

COAST ARTILLERY JOURNAL

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FEATURING THE THIRD U. S. ARMY AAA

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ACTIVATION OF NEW AAA UNITS

By the time this is published approximately two hundred officers and 2500 trained enlisted men will have arrived at Fort Bliss to provide the nucleus for the rapid expansion of the Antiaircraft Artillery and Guided Missile Center which is scheduled for this fall.

Antiaircraft Artillery is high on the priority list for personnel to be inducted this fall under the Selective Service Act with 3 brigades, 11 groups and forty-four battalions ultimately scheduled for activation.

Of the forty-four battalions to be activated, 26 will train at Bliss and 18 will train at Camp Cooke, Tangair, California (on the coast 55 miles NW of Santa Barbara, and 21 miles SW of Santa Maria).

Units will be trained in accordance with MTP 44-1 dated 3 January 1945 as modified by TM 3, OCAFF. The majority of fillers are expected to be new inductees, who will take their basic training at Bliss and Cooke.

Upon completion of training, Divisional assignments will be given to some of the self-propelled battalions in order to provide each of our authorized Divisions with its organic AAA battalion. Further, it is contemplated that combined training with the Air Force will be conducted.

The Activation of units is scheduled under four categories or priorities. The tentative schedule for each is shown below but actually the whole program is contingent upon the rate and phasing of induction.

FIRST PRIORITY

(To be activated and trained at Fort Bliss.)

Units—One brigade, four groups, three operations detachments, three self-propelled battalions, two automatic weapons battalions, one 90mm gun battalion and one 120mm gun battalion.

The cadres for the above units are scheduled for immediate arrival, the fillers for January, and the units have a readiness date of 1 August 1949. The readiness date is the date a unit must complete its basic training, not including combined training with divisions or Air Force units.

SECOND PRIORITY

(To be activated and trained at Bliss.)

Units—One brigade, four groups, three operations detachments, eleven self-propelled battalions, two automatic weapons battalions, three 90mm gun battalions and three 120mm gun battalions.

All cadres for the above units will arrive by the end of January; fillers will be received in April 1949 and the units will have a readiness date of 1 January 1950.

THIRD PRIORITY

(To be activated and trained at Cooke.)

Units—One brigade, four groups, four operations detachments, five self-propelled battalions, two automatic weapons battalions, eight 90mm gun battalions and three 120mm gun battalions.

The cadres will arrive by the end of January; the fillers will be received in May 1949 and the units will have a readiness date of 1 February 1950.

FOURTH PRIORITY

(To be activated at Bliss as soon as the first four battalions in the First Priority have departed for permanent change of station.)

Units—One group, one operations detachment, one self-propelled battalion, one automatic weapons battalion and two 120mm gun battalions.

The cadres will be assigned in August 1949 from Second Priority units, fillers will be received in September 1949 and units have a readiness date of 1 April 1950.

In priorities one, three and four, one self-propelled battalion will be a Negro unit; priority two will have two similar Negro battalions; and in addition there will be one Negro airborne AAA battalion assigned to the 82d Airborne Division.

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ACTIVITIES OF THIRD

IN ENGLAND

May 1944 found Third Army Headquarters located at Knutsford, England. General Patton had just joined and was very much "under cover." Planning for the coming operations in France was in full swing. Section chiefs were getting acquainted and, with their assistants, were building the confidence in each other that is so essential to a smooth-working staff. The Antiaircraft Section engaged in drafting of annexes, operational directives, visits to Air Force commands to arrange details of operations on the Continent, and coordination with appropriate agencies for phasing units across the Channel. Assignments of antiaircraft units to Third Army were secured and attachments to corps and divisions established. Arrangements were made for corps antiaircraft group commanders to visit corps headquarters to get acquainted and help in the preparation of plans.

At this time some antiaircraft units were attached to Air Force elements for the defense of airfields in England, some to Base Sections for the protection of ports while others were engaged in various stages of training. More than half of Third Army's antiaircraft units were to be attached to First Army for use in making the initial landing. Plans were made and agreements were secured for the release of units from attachments in England and for release of Third Army units in France.

Army headquarters moved to Braemore Hall in Southern England during the latter part of June and loaded for movement to France on the 4th of July.

AVRANCHES

Army headquarters landed at Utah beach and located its first Command Post at St. Jaques de Neheu. Antiaircraft units were located and previous arrangements for releases from First Army and Communication Zone were confirmed or altered to conform to changes that had taken place. The 38th AAA Brigade landed later in July and was given the mission of assembling Army antiaircraft units in

a designated area upon arrival and defending Army Headquarters and near-by supply dumps while waiting for Third Army to become operational.

On 28 July 1944, General Patton assumed control of all troops in the VIII Corps zone as deputy commander of Twelfth Army Group. The breakthrough on the enemy's left flank was completed and on 1 August, when Third Army became operational, troops poured through Avranches and fanned out to the east and west.

The whole Army and all its supplies passed over the bridges at Avranches and Pontaubault. The importance of maintaining these bridges for a movement of such magnitude, and the fact that even a few hours' interruption of the flow of troops and supplies might have proved disastrous, was recognized by both Third Army and the enemy. To the east of the road and up the Selune River there was a dam, the destruction of which would have flooded the whole area. A coordinated antiaircraft defense was therefore established to include the bridges at Avranches, Pontaubault, Pontorson, the dam on the Selune River and the town of St. Hilaire du Harcouet. The defense established by VIII Corps units at Avranches was assumed by the 38th AAA Brigade and extended to cover the area just described. Three and a half gun battalions and four automatic weapons battalions were employed.

