OAKES, Sicily, 20 Feb 44. Grinnell, Kan.
Brig. Gen. EDWARD S. OTT, XV Corps Arty, European Theater.
T/5 WILLIAM T. OWEN, Italy, 3 Nov 43. 1717 N. 23d St., Richmond, Va.
Lt. Col. ARNOLD J. PIO, Italy, 10 Apr to 28 May 44. 738 Lee St., Desplaines, Ill.
Cpl. RUSSELL M. POSSLEY, Italy, 1 May 44. Green Bay, Wis.
T/4 IRA E. POTTS, Italy, 10 to 16 Apr 44, RFD 3, Water Valley, Miss.
1st Lt. HARRY G. PROSE, Bougainville, 8 to 15 Mar 44. 32 S. Trenton Ave., Dayton, Ohio.
S/Sgt. JOHN S. PROVENZANO, Guadalcanal, 8 Jan to 6 Feb 43. Glasco, N. Y.
Sgt. ROY E. PURDY, Italy, 1 Jun 44. RFD 2 Alden, Minn.
1st Lt. SAMUEL G. RICHARDSON, Italy, 1 to 26 Mar 44. 604 E. Fireson Ave., Tampa, Fla.
Pvt. RAYMOND R. ROGERS, Italy, 27 Feb 44. 184 Washington St., New Bedford, Mass.
Capt. HENRY J. ROMO, JR., 18 Nov 43. 427 Center St., Redlands, Calif.
T/5 BRYCE C. RUTH, Italy, 10 to 16 Apr 44. RFD 1, Pittsboro, Miss.
Cpl. EDMUND F. RYSZ, Italy, 1 Mar 44. 312 Walnut St., New Kensington, Pa.
T/5 MILLARD F. SUMNER, Italy, 30 May 44. Eucha, Okla.
Cpl. HUGH E. ST. CLAIR, Sicily, 10 Jul to 7 Jan 44. 1128 Jackson St., Perry, Fla.
Pfc. Karl E. SCHRADER, Italy, 12 May 44. 109 Wells Pl., Utica, N. Y.
Pfc. BENJAMIN J. SCHWAIM, Guadalcanal, 27 Jan 43, 395 Emerson St., Rochester, N. Y.
Pfc. EARL J. SHARKEY, Italy, 16 May 44. RFD 1, Arthur, Ia.
T/Sgt. QUANAH P. SHELTON, Italy, 15 May 44. 516 N. 15th St., Clinton, Fla.
Pfc. GEORGE W. SISSEL, Italy, 1 Jun 44. RFD 1, Parkville, Mo.
S/Sgt. HARRY G. SMITH, New Georgia, 28 Bar 44. 1643 W. First St., Dayton, Ohio.
Pvt. TOLIVER R. SMITH, Italy, 31 Jan 44. Simpsonville, S. C.
S/Sgt. WELDON C. SMITH, Sicily, 1 Dec 43. 618 Fir St., Perry, Okla.
Sgt. ROBERT L. SPRIGGS, 13 Feb 44. RFD 1, Columbus, Ohio.
Maj. DONALD A. STACKHOUSE, JR., Italy, 10 Apr to 28 May 44. 6117 College Ave., Indianapolis, Ind.
1st Lt. ROBERT W. SUMMERS, Italy, 19 Feb to 4 Mar 44. 102 S. Main St., Lexington, Tenn.
Pfc. ANTONIA TACITO, Italy, 1 Mar 44. 21 Broadway, Somerville, Mass.
S/Sgt. CECIL E. TAYLOR, Italy, 5 Apr 44. 420 Texas Ave., Woodward, Okla.
1st Sgt. ELIJAH TAYLOR, Italy, 3 Aug 43. 5809 S. Gennett St., Tacoma, Wash.
Sgt. RAY TENCH, Italy, 11 Mar 44. Demorest, Ga.
Pvt. RODMAN J. THERRIEN, Italy, 10 to 16 Apr 44. RFD 2, Whitehall, N. Y.
Sgt. JAMES D. USREY, Italy, 31 Jan 44. Arch Route, Portales, N, Mex.
T/5 VERNON WAGONER, Italy, 16 May 44. 1932 Conner Ave., Burlington, Ia.
Sgt. ROGER J. WALSH, Italy, 22 Jan to 4 Jun 44. RFD 1, Lyle, Minn.
Sgt. RUSSELL H. WEAVER, Italy, 17 Sep 43. 613 W. Seventh St., Holdensville, Okla.
Sgt. THEODORE R. WEBSTER, Italy, 18 Mar 44. Wardensville, W. Va.
T/5 ALVIN P. WENGER, Italy, 3 Jun 44. 2925 W. 21st St., Brooklyn, N. Y.
Pvt. BERNARD P. WESTLAKE, Italy, 30 May 44. 521 N. Leamington Ave., Chicago, Ill.
Capt. KENLY W. WHITELOCK, Italy, 24 Dec 43. 1319 S. Nint East St., Salt Lake City, Utah.
Pfc. JAMES W. WIRTZ, Italy, 20 Jan 44. Sturgeon Lake, Minn.
Pvt. NORMAN L. WORLEY, Italy, 13 May 44. Box 371, Whitney, Tex.
Pfc. ALVIN A. ZIELKE, JR., Sicily, 17 Aug 43. 819 Second St., Bismarck, N. D.