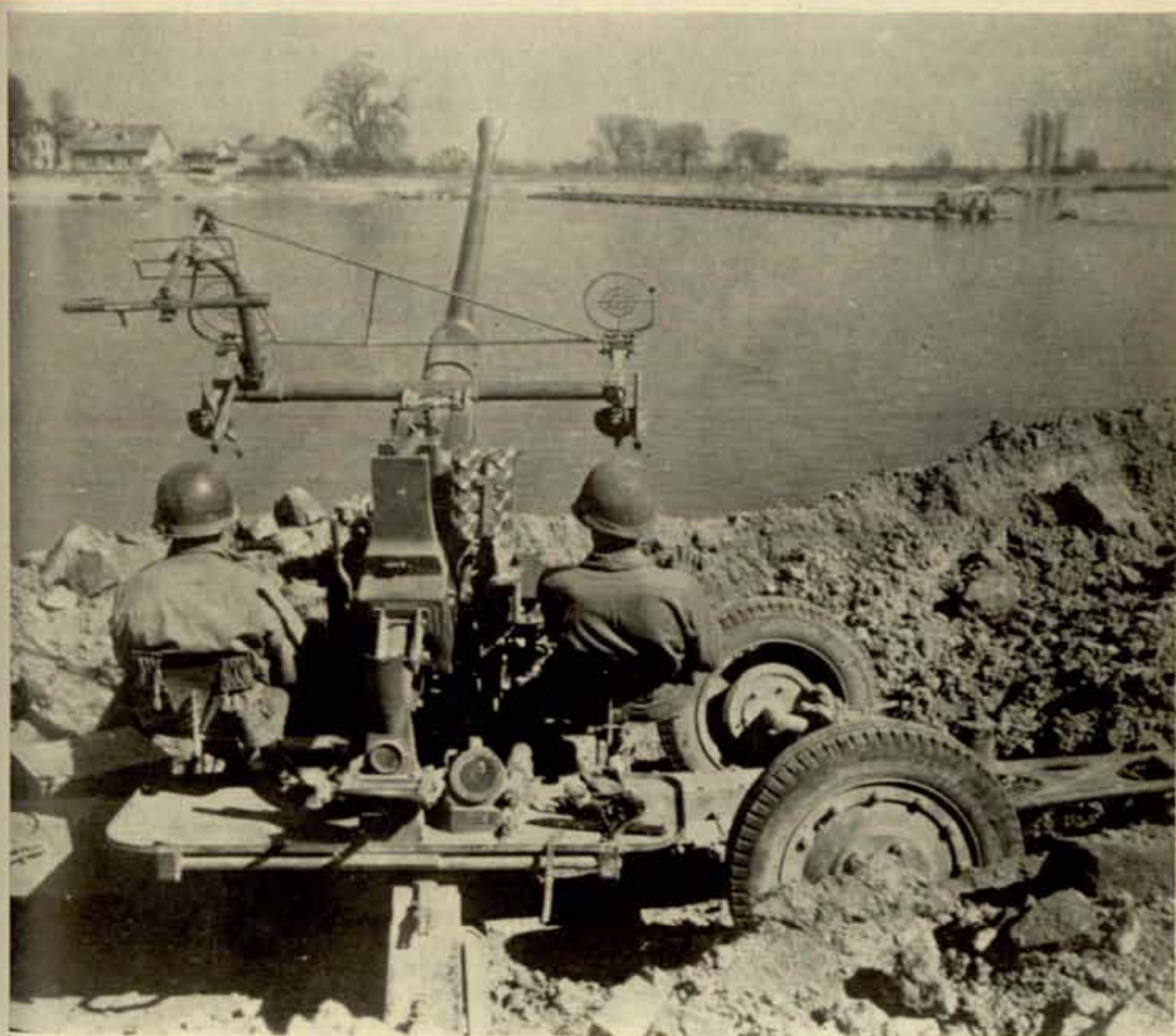
The German Air Force made repeated attempts to destroy the dam and bridges. The heaviest attacks came on the night of 6 August when 253 aircraft participated. Planes came low enough at times to be silhouetted against burning buildings. Attacks usually started at about 2300 hours. Troops for miles around were treated each night to a brilliant spectacle of 90mm bursts and AW tracers. Blinding flares and enemy aircraft falling in flames added color to the display. In spite of the best the Germans could do, only superficial damage resulted and none of the important installations were damaged or inoperational at any time.

The VIII Corps made splendid progress. On 6 August, the fall of Brest appeared likely and, in accordance with previous plans for the defense of ports, Twelfth Army Group was requested to secure for Third Army the units

*This article, which has been in our files for some time, replaces the originally scheduled one pertaining to the 53d Brigade which has not been received to date.—Ed.

By Colonel Frederick R. Chamberlain, Jr., CAC
and Captain John G. Wynn, CAC

US ARMY AAA



On the Rhine



From a well selected position, an M-51 crew is ready for any German air activity.

that had been earmarked for the port. The 54th AAA Brigade, with one group headquarters, one gun battalion and one automatic weapons battalion, both battalions semi-mobile, reported with additional transportation borrowed from the 55th AAA Brigade and were attached to VIII Corps. These units were assigned the task of protecting the main supply route between Loudeac and Rostrenen while waiting for Brest to fall. The 50th AAA Brigade Headquarters and Headquarters Battery arrived at about the same time for the defense of St. Malo, but being without troops, it was not possible to use this headquarters operationally with Third Army.

While VIII Corps was racing toward Brest, XV Corps turned east and took Mayenne and Laval; then pushed on to Le Mans. The 120th AAA Gun Battalion was split, two batteries being used to defend the bridge at Laval while the other two defended the bridge at Mayenne. The Mayenne batteries reached that city about midnight and, not being aware of the situation, crossed the river and immediately went into position. When dawn came, the German lines were discovered to be about five hundred yards beyond the battery positions. The morning was spent withdrawing to the west side of the river.

An unusual mission developed after the XV Corps had passed through Le Mans and turned north toward Alencon. Because of the speed with which the attack was progressing, supplies brought into the Le Mans vicinity by rail were kept either as rolling reserve or were waiting to unload, on sidings between Sille and Conlie. This made a lucrative target for the German Air Force. Two automatic weapons battalions were given the mission of locating trains as they arrived and maintaining antiaircraft defenses while the trains remained in the vicinity.

CROSSING THE SEINE

The XV Corps, after making possible the Falaise pocket, turned east and started crossing the Seine River at Mantes Gassicourt. This brought out the German Air Force for the second time in great strength. Over one hundred planes were used on the first day, and in two days, more than

sixty enemy aircraft were shot down. The Corps G-3 telephoned personally to say that the Corps Commander and he had watched the shooting and that if further evidence was needed to support claims for aircraft destroyed, they would furnish it. His description was enthusiastic.

After crossing the Seine River, XV Corps was ordered released to First Army. Third Army with XII and XX Corps abreast moved on toward the Moselle River. During this period of fast movement, although many river crossings were covered by antiaircraft, the German Air Force confined its activities to reconnaissance and only a few claims were made each day.

When Third Army's advance came to a halt in September as its supply of gasoline was cut, the German Air Force seemed to lose interest and was seldom seen except for occasional raids on cities and supply dumps.

Antiaircraft units engaged in many ground missions during the absence of the German Air Force. The 633d supported the attack of the 80th Division on 8 October. The 796th furnished combat patrols for the 10th Armored. The 457th supported engineers in bridging operations during the attack of 8 November. The 547th participated with the 95th Division in the attack on the Metz forts. The 390th supported an infantry attack on a wooded area. The 796th operated as cavalry on 14 December. Many other engagements as ground forces, too numerous to list here, were recorded.

THE ARDENNES

The next large-scale air attacks came with the German breakthrough in December. Third Army was ready to launch a powerful attack on the Siegfried Line with the greatest air support yet employed in support of ground action. Flak lines had been prepared to aid bombers, tremendous quantities of 90mm ammunition had been moved to firing positions, and additional gun units were in readiness, when Third Army was called upon to abandon these plans and stop the breakthrough in the southern part of the First Army zone.

The remarks of General Patton, in opening the staff conference, at which the attack on the Siegfried Line was abandoned and new directives were issued for turning north, are illustrative of the spirit and determination with which he sacrificed his own plans. "This is a hell of a Christmas present to hand you gentlemen, but I had it handed to me, and I fight where I'm told and I win where I fight."

Then followed one of the most remarkable series of maneuvers in military history. A whole army was readjusted. A small command echelon of the headquarters moved to Luxembourg. Tired divisions were relieved and shifted south. Fresh divisions were shifted north. The III Corps was injected between XII Corps and VIII Corps, given new divisions and launched in an attack against the base of the bulge. Supplies were moved with unbelievable speed. Communications were rearranged. Front lines in sectors not attacking were made secure. Antiaircraft units were given contingent ground missions. Bastogne was rescued.

The German Air Force came out in force and attacks on traffic were frequent. A tense situation arose when our troops began to receive attacks from American type fighter

aircraft. Troops were convinced that these attacks were made with captured U. S. aircraft operated by the enemy. XIX TAC investigated many of these incidents and denied that the planes were German manned. The correctness of this attitude, regardless of facts, is evident when one considers that had this belief been allowed to grow unchallenged, widespread attacks on U. S. aircraft would have followed, and air support would have become impossible. These incidents, together with identification difficulties encountered throughout the operations on the Continent, indicate the imperative need for development of a reliable means of identification that can be made available for both gun and automatic weapon units. This is a *must*. Many more complicated tasks have been accomplished. The system of AAORs was never quite satisfactory. The time lag was too great, communications were too uncertain, and the fighter control rooms were seldom able to furnish prompt identification of any but their own aircraft.

1 January 1945 turned out to be one of the biggest days on the Continent for antiaircraft. The German Air Force came out in force with widespread attacks, and for the first time, made determined efforts against airfields. One of the most noteworthy attacks was made on the airfield at Metz. Twenty-five planes attacked, eighteen were shot down and four disappeared smoking. Heavy gun units at Metz participated, but for most, the altitude was too low for good 90mm shooting. The Group Commander attributes the remarkable percentage shot down to the location of automatic weapons fire units on the field so that most of the engagements were "right down the barrel."

After pinching out the bulge, the remainder of January and February was spent in slugging through the Siegfried Line. Antiaircraft played a frequent ground role in this phase, smothering opposition for river crossings, cleaning out wooded areas with air bursts, and supporting infantry.

ACROSS THE RHINE

The 4th Armored Division was used to spearhead a breakthrough that carried to the Rhine River at Koblenz and then turned south across the Moselle. A whirlwind campaign involving a pincer movement within Third Army and a pincer movement in conjunction with Seventh Army captured all the area west of the Rhine, took but ten days, and resulted in the destruction of two German Armies. The next phase, that of crossing the Rhine and the drive into central Germany, followed in similar lightning fashion. Many antiaircraft missions were abandoned and units were moved so that the bulk of antiaircraft assigned to the Army was used in defense of the crossing. Days of shooting followed which equalled those at Avranches. Defenses extended from Boppard on the north to Oppenheim on the south. XII Corps made the initial assault crossing, was well beyond the river in two days, and swung sharply north. The VIII Corps crossed on the north flank and after being pinched out east of the Rhine, mopped up the pockets left by the rapid advance of other units. The XX Corps, between VIII and XII headed generally northeast.

The swiftness of the advance made the Rhine River bridges profitable targets for only a short while. As the armor spearheads of Third Army began to fan out from the Rhine, the enemy came out in still greater force to stop the

tide which was about to engulf all Germany. Initially most of the enemy aircraft were on reconnaissance, but as the full realization of the situation struck home, a real effort was made to avert disaster. As the German armies crumpled, the German Air Force attempted to stop the drive by attacking forward elements.

On 17 March the 489th's SPs (4th Armored Division) and the 452d-40mm's (XII Corps) knocked down 20 out of 53 aircraft. On 18 March, 235 enemy aircraft attacked during daylight and 50 were destroyed. On 23 March, 27 out of 53 aircraft were downed with the 452d getting 10. On the 24th and 25th, 63 more were destroyed, this time with the 129th Gun Battalion accounting for 23. Activity started to decline on the 26th, but during the short period, 191 enemy aircraft out of 815 attacking were shot down with negligible damage to installations and units defended.