The 118th Field Artillery Battalion of the 30th Division has seen wide service in France. Its personnel have been awarded special recognition, as follows:

SILVER STAR

T/5 SANTE BIANCHI
Pvt. JAMES L. CLARKE
Cpl. NATALE R. FAZIO
1st Lt. MYLOUS T. GOLSON
1st Lt. JOSEPH W. HAGEN
Capt. JEROME B. HASEMEIER
1st Lt. WALTER R. HAWBAKER
2d Lt. RICHARD K. HOPERMANN
Sgt. NORBERT J. LEHNERT
T/5 WILBOUR T. LEWIS
1st Lt. ROBERT C. McLAUGHLIN
Capt. CARL O. MEIER
T/5 WILLARD F. PLETCHER
T/5 LOUIS SILVESTRI
T/5 WINNIE L. VIATOR, JR.
Pfc. JAMES T. WISER

OAK LEAF CLUSTER TO BRONZE STAR

T/5 JAMES A. COLES
T/Sgt. JOSEPH A. DiBIASE
T/5 ERNEST E. EDELHOUSER
1st Lt. ODELL WILLIAMSON
S/Sgt. CECIL N. WISE

BRONZE STAR

2d Lt. JOHN J. BALLENTINE
Maj. HAYGOOD S. BOWDEN
T/5 JAMES A. COLES
Capt. JOHN A. CRAGO
T/5 GUIDO DeGREGORIO
T/Sgt. JOSEPH A. DiBIASE
T/5 ERNEST E. EDELHOUSER
Cpl. EDWARD J. GATZ
T/4 LEE B. HATFIELD
Capt. MARVIN P. HEERY, JR.
Pvt. LEROY HERRMAN
Pvt. ORVILLE E. JOHNSON
Pfc. WILLIAM T. McGILTON
Pfc. HUGH McMAHON
Cpl. VINCENT N. MAGGIO
Pfc. EDWARD G. MARTIN
Lt. Col. RICHARD H. MAYER
Maj. RAYMOND W. MILLICAN
Pvt. JOHN A. OLESH
T/5 MAURICE L. POLAND
Sgt. CHARLES E. POWELL
T/5 PASQUALE N. SANTIVASCI
T/4 CARL E. SAVARD
Cpl. JOSEPH R. SENICA
Sgt. TYLER E. STRATTON
1st Lt. FORD L. THOMPSON, JR.
Pfc. ROBERT W. THUN
Sgt. LEE H. TRAWICK
S/Sgt. JACK C. WATKINS
1st Lt. ODELL WILLIAMSON
S/Sgt. CECIL N. WISE

OAK LEAF CLUSTER TO AIR MEDAL

1st Lt. TAYLOR S. BUCK
1st Lt. ODELL WILLIAMSON

AIR MEDAL

1st Lt. TAYLOR S. BUCK
1st Lt. WARREN C. SAYERS
1st Lt. ODELL WILLIAMSON

BOOK REVIEWS

THE ISLAND. By Capt. Herbert L. Merillat, USMCR. 240 pp.; appendix; index; illustrated. Houghton, Mifflin Co. $3.00.

To the Marines, Guadalcanal was simply "the island." To that Corps and to the Army it was our laboratory of jungle warfare. To the Japs it was the turning point of the war, the place where their legend of invincibility was shattered, the start of the long road home.

During the 4 months and two days starting on August 2nd, 1942, the First Marine Division pioneered our jungle and amphibious warfare. They suffered much, but succeeded even more. Now their story is told fully, accurately, objectively, but sympathetically, by one of their own, by one who was with them throughout that period.

Capt. Merillat had the unique position of experiencing from the very beginning all that the man with the rifle went through, yet at the same time being able to watch the development of the campaign as a whole. He was the Division's official historian. This is thus its authentic story. It has no dry official ring, however. Thorough and accurate, it is a gripping account of a campaign that will long remain a classic.

NETHERLANDS INDIA. By J. S. Furnivall. 469 pp.; indexes; maps. The Macmillan Co. $4.00.

This American edition of *Netherlands India* meets a popular demand for wider knowledge of the Dutch-governed islands that have been brought into prominence in the progress of the war.

The author has given a painstaking account of what he describes as a plural economy. He has reviewed the social, political, and economic steps leading through more than three hundred years of Dutch government to the present time. His manner of bringing the peculiar problems of the colony into focus is forthright and thorough.

This searching study of the problems inherent in plural societies welded into one political unit leads to some interesting observations. The basic conditions exist under any government that includes jurisdiction over minority groups not fully integrated into the main social body. It is a difference only in degree that sets Netherlands India apart and heightens her complexity.

Mr. Furnivall's analytical approach and carefully supported statements regarding this complexity give his book an authoritative stamp that recommends it to the discriminating student. F. E. J.

MILITARY INSTITUTIONS OF THE ROMANS. By Flavius Vegetius Renatus; translated by Lt. John Clark; edited by Brig. Gen. Thomas R. Phillips. 114 pp.; illustrated. Military Service Publishing Co. $1.00.

From Roman days until the last century, the western world's most influential military treatise was Vegetius's *De Re Militari*. It was, so to speak, the military Bible. Before the invention of printing it was translated into English, French, and Bulgarian; thereafter it quickly became even more widely known and studied.

Vegetius himself was more of a scholar than a soldier. His purpose in writing this study was to collect and synthesize from all available sources the military customs and wisdom which led to Rome's greatness. Unlike many other authors, he wrote briefly and tersely. The result was a military study of value not only to the student and the historian, but to today's practicing soldier as well.

RANGER MOSBY. By Virgil Carrington Jones. 326 pp.; index; illustrated. University of North Carolina Press. $3.50.

"FIRST WITH THE MOST" FORREST. By Robert Selph Henry. 541 pp.; index; illustrated. The Bobbs-Merrill Co. $4.00.

Publication of Freeman's magnificent 3-volume *Lee's Lieutenants,* and the flood of books dealing with the current war, have stimulated the production of books concerning other martial periods. 1861-65 has been the most popular; the dashing men of the Southern cavalry have caught the pen of several writers.

Mosby operated chiefly in a small area of northern Virginia just a few miles west of Washington. "Mosby's Confederacy," it was called, and within it he ruled with an iron hand. He operated somewhat like present-day commandos, in that small bands would suddenly make lightning-like strikes and then melt away. His men worked the fields by day, or for days on end, then gathered for a foray as directed when the word was passed.

Mosby insisted always that his men were "regulars," not guerrillas. Perhaps they were, technically, since guerrillas are usually thought of as living behind enemy lines as well as fighting there. In all other respects, however, they were at the very least "irregular regulars."

This is not to belittle their effectiveness. In '64 and '65 they harassed Grant and Sheridan at will, riding up and down the Valley of Virginia, penetrating Union lines when and where they chose, scourging outposts and supply lines. Their story is a lively one, well told here by one who has been at pains to ferret out the full story and put it together in most readable fashion.

Nathan Bedford Forrest seems never to have said his famous "quote" about "getting there fustest with the mostest men." Be that as it may or may not be, he had true military genius despite his lack of much formal education of any kind. At the age of 40 he enlisted in the Confederate cavalry, and in four years rose to the grade of lieutenant general. Changes of that sort are not the result of luck alone!

Mr. Henry has written a detailed, scholarly, and sometimes tedius biography of Forrest. He has tried to place the man in his proper niche in history, his proper place in the pageant of the Civil War. Great effort was made to bring together all available information about the man. A good job was done, helped undoubtedly by the wrier's background as author of the standard one-volume history *The Story of the Confederacy* and its companion *The Story of Reconstruction.*

Replete with ample notes for the scholarly reader, but with these tucked away in the back where they won't distract the average reader. *Forrest* is generally most readable, often gripping, sometimes brilliant. From it emerges a definite picture of a most unusual man.

SOME OF MY BEST FRIENDS ARE SOLDIERS. By Margaret Halsey. 207 pp. Simon & Schuster. $2.50.

With Malice Toward Some was a renowned picture of life in England. Its author has now written an equally witty, sparkling, and penetrating book which she calls "a kind of a novel." In form it is a series of letters to her brother in the army. That vehicle carries accounts of daily life at home, along with comments on matters he obviously has written home about. One of the sister's major interests is the Canteen; its doings and its troubles, especially, form a good part of the book. The whole is a delight to read—it's like popcorn, you just can't put it down.

COMBUSTION ON WHEELS. By David L. Cohn. 267 pp.; index; illustrated. Houghton Mifflin Co. $2.75.

Likely you don't remember when gasoline was bought in hardware stores by day and in drugstores by night; when two or three bodies were sold with every automobile. Things have changed so much since then that if you can't remember such early folklore you won't believe it. It's true, though.

In this "informal history of the automobile age" Mr. Cohn covers the last 50 years, from the first appearance of the passenger car. He isn't so concerned with technical changes (as he says, there has been no fundamental mechanical change since the self-starter was introduced in 1912). He does tell a lot, though, of the growth and development of the industry and particularly of the social changes that it wrought. Along with this of course are many of the old anecdotes, stories, contests, and other special events. Neatly condensed are the histories of Durant, founder of General Motors, and of Ford. A number of old photos bring a chuckle to any reader, and will make older ones start to reminisce about their old E.M.F. ("Every Morning Fix"), or the first time they got 2,000 miles out of a tire.

Just now there are lots of varied predictions about what post-war cars will be like, and how the industry will swing back into peacetime production. This same time is a good one to take a "breather" and look back, during the lull, to how the motor car grew and grew and grew.

AMERICAN DIALECT DICTIONARY. By Harold Wentworth. 747 pp. Thomas Y. Crowell Co. $6.00.

Here is the most unusual dictionary you're apt to run across. It isn't concerned with the ordinary, humdrum, workaday words of (say) Webster, but with the rich language of local color found throughout the land. Words like widget and wibbly, scribulate and scrunge, gritchel and grigri have been captured, identified, defined, dated, and pronounced. There are lots of them—some 15,000 in all—and some 60,000 quotations are given to show the times, places, and ways where the words themselves were (or are) in use.

Admittedly the list is not complete, nor the citations either, but both groups are so voluminous as to make this a gold-mine for anyone whose stock in trade is words, or for anyone interested in our peculiarly American language. Dr. Wentworth has concerned himself especially with variations in language due to or coincident with geographical location. To put it another way, this book deals chiefly with dialect in the sense of localisms or provincialisms; with folk speech (both urban and rural); usages with a dialectical flavor or association; and old or poetic turns of expression. Outside its province are slang, occupational terms, technical and scientific words, "broken" or childish English, downright malapropisms, etc. There is still an ample field for the compiler, however!

This *Dialect Dictionary* fills a gap just as surely as did the first thesaurus. It is a book that will rarely or never fail you, whether you're down among the Gullahs or up with the Chinooks—the folk language of all sections is well represented.