Third Army was now headed northeast and east with XX Corps on the north, XII on the south and VIII Corps, after completing its mopping-up assignment, in the middle. As the month of April opened, the intensity of air attacks increased. The 4th Armored and 6th Armored were heavily attacked and autobahn traffic received considerable attention. On the second of April, automatic weapons battalions alone accounted for 104 Category I's and II's. Of these, the 489th (4th Armored Division) was credited with 40 and the 777th (6th Armored Division) with 44. After another peak on 4 April, activity gradually declined, but not without several battalions experiencing sharp activity and achieving fine results. The 778th AAA AW Battalion (SP) in one eighteen-hour period got 12 out of 21, and on 10 April, the 390th AAA AW Battalion (SP) shot down 9 out of 13 in five minutes.

During the middle of April, our advance slowed down somewhat and the German Air Force began to hit supply installations and increased the percentage of night attacks. In one month—13 March to 14 April, Third Army claimed 715 aircraft (455 Cat. I's and 260 Cat. II's) with an all-time peak on 2 April of 104.

SOUTH TO AUSTRIA

The last phase of operations saw Third Army turn south. Bastogne was cold and miserable but this did not interfere with the alertness of AAA troops.



VIII Corps was released to First Army and III Corps was taken over and used on the west flank. XX Corps was in the center and XII Corps on the east. V Corps was taken over on 3 May and pushed east of Pilsen.

During this period, the German Air Force was reported to be flying above automatic weapons range and attacking highway traffic. To cover the many divisional movements and the entry of new units into position, an unconventional use was made of antiaircraft gun units. Batteries were spread out so as to cover practically all main routes at intervals of about 20,000 yards. The more important points along the routes were covered by automatic weapons and it became practically impossible for enemy aircraft to fly in the army area without encountering antiaircraft fire. As operations came to a close, German Air Force missions appeared to be mostly reconnaissance. It was finally necessary to issue orders forbidding fire except in case of hostile acts in order to permit German aircraft to be flown into the army zone to surrender.

Third Army's claims totaled more than 1200 Cat. I's and Cat. II's. Antiaircraft units had done a splendid job. Both officers and men deserved the highest praise. With the exception of the determined attack on the Metz airfield, where the enemy lost 88 per cent of his attacking force, the damage to installations defended by antiaircraft was practically nil. When not needed as antiaircraft, units acted as cavalry, infantry and artillery. A considerable portion of the supplies needed for Third Army's fast moves was hauled by antiaircraft trucks.

The reputation of these units will live forever and their accomplishments may well serve as an inspiration for the future.

The following antiaircraft artillery units served with the Third U. S. Army sometime during its operations in Europe:

BRIGADES

38th AAA Brigade; 50th AAA Brigade; 54th AAA Brigade.

GROUPS

7th AAA Group; 16th AAA Group; 19th AAA Group; 21st AAA Group; 23d AAA Group; 24th AAA Group; 27th AAA Group; 32d AAA Group; 112th AAA Group; 113th AAA Group; 115th AAA Group; 207th AAA Group.

AUTOMATIC WEAPONS BATTALIONS

103d AAA AW Battalion (1st Infantry Division); 337th AAA AW Battalion; 377th AAA AW Battalion (4th Infantry Division); 386th AAA AW Battalion; 433d AAA AW Battalion; 440th AAA AW Battalion; 444th AAA AW Battalion (97th Infantry Division); 445th AAA AW Battalion (8th Infantry Division); 447th AAA AW Battalion; 448th AAA AW Battalion (35th Infantry Division); 449th AAA AW Battalion (5th Infantry Division); 452d AAA AW Battalion; 453d AAA AW Battalion (83d Infantry Division); 455th AAA AW Battalion (83d Infantry Division); 456th AAA AW Battalion; 457th AAA AW Battalion; 460th AAA AW Battalion; 462d AAA AW Battalion (2d Infantry Division); 463d AAA AW Battalion (79th Infantry Division); 465th AAA AW Battalion; 480th AAA AW Battalion; 481st AAA AW Battalion;



The radar of "B" Battery of the 217th AAA Gun Battalion at Bastogne is checked for orientation by one of the crew.

530th AAA AW Battalion (71st Infantry Division); 535th AAA AW Battalion (99th Infantry Division); 537th AAA AW Battalion (90th Infantry Division); 546th AAA AW Battalion (65th Infantry Division); 547th AAA AW Battalion (95th Infantry Division); 549th AAA AW Battalion (87th Infantry Division); 550th AAA AW Battalion (89th Infantry Division); 551st AAA AW Battalion; 559th AAA AW Battalion; 565th AAA AW Battalion; 567th AAA AW Battalion; 574th AAA AW Battalion; 599th AAA AW Battalion; 633d AAA AW Battalion (80th Infantry Division); 634th AAA AW Battalion; 635th AAA AW Battalion (4th Armored Division); 776th AAA AW Battalion; 792d AAA AW Battalion; 795th AAA AW Battalion; 815th AAA AW Battalion; 839th AAA AW Battalion (86th Infantry Division); 894th AAA AW Battalion.

GUN BATTALIONS

109th AAA Gun Battalion; 115th AAA Gun Battalion; 119th AAA Gun Battalion (8th Infantry Division); 120th AAA Gun Battalion; 128th AAA Gun Battalion; 129th AAA Gun Battalion; 217th AAA Gun Battalion; 407th AAA Gun Battalion; 411th AAA Gun Battalion.

SELF-PROPELLED BATTALIONS

203d AAA (SP) Battalion (7th Armored Division); 387th AAA (SP) Battalion (5th Armored Division); 390th AAA (SP) Battalion (26th Infantry Division); 398th AAA (SP) Battalion (14th Armored Division); 465th AAA (SP) Battalion (94th Infantry Division); 467th AAA (SP) Battalion; 468th AAA (SP) Battalion (20th Armored Division); 473d AAA (SP) Battalion (79th Infantry Division); 482d AAA (SP) Battalion (9th Armored Division); 489th AAA (SP) Battalion (4th Armored Division); 571st AAA (SP) Battalion (16th Armored Division); 572d AAA (SP) Battalion (12th Armored Division); 574th AAA (SP) Battalion (13th Armored Division); 575th AAA (SP) Battalion (11th Armored Division); 777th AAA (SP) Battalion (6th Armored Division); 778th AAA (SP) Battalion (76th Infantry Division); 796th AAA (SP) Battalion (10th Armored Division).