STORY OF A SECRET STATE. By Jan Karski. 391 pp. Houghton Mifflin Co. $3.00.

On orders from Poland's exiled Prime Minister Mikolajczyk, Jan Karski tells the full story of Poland's underground State. He is in a position to know about it for he was a leader of the Polish underground and official courier to the Government in Exile. He was an eye-witness and participant. He was tortured and maimed by the Gestapo, but spirited out of the country later.

Despite Nazi occupation an organized life continued. The underground

government functioned. Its courts sentenced Nazi criminals, the Underground executed them. Schools, though banned, held sessions and granted degrees. Newspapers were published. Connecting all, guiding them, informing them, giving them all possible help, was the liaison network.

Poland's story is a ghastly one. By now there have been so many accounts of so many inhumane German acts in so many lands against so many people, that the *motif* is distressingly familiar. We must ever be careful not to be calloused by an apparent surfeit of such teports. Rather, we should view each account as a fresh reminder that the horrors of the Germans will never be fully known, that each narrative is a new confirmation of the Germans' attitude toward all other peoples, that the end of this war must furnish safeguards against any future irruption of such poison.

THE FIFTY-TWO DAYS. By W. W. Chaplin. 215 pp. The Bobbs-Merrill Co. $2.50.

Mr. Chaplin reported the invasion for N.B.C. On D-day he was in London, but shortly went to the continent. His story through D+51 thus covers first-hand observations of both the fighting itself and how things "broke" among the reporters in rear areas.

In general (and inevitably) *The Fifty-two Days* follows the same general pattern of all the other correspondents' books, with the possible exception of *Pacific Battle Line* (which is broader). That is, it is simply an intimate and detailed account of just what the author saw, where he went, his thoughts and conversations. This is at once its strength and its weakness; strength, because it furnishes topnotch, accurate accounts of combat; weakness, because no one person close to the scene can have a well-balanced perspective of the entire operation, however hard and honestly he may try. By following these successive accounts one gradually picks up new bits here and there to help complete his own picture of events. Mr. Chaplin's book makes its own distinctive contributions to the full history of events from the first landings to the St. Lo breakthrough.

TRY AND STOP ME. By Bennett Cerf. 371 pp.; index of names; illustrated. Simon & Schuster. $3.00.

Bennett Cerf is almost a legendary character. He's a very live one, though. So alive that there often seem to be several of him—editor, publisher, author, raconteur, boulevardier, columnist, radio commentator. As a matter of fact there *are* several of him—editor, publisher, etc., etc. And into each of his "selves" he puts as much energy as and more enthusiasm than do most of us into our single selves.

His latest venture was the setting down of as prize a collection of stories, yarns, anecdotes, and bon mots as have ever been forced between a pair of covers. Their range covers the theater, Broadway, the book world, sports, movies, and (best of all?) a batch of Shaggy. Dog stories. Some are only a few lines long, others a page or so. And some characters account for so many tales that their grouping gives a pretty fair—though I'll admit somewhat one-sided—picture of the personalities themselves; examples are Dorothy Parker, Kaufman and Hart, Jimmy Durante, George Gershwin. They're all treated from the light side, not to say the fluffy.

This isn't a book to be read at a sitting, 'though any one would have a tough time breaking away from it. It's one to dip into, to savor, to return to again and again regardless of where the pages happen to fall open. Why? Well, your muscles will just get too blamed sore from laughing and chuckling if you try to take too big a dose at a time. What better proof could there be of the choiceness of the bits Bennett Cerf has chosen, or of the real success of *Try and Stop Me?*

HALF PAST WHEN. By Hassoldt Davis. 283 pp.; illustrated. J. B. Lippincott Co. $3.00.

Hassoldt Davis had the opportunity of a lifetime. Going to Brazzaville in French Equatorial Africa in the gloomy days of 1942 to report on the activities of the Free French, he became so interested in their cause that he decided to join them. From Brazzaville be pretty well covered all of North Africa, and apparently had an extremely interesting time. Unfortunately, the book gives no clue as to when he went where, what the Fighting French were doing, or how they were doing it. He gives no dates, the endpaper sketch map of Africa is useless, and the amount of military information you get about the Fighting French is practically nil. You get only one clear

impression from the book: Davis has a terrific admiration for the Fighting French. And so have all of us. They certainly deserve a better biography than this. R. G. M.

HOW WE LIVE. By Fred G. Clark and Richard Stanton Rimanoczy. 39 pp.; illustrated. D. Van Nostrand Co. $1.00.

As Moderator and Program Director of the *Wake Up, America!* radio program for five years, these authors have been very close to the liberals and conservatives who have been brought together there to dissect American life. From this analysis has come an understanding among the participants, and from understanding grew agreement on principles. It is of these fundamentals that they write.

In short sentences of simple words they tell how the economic body functions. These facts are simple as A-B-C, when stripped of professorial jargon. The reason for work, and what it does; how work becomes employment, the reasons for unemployment, what determines the size of business, the relation of government (and especially taxes) to the individual—these and other topics are laid bare in this truly revolutionary book. Not revolutionary in what it proposes, for it proposes nothing—it outlines and explains facts and forces. Revolutionary, however, in that here for the first time clear, simple, and accurate words are used to describe economic functions. Nowhere will you find "wealth," "worth," "value," or the like—words that mean different things to different men.

Stripped stark and stood in a white light, this economic body of ours doesn't seem anything like the bogeyman that some "advanced" planners would have us believe!

SAMUEL JOHNSON. By Joseph Wood Krutch. 554 pp.; Henry Holt & Co. $3.75.

Nobody who knows Sam Johnson is indifferent to him. His friends affectionately call him the Great Cham, chuckle over his vitriolic sallies, and excuse his somewhat untidy nature by saying he was a sick man. The opposition call him bigoted, dirty, gross, rude; and while they reluctantly admit his dictionary is a landmark in English letters, they point out that all the hard work was done by others.

Very little can be said that would change the mind of either side. If you like Sam Johnson you'll buy this book and revel in it. If you don't like him, you wouldn't read this book if it were given you. That leaves the third group who presumably haven't met Sam Johnson.

Sam Johnson is a writer who died on December 13, 1784. Very few people read anything he wrote. Sam Johnson is also a man who is just as much alive today as he was a century and a half ago. His robust conversation, his wisecracks, his searching criticisms, his zest for life, and his sane view of the world will certainly live for another century and a half.

If that sounds screwy read Krutch's book, and then go on to read Boswell's wonderful biography. If after that you don't agree that Johnson is still alive, you belong with the Opposition. And if you are with the Opposition, I wouldn't even condescend to argue the matter with you! R. G. M.

JOHN PHILIP SOUSA: The March King. By Mina Lewiton; illustrated by Howard Simon. 63 pp. Didier Publishing Co. $2.00.

John Philip Sousa is more than a memory—he and his works are a national institution. No one else has written marches as stirring as his, or led a better band. He is a character that should never be forgotten. This attractive volume is a fine children's introduction to him.

MEDITERRANEAN SWEEP: Air Stories from El Alamein to Rome. By Maj. Richard Thruelsen and Lt. Elliott Arnold. 278 pp.; illustrated. Duell, Sloan & Pearce. $3.00.

This volume is a collection of stories dealing with the experiences of airmen—principally American but not exclusively—during the Mediterranean campaign, in Africa and southern Italy. It is a potpourri: describing in rapid sequence comic as well as serious events everywhere from the fabulous exploits of super-scroungers to individual and group action against the enemy.

Major Thruelsen is a former editor of *The Saturday Evening Post* and Lieutenant Arnold is a former newspaper man and author. Both

demonstrate here that they have not lost their eye for picking stories with wide appeal.

The illustrations are unusual in a book of this type in that they are watercolors by Major Lavalle depicting aerial operations on the Mediterranean front. They possess a straightforwardness which is absent from his ten maps which illustrate the locale of some of the events described in the text. The latter contain a frilly decorative effect which usually obscures their purpose.

The text is written in brilliant (but brittle) prose running the gamut from slang to military jargon in an easy manner which—to judge from its constant appearance in print—is *de rigueur* among uniformed authors. It also seems to be a very popular style with readers both in and out of the services.

Although a few of the events are of major importance, the volume does not purport to be a history. The jacket states that it contains "the kind of true adventure yarns that airmen spin endlessly in bars." If you go for these, this is your meat. J. R. C.

AN INTELLIGENT AMERICAN'S GUIDE TO THE PEACE. Edited and with an introduction by Sumner Welles. 370 pp.; maps. The Dryden Press. $3.75.

Lack of understanding is most often due to ignorance. Conflicts usually arise because of a lack of understanding. A peaceful future for the world may not be guaranteed by a general public appreciation of the background and situations of the other peoples of the world, but a continued lack of knowledge of other nations would bode ill for the future. Not only statesmen must be informed, but the public as well.

This is the thought behind *Guide to the Peace*. It is a proper thought, well carried out.

Here the entire world is surveyed, nation by nation and including every major independent group. Each is taken up in turn, with a brief discussion of the land and its people; their history between the two World Wars; the nation's economy, both in itself and as related to that of other countries; and finally; its "stakes in the peace"—the factors which will likely determine the country's part in tomorrow's world.

A monumental task, this, one which was done with care, thoughtfulness, and interest. The result is a book which has no place on a bookshelf—it should be kept handy, ready for quick and frequent reference as newspaper or radio raises questions in one's mind. Some fifty maps make clear the geographic relationships; the text itself greatly clarifies the human ones.

MacDOUGALL ON DICE AND CARDS. By Mickey Mac-Dougall. 90 pp.; illustrated. Coward-McCann, Inc. $1.00.

This little book confines itself to craps, poker, gin rummy, and black-jack. In concise language a recognized expert (especially in exposing crooked gambling) treats the following phases of each game: the rules, the odds against dice and card combinations, how to detect cheating, and how to improve one's game. Although the author now and then mentions nonchalantly huge sums at stake, the volume is addressed to both big and little gamblers.

The rules are presented in simple, modern terms (unlike Hoyle) and should assist in clarifying some of the blind-spots of the games, provided the writer's authority is recognized. The odds, said to be more accurate than any heretofore presented, should interest heavy plungers. The sections on cheating deal with both amateur and professional methods. They are clear and commendable in that they do not always claim to enable an amateur to unmask a professional cheat. This is the case, for instance, with dice. The author also explodes some of the false tests for detecting crooked dice, particularly the glass of water stunt which has caused so many rows in camps.

The reader would expect that the author would be constantly shooting the bones, sitting behind a high pile of chips, or denouncing chagrined cheats. Yet his photograph on the dust packet shows him attired in a homburg and a natty pin-stripe, double-breasted suit, leaning on a rail and holding a newspaper plainly folded to the Saratoga forms. Is he looking for new worlds to conquer? J. R. C.