AAA SEARCHLIGHT BATTALIONS

Battery "B," 226th AAA S/L Battalion.

An Antiaircraft Defense Of Washington

By Colonel Earl Wentworth Thomson, CA-RES.

"Should he not be taught,
E'en by the price that others set upon it,
The value of that jewel he had to guard?"

TENNYSON.

Early in 1944 as the pace of the strategic bombing of the Allies became faster and faster—by night the tremendous tonnage of the Royal Air Force on important cities by area bombing, and by day the precision bombing of the Eighth and Fifteenth Air Forces on important targets—the German high command pulled in the peripheral antiaircraft defenses and protected its brightest jewels by the strongest guards. This centripetal concentration was assisted geographically by the overrunning of France by the Allies, by the small casualties suffered by the German flak personnel, and by the maintained production of antiaircraft guns and other matériel.

DEFENSES OF BERLIN

In June 1944 the defenses of Berlin consisted of 400 heavy guns, most of these being the famous 88mm dual-purpose gun, and 400 automatic weapons. At the time of the occupation by the Allies, 785 positions for heavy guns were sighted, most of these having been occupied. Included were 88 different battery positions, varying from the normal 4-gun battery to "grosse batterien" of 16, 18, 22, and 24 guns. This defense stretched for 35 miles east and west and 33 miles north and south. This was probably the only area type defense in Germany. The disposition of the guns seemed to conform to the shape of the city itself rather than to the industrial complex contained therein, as was the usual practice. The actual gun density per square mile at Berlin was considerably less than at many industrial targets, such as Schweinfurt and the synthetic oil plants, although the total number of guns exceeded those at many precision targets.

In the center of Berlin there were three flak towers, each having four 128mm twin mounts. About 40% of the remainder of heavy guns were high performance 88mm (Flak 41) guns rather than the older 88mm (Flak 37). This new gun had a muzzle velocity of 3350 feet per second and a maximum effective slant range of 13,200 yards. These high performance guns were emplaced in the inner ring close to the defended objectives.

This area defense of Berlin was probably established to fulfill the mission of stopping the intensive night operations of the RAF with its incendiary bombs. Many of the guns were sited merely for barrage fire. However, for the number of guns this was not the best defense against our daylight bombing, in which the planes approached within a narrow sector. This broad defense permitted our aircraft to attack and withdraw along routes which denied roughly two-thirds of the guns the opportunity to engage.

Lieutenant Colonel Gregory in his article on "Flak Intelligence Memories" in the May-June issue of the JOURNAL

stated: "The number of guns at Schweinfurt rose sharply after our first attack on the ball-bearing plants. Further, in less than a year the number of defending guns on three large oil targets rose from 270 to 1000 guns. Before VE-day there were over 700 guns at an oil plant near Merseburg." Certainly as our bombers went deeper into Germany they were met by heavier flak of defenses, the defense of course being in keeping with the importance of the target.

THE DEFENSE OF HAMBURG

One of the best planned antiaircraft defenses in Germany was that of Hamburg. The largest seaport in Germany, with a prewar population of 1,800,000, Hamburg was the center of large commercial and manufacturing interests. Among profitable targets in the city were oil refineries, tank farms, naval dry docks, wharfs and cranes, submarine pens, bridges, railway shops, freight yards, and large storage areas. After heavy raids in early 1943, the area defense of the entire city was abandoned in favor of defending a group of high priority installations. The batteries were drawn in toward a defended zone roughly egg-shaped, in size 6 by 10 miles with the long axis nearly east and west. This is shown in red on Figure 1. At the time of maximum defense, in the late summer and fall of 1943, 398 guns were emplaced in the defenses of the city, 278 of 88mm, 104 of 105mm, including 6 railway batteries, and 8 twin mount 128mm guns on the flak towers. These were sited in 45 different positions, varying from 4 to 20 guns.

The defense of Hamburg is shown in Figure 1, superimposed in red on a rough map of Washington. A proposed defensive zone, somewhat analogous to the Hamburg zone, is shown for Washington, this to include most of the government buildings, the Pentagon, the bridges over the Potomac, the main airfields, and the Washington and Potomac freight yards. In order to equalize somewhat the defended areas, the defense of Hamburg has been rotated 75° clockwise.

The basic assumptions made by the Germans regarding altitude and speed of Allied aircraft were too high, as the defenses were based upon an estimated ground speed of 325 miles per hour and an altitude of 26,200 feet. The initial bomb release line, which for these assumptions equals 6500 yards, is shown in red on Figure 1. Both RAF and AAF attacks were at airspeeds of 240 to 250 miles per hour, and at altitudes of from 20,000 to 26,000 feet.

PLAN OF DEFENSE

The German plan of defense consisted essentially of a main or outer ring of guns at or near the bomb release line, and an inner ring near the edge of the defended zone. In the Hamburg-Washington defense of Figure 1, it is seen that the main ring consisted of 17 positions with 30 batteries and 176 guns, most of these being the older 88mm guns. The inner gun ring consisted of 7 positions with 13

batteries and 62 guns. Thirty of these guns in the inner ring were 105mm in caliber, and there was one flak tower with 128mm guns in this ring.

Between the inner and outer rings were two lines of batteries in an intermediate ring, in the north and southeast sectors of the Hamburg defense. These are shown in the Washington defense in the east and southwest sectors. This broken ring consisted of 8 positions with 14 batteries and 70 guns, three of the batteries being 105mm railway mounts.

Again on the periphery of the defense, there were two thin lines in an exterior gun ring. The major part of these in the Hamburg defense were toward the north, across the line of the British night attacks. These exterior guns were placed principally for throwing up barrage fire usually as a deterrent. Twenty-six barrage fire lines were established over Hamburg for use during poor visibility and when the radars were jammed. About 25% of all firing by night was by barrage fire, although this was considered relatively ineffective. As I remember during our operational planning with the Headquarters of the Eighth Air Force we considered barrage fire only 10% as effective as continuously pointed fire in producing casualties.

In planning the above defense the German practice was to make 88mm (Flak 37) gun positions (one or more batteries) mutually supporting at a maximum of 4400 yards, 88mm (Flak 41) gun positions at 4900 yards, 105mm batteries at 4500 yards, and 128mm batteries at 6000 yards.

"GROSSE BATTERIEN"

A high concentration of bursts was secured by having several batteries in one position, this giving rise to the "grosse batterien" that intelligence personnel had emphasized in all German defenses. In the Hamburg defenses three types of these multiple batteries were noted, the double battery, the triple or "grosse" battery, and the block battery.

The "double battery" normally consisted of two 8-gun 88mm or two 6-gun 105mm batteries, making a total of from 12 to 16 guns in one position. Each battery was connected to its own director, but both received present position data from a common radar. Another radar was used to search and track for the succeeding target. By means of a junction box, a switch-over could be made between the two radars and a new target could be engaged in from 15 to 20 seconds. Numerous examples of such batteries are shown in Figure 2, for example: Batteries D and K of 105mm guns, and EE and QQ of 88mm guns.

The "triple battery" consisted of three 8-gun 88mm batteries or three 6-gun 105mm batteries, with three directors and two radars. The procedure in shifting targets was the same as for the double battery. Examples of this type are shown in Figure 2, with Batteries FF and PP of 16, Battery BB of 18, , and Battery F of 20 guns.

The "block battery" consisted of eight 88mm or 105mm guns, with two directors and two radars. During optical tracking, one director supplied data to all the guns while the other director with radar was searching for, or tracking, the next target. The time between successive engagements with this method was from 7 to 12 seconds. Batteries GG and IIII of Figure 2 were probably of this type.

The Germans in their original defense had planned to use 24 guns at one site, using two complete sets of fire control equipment. Operating experience proved, however, that there should be no more than twelve guns connected to one director, or three directors to one radar. This limitation is borne out in the Hamburg defense.

Lieutenant Colonel Gregory, in his recent article, speaks of a 36-gun position composed of three groups of 12 guns. He quotes General Wolz, who commanded the Hamburg defense, as saying: "You must have a heavy concentration of fire—your bombers are hard to shoot down—you must have a heavy concentration of fire." Although concentration of fire is greatly to be desired, the chief advantage of the "grosse batterien" appears to be the ability to secure this concentration on successive targets in a minimum time by using several directors and radars on each site. Certainly the validity of American thinking, of using a 4-gun battery with a single director and radar, should be checked, particularly in the light of German and Japanese practice—and no one will deny the extent of their "practice."

In the German positions, the guns were placed 38 yards apart. The guns, even in an 18-gun position, were all sighted parallel. However, each gun was calibrated, and only those with similar characteristics were connected to the same director.

In the Hamburg defense 85% of the guns were in fixed positions, allowing only 15% which could be shifted as the direction of attack or the prevailing wind shifted. General Wolz was later quoted as saying that he realized this was the greatest mistake in the establishment of the defense, and that the ratio of fixed to mobile guns should not have exceeded one to one.

After 1943, in order to increase the defense around the synthetic oil plants and other strategic installations further into Germany, the triple batteries were reduced to doubles, the eight-gun batteries to six, the six-gun batteries to four, and so on down the line. Flexibility was therefore maintained, even with the high percentage of fixed guns.

After map study and reconnaissance, the gun positions were determined by actually emplacing the radar and viewing the clutter patterns at 5°, 10°, 15°, and 20°. The position was thus determined by the performance of the radar before the guns were moved in.

ORGANIZATION

The air defense of the German Reich was the responsibility of the German Air Force (Luftwaffe). This defense consisted essentially of the Signal Aircraft Warning Service (Flugmeldedienst), the fighter aviation, and the Anti-aircraft Artillery (Flak). Flak was the chief element in the Hamburg defense, because Hamburg had been declared a Flak or inner artillery zone, with all fighters removed from the fields within the area, and actually prohibited from following enemy aircraft over the area.

At its maximum, late in 1943, the defenses of Hamburg were as follows:

Heavy Flak (guns, 88mm, 105mm, 128mm):

4 Gruppen, consisting of 73 gun batteries, and including 40 gun-laying radars:

2 Batteries of railway flak, 105mm.

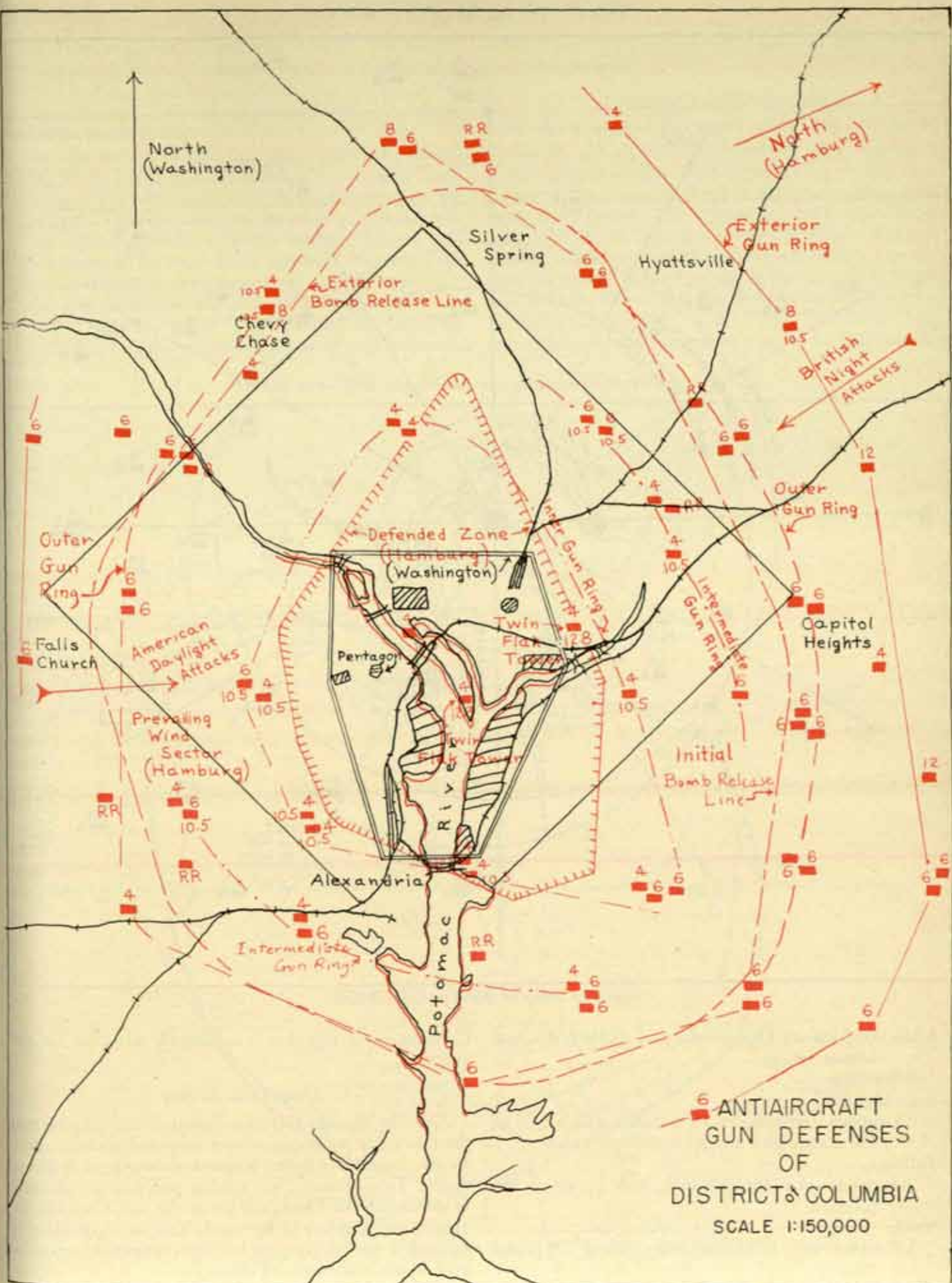


Figure 1—Anti-aircraft Defenses of Hamburg Superimposed upon Washington, D. C.

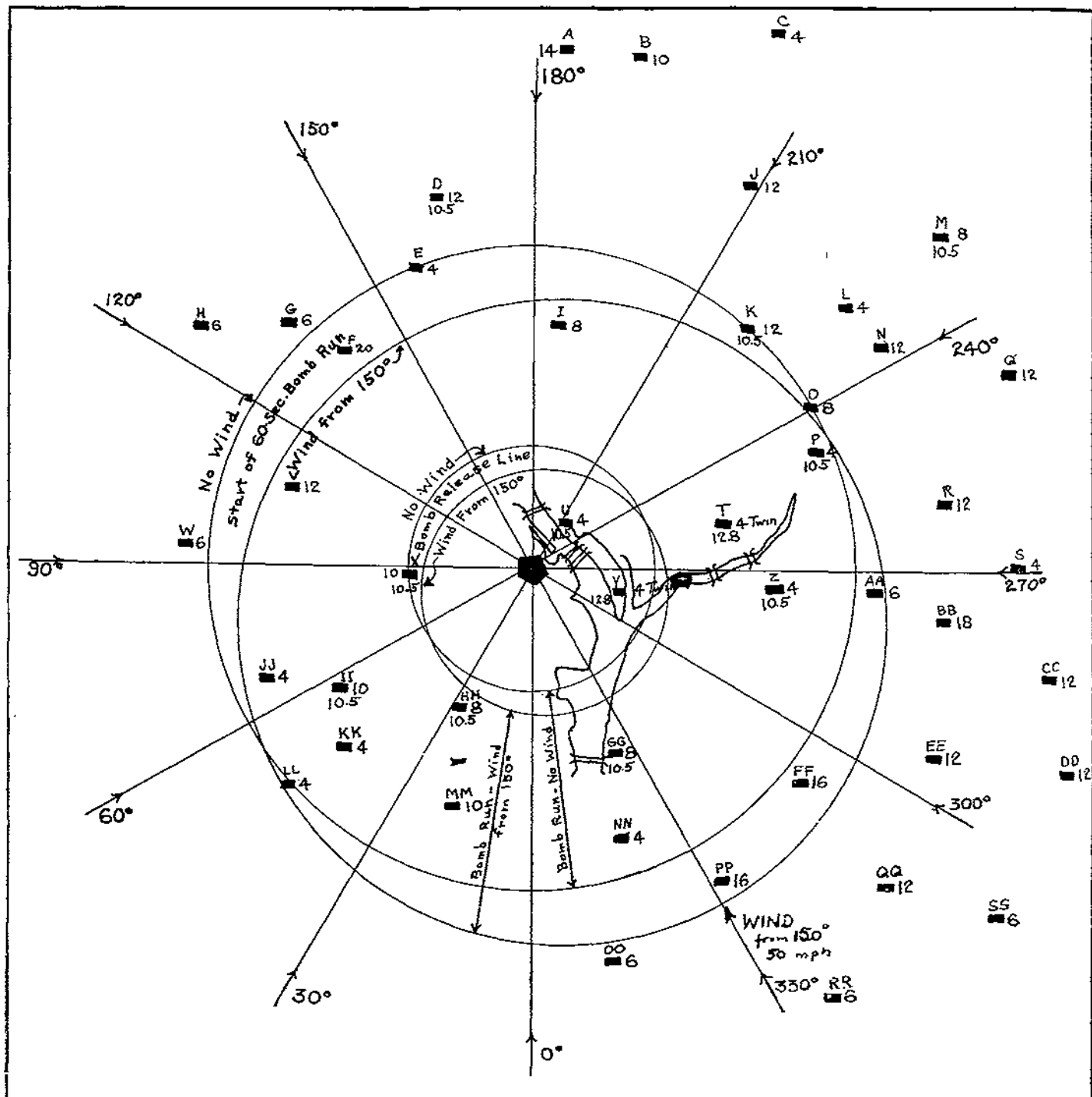


Figure 2—Effect of Wind on Critical Zone.

Light and Medium Flak (37mm and 20mm AW's, and 7.9mm MG's):

8 Batteries.

Searchlights:

2 Gruppen, consisting of 16 Batteries, with a total of 350 searchlights and 64 searchlight-radars.

Balloons:

2 Battalions of 6 Batteries each, with a total of 288 balloons.

Smoke Troops:

1 Battalion with 1400 generators, each of 700-pound capacity.

The light and medium flak was employed chiefly for the local protection of heavy gun and searchlight positions. The local defense was always maintained flexible, although the

Germans never regarded it as entirely adequate for the purpose.

ANTI-FLAK ACTION

After the war, the Germans indicated their surprise that the heavy flak positions were not subjected to direct attack by dive bombers or fighter bombers of the type of A-20's or A-26's. This, however, was not the policy of the planners of the Eighth Air Force until late in the war. Certainly the volume and accuracy of fire would have been considerably reduced if the flak positions had been subjected to coordinated attacks and concerted action.

At the Joint Intelligence Center, Pacific Ocean Areas, we published in 1945, a Flak Intelligence Memorandum on Anti-Flak Action, which essentially laid down the prin-

ciples of action against flak positions. The Navy in the Pacific was strong for such coordinated action of fighters, dive bombers and high level bombers. If the war had continued, this concerted action would have been Standing Operating Procedure in the Pacific.

The effectiveness of the gun-laying radars was reduced during Allied attacks by radar jamming, by "window," and by "carpet," the defense usually being saturated in the larger raids. Tight formations of bombers gave better protection against fighters, a better bombing pattern, and more protection by their own "window." However, the tighter the formation the greater were the flak losses.

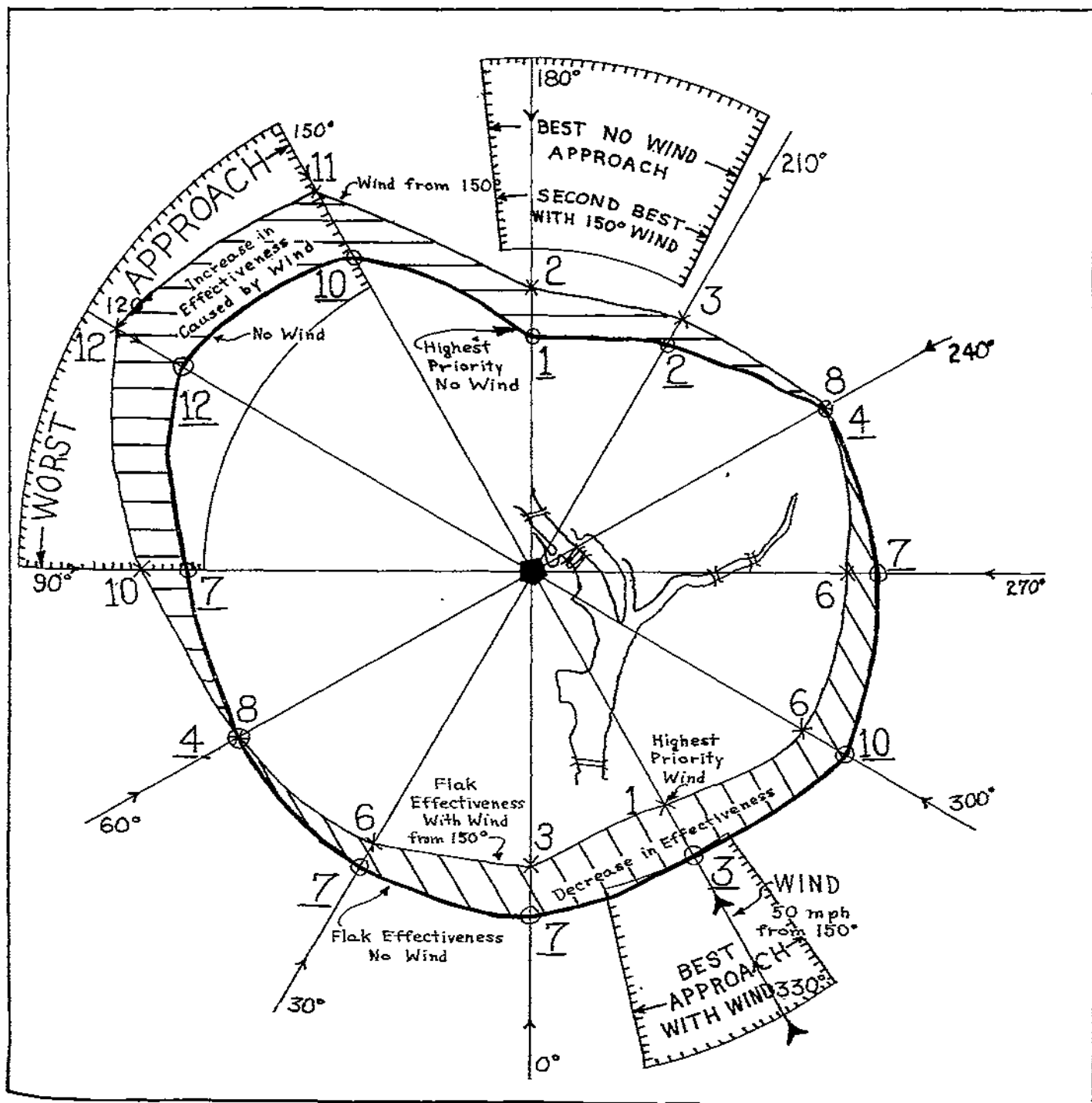
The over-all effectiveness of the Hamburg defenses can be judged from two angles. These defenses accounted for 350 Allied airplanes positively destroyed, and the early

warning system proved extremely effective, as the defense was never surprised.

HAMBURG VS. WASHINGTON

For the purpose of this article it has been assumed that the heavy gun defenses of Hamburg were removed to Washington *en toto*, in order to protect the priority installations of the National Capital against bombing operations of an enemy. The defense has been superimposed upon Washington regardless of the accessibility of gun positions, except that one 128mm flak tower has been removed from the middle of the Potomac to the more solid foundation of Hains Point. This places the other flak tower near Pennsylvania Ave., SE, in the Navy Yard-Sousa Bridge area. These two flak towers