WHAT SHIP IS THAT? By Lt.-Comdr. E. C. Talbot-Booth. 784 pp.; illustrated. Didier. $4.00.

The famed author of the famed *Jane's Merchant Ships* has prepared a fascinating, immensely useful, and amazingly comprehensive

recognition and identification book, covering both mechant ships and warships of all nations. Heart of the whole thing are the accurate profile drawings—6,000 of them. These silhouettes are keyed and classified so as to make it easy to locate the drawing which fits the ship under observation. This book is thus of greatest value on a ship's bridge, but is also useful to those living or working near shipping lanes or interested in them in any way. This last group will pick up much additional fascinating information in the several introductory chapters, in which appears much important, miscellaneous data which will help the tyro as much as the more proficient.

WARSHIPS OF THE WORLD. Edited by Roger Kafka and Roy L. Pepperburg. 1008 pp.; index; illustrated. Cornell Maritime Press. $15.00.

Two editors of *Sea Power* have done a splendid service in compiling this exhaustive work on the world's present warships. They had a double purpose: to provide a book useful and valuable to those in the armed services, and to furnish a history of the naval phase of the war. This they have done well.

Warships of the World is readable and complete, and very handily arranged for reference. Major divisions are by nationalities, within which each type of ship is taken up in turn—from battleships down to landing craft. Within types, all classes are covered in detail. Each ship is listed alphabetically, with its number, launching and commissioning dates, and builder. Considerable data is given for the class as a whole (displacement, dimensions, complement, power and speed, machinery, armament) as well as photographs and profiles. Of much interest are the thumbnail histories of most of the ships' wartime histories, vessel by vessel.

Editors and publishers are to be congratulated on arranging a format that presents this material so clearly yet so compactly. It can be read handily, and is not so oversized as not to fit on your bookshelf. Use of good paper brings out the details of the photographs. Type is clear and readable.

This is a book for long-time reference. Of course, writers, commentators, students, historians, and mariners will gain most from it. At the same time it is an eye-opener for the land bound, and for all those seeking a knowledge of all phases of this most complicated war.

THE KEY TO THE SPANISH LANGUAGE. By Estejania D. de Chavez. 143 pp.; illustrated. Times-Mirror Co.; distributed by Warren F. Lewis. $2.00.

Step by step, this basic book on Spanish lays a solid foundation for further progress in the language. It does not carry one far into the grammar, but aims to instill correct lingual habits by a slow and careful approach. Although designed primarily for elementary school use, it will be found equally useful by adults.

THE CAPTURE OF ATTU. As Told by the Men Who Fought There. 217 pp.; illustrated.

ISLAND VICTORY. By Lt. Col. S. L. A. Marshall. 213 pp.; illustrated.

BURMA SURGEON. By Lt. Col. Gordon S. Seagrave, M.C. 215 pp.; map.

LEADERSHIP FOR AMERICAN ARMY LEADERS. By Col. Edward Lyman Munson, Jr. 97 pp.

FUNDAMENTALS OF MECHANICS. By Morton C. Mott-Smith and Marjorie van de Water. 181 pp.; index; illustrated. All published by the Infantry Journal. 25c each.

Attu's story was prepared by the War Department. Its first part is a connected narrative of the campaign. The remaining 80% consists of personal narratives.

Lt. Col. Marshall wrote the story of Kwajalein on the basis of innumerable interviews with participants immediately after the battle.

Dr. Seagrave's splendid book was first published in 1943 by W. W. Norton & Co.

Col. Munson's excellent monograph was first published in 1941. This edition is somewhat revised.

Two *Science Service* writers have prepared a good self-teaching text on the principles of mechanical forces.

STONES OF GLORY—STONES OF FRANCE. Text and photographs by Alexander Frenckley. 140 pp. International University Press. $6.00.

In 140 middling photographs the finest of France's architecture,

ORDER FORM

for books reviewed in the FEBRUARY, 1945, FIELD ARTILLERY JOURNAL

..... (Date)

U. S. Field Artillery Assn.,
1218 Connecticut Ave.,
Washington 6, D. C.

Enclosed is $..... for the following checked books reviewed in this issue of THE FIELD ARTILLERY JOURNAL:

The Island, by Capt. Herbert L. Merillat	$3.00
Netherlands India, by J. S. Furnivall	4.00
Military Institutions of the Romans, by Flavius Vegetius Renatus; translated by Lt. John Clark; edited by Brig. Gen. Thomas R. Phillips	1.00
Ranger Mosby, by Virgil Carrington Jones	3.50
"First with the Most" Forrest, by Robert Selph Henry	4.00
Some of My Best Friends Are Soldiers, by Margaret Habey	2.50
Combustion on Wheels, by David L. Cohn	2.75
American Dialect Dictionary, by Harold Wentworth	6.00
Story of a Secret State, by Jan Karski	3.00
The Fifty-two Days, by W. W. Chaplin	2.50
Try and Stop Me, by Bennett Cerf	3.00
Half Past When, by Hassoldt Davis	3.00
How We Live, by Fred G. Clark and Richard Stanton Rimanoczy	1.00
Samuel Johnson, by Joseph Wood Krutch	3.75
John Philip Sousa: The March King, by Mina Lewiton: illustrated by Howard Simon	2.00
Meditetranean Sweep: Air Stories from El Alamein to Rome, by Maj. Richard Thruelsen and Lt. Elliott Arnold	3.00
An Intelligent American's Guide to the Peace, edited and with an introduction by Sumner Welles	3.75
MacDougall on Dice and Cards, by Mickey MacDougall	1.00
What Ship Is That? by Lt.Comdr. E. C. Talbot-Booth	4.00
Warships of the World, edited by Roger Kafka and Roy L. Pepperburg	15.00
The Key to the Spanish Language, by Estefania D. de Chavez	2.00
The Capture of Attu, as told by the men who fought there	.25
Island Victory, by Lt. Col. S. L. A. Marshall	.25
Burma Surgeon, by Lt. Col. Gordon S. Seagrave, MC	.25
Leadership for American Army Leaders, by Col. Edward Lyman Munson. Jr.	.25
Fundamentals of Mechanics, by Morton C. Mot-Smith and Marjorie van de Water	.25
Stones of Glory—Stones of France, text and photographs by Alexander Frenckley	6.00
Summary of Operations in the World War:	
29th Division	.75
35th Division	.75
78th Division	.75
89th Division	1.00
They Called It "Purple Heart Valley." written and photographed by Margaret Bourke-White	3.00
Nods and Becks by Franklin P. Adams	2.00

PRINT OR TYPEWRITE

.....
(Signature)

.....
(Grade, Name, and Serial Number)

.....**A.P.O.**.....
(Complete Addreas)

.....
(City, including zone number, and State)

from Roman days to the present, is highlighted. Much space is naturally and properly devoted to the stone art of the Renaissance period—castles, cathedrals, and less pretentious but even more appealing narrow city streets. The body of the book is preceded by a brief historic and artistic commentary that will help recall the proper historical setting of many of the examples.

Those who have known France will enjoy these recollections of her loveliness. Those who helped liberate France—and their families, too—will find pictured here many of France's finest treasures.

SUMMARY OF OPERATIONS IN THE WORLD WAR:
29th DIVISION (*34 pp., index, map; 75c*)
35th DIVISION (*29 pp., index, map; 75c*)
78th DIVISION (*56 pp., index, maps; 75c*)
89th DIVISION (*51 pp., index, maps; $1.00*)

Each of these operational summaries outlines the organization of the division and its service prior to actual combat; has a chapter on each campaign; gives tables of strengths, casualties, etc.; annotates the sources; and maps the areas in good size and scale.

THEY CALLED IT "PURPLE HEART VALLEY." Written and photographed by Margaret Bourke-White. 182 pp. Simon & Schuster. $3.00.

No hit-and-run reporter, Miss Bourke-White spent five months on the Italian front photographing, questioning, observing, and living as did the troops. It didn't take her anything like that long, however, to gain a deep respect for the artillery "grasshopper" pilots. She flew with them to get some of this war's finest photos. A staunch mutual friendship quickly sprang up.

But this combat account isn't all about the artillery, prominent though is its part in both the war and this book. Engineers, infantrymen, medical corps, ordnance men—all branches, all members of the team, are covered and covered well. The result is a splendidly comprehensive account of events and conditions in Italy. Not just the Italy of the front, but also the Italy of the supply lines and that of A.M.G. This book therefore combines something of Ernie Pyle's day-to-day description of the life of the G.I. with a rounded view of operations as a whole which is seldom set down by other writers.

Supplementing the text and rather literally completing the picture is a group of magnificent photos taken with Miss Bourke.White's sure touch. They aren't stray appendages dug up to "brighten" the book, but tell a story in themselves.

As one reviewer has aptly said, the only awkward thing about *They Called It* . . . is its title. Even the name is explainable, however: that was the G.I.s' own term for a particularly bloody spot near Cassino. This book is a fine memorial to that place and to the many who there became members of the Order of the Purple Heart.

NODS AND BECKS. By Franklin P. Adams. 242 pp.; index of titles. Whittlesey House, $2.00.

"Information Please" didn't bring F.P.A. to the forefront; it merely enlarged his enthusiastic and appreciative admirers. It did many people a grand service by making them acquainted with him.

Long a columnist and poet, critic and article-writer, his work has a high batting average for humor, perception, and accuracy. Mr. Adams is of course a walking encyclopedia. His eruditeness and bits of odd knowledge pop out constantly—sometimes in the most unexpected places, to give a fillip to his tale.

Recently he sat him down and culled and mulled over his writings through the years. What he considered the choice bits wound up in Nods and Becks. So here we have a good cross-section of F.P.A.—short squibs, excerpts from the *New Yorker*, portions of his famous "Conning Tower" column, bits of poetry, etc. It's a delightful thing to dip into again and again.

ILLUSTRATION CREDITS

(It not listed, unsigned illustrations are from authors, by the *Journal* staff, or from special sources. References are to pages.)

Signal Corps: Cover, 73, 75, 96, 97, 98, 99, 112, 113.

New York Times: 80, 82, 83, 84, 86, 87, 88, 90.

Associated Press: 89.

Concerning the Future... of the World and of Yourself

U. S. WAR AIMS **$1.50**
by WALTER LIPPMANN

THE TIME FOR DECISION **3.00**
by SUMNER WELLES

HOW NEW WILL THE BETTER WORLD BE? **2.50**
by CARL BECKER

PRIMER OF THE COMING WORLD **2.50**
by LEOPOLD SCHWARZSCHILD

WHEN JOHNNY COMES MARCHING HOME **3.00**
by DIXON WECTOR

THE VETERAN COMES BACK **2.75**
by WILLARD WALLER

See notice on page 122 and order from

U. S. FIELD ARTILLERY ASSOCIATION
1218 Connecticut Avenue Washington 6, D. C.

Recent Sound, Factual Accounts of This War

BRAVE MEN **$3.00**
by Ernie Pyle

STILL TIME TO DIE **3.00**
by Jack Belden

INVASION DIARY **2.75**
by Richard Tregaskis

TARAWA **2.00**
by Robert Sherrod

MANY A WATCHFUL NIGHT **2.75**
by John Mason Brown

THEY SHALL NOT SLEEP **3.00**
by Leland Stowe

THE CURTAIN RISES **2.75**
by Quentin Reynolds

THEY CALLED IT "PURPLE HEART VALLEY" **3.00**
by Margaret Bourke-White

HALF PAST WHEN **3.00**
by Hassoldt Davis

VICTORY AT MIDWAY **3.00**
by Griffith Bailey Coale

THE ROAD BACK TO PARIS **3.00**
by A. J. Liebling

WINGATE'S RAIDERS **2.50**
by Charles J. Rolo

WAR BELOW ZERO **2.00**
by Bernt Balchen, Corey Ford, and Oliver La Farge

D-DAY **3.00**
by John Gunther

See notice on page 122 and order from

U. S. FIELD ARTILLERY ASSOCIATION
1218 Connecticut Avenue Washington 6, D. C.

TEN LEADING BOOKMEN

(*whose business is to read many books*)

each selected what they considered the ten outstanding books of 1944. Their choices, with duplications deleted, follow:

ABSENT IN THE SPEING. by Mary Westmacott	$2.50
THE AMERICAN CHARACTER, by D. W. Brogan	2.50
AN AMEEICAN DILEMMA, by Guunar Mytdal	7.50
ANGELS CAN'T DO BETTER, by Peter de Vries	2.50
ARGENTINE DIARY, by Ray Josephs	3.00
A BELL FOR ADANO, by John Hersey	2.50
BOSTON ADVENTURE, by Jean Stafford	2.75
BRAVE MEN, by Ernie Pyle	3.00
CAESAR AND CHRIST, by Will Durant	5.00
A CENTURY OF HERO WORSHIP, by Erie Bentley	3.50
COLCORTON, by Edith Pope	2.75
DEMOCRACY REBORN, by Henry A. Wallace	3.00
EARTH AND HIGH HEAVEN, by Gwethalyn Graham	2.50
FAIR STOOD THE WIND FOR FRANCE. by H. E. Bates	2.50
FREEDOM ROAD, by Howard Fast	2.75
FROSSIA, by E. M. Almendingen	2.50
THE GENTLEMEN TALK OF PEACE. by William B. Ziff	3.00
GERMANY WILL TRY IT AGAIN, by Sigrid Sehuitz	2.50
GOODNIGHT, SWEET PRINCE, by Gene Fowler	3.50
HENRY JAMES: THE MAJOR PHASE. by F. O. Matthiessen	2.50
THE HISTORY OF ROME HANKS. by Joseph S. Pennell	2.75
HOW TO TELL PROGRESS FROM REACTION. by Manya Gordon	3.00
THE IDEA OF NATIONALISM, by Hans Kohn	7.50
THE LEANING TOWER, by Katherine Anne Porter	2.50
LEE'S LIEUTENANTS: Vol. III. by Douglas Southall Freeman	5.00
LEFT HAND. RIGHT HAND, by Sir Osbert Sitwell	3.00
THE LOST WEEKEND, by Charles Jackson	2.50
MY COUNTRY, by Russell Davenport	1.50
NO MEAN CITY, by Simeon Strunsky	3.00
NOW I LAY ME DOWN TO SLEEP. by Ludwig Bemelmans	2.50
PEOPLE ON OUR SIDE, by Edgar Snow	3.50
PERSONS AND PLACES, by George Santayana	2.50
PETAIN, by Janet Flanner	2.50
PRIMER OF THE COMING WORLD. by Leopold Schwarzsehild	2.50
THE ROAD TO SERFDOM, by Friederieh A. Hayek	2.75
THE SHAPE OF BOOKS TO COME, by J. Donald Adams	2.50
SOME OF MY BEST FRIENDS ARE SOLDIERS. by Margatet Halsey	2.50
STILL TIME TO DIE, by Jack Belden	3.00
STRANGE FRUIT, by Lillian Smith	2.75
TEN YEARS IN JAPAN, by Joseph C. Grew	3.75
THE TIME FOR DECISION, by Sumner Welles	3.00
TIME MUST HAVE A STOP, by Aldous Huxley	2.75
U. S. WAR AIMS, by Walter Lippmann	1.50
VALLEY OF THE SKY, by Hobert Skidmore	2.00
A WALK IN THE SUN, by Harry Brown	2.00
WHEN JOHNNY COMES MARCHING HOME. by Dixon Weetor	3.00
THE WORLD OF WASHINGTON IRVING, by Van Wyek Brooks	3.75
YANKEE FROM OLYMPUS. by Catherine Drinker Bowen	3.00

You and your friends at home will gain pleasure and profit from these. See notice on page 122 and order directly from

U. S. FIELD ARTILLERY ASSOCIATION
1218 Connecticut Avenue Washington 6, D. C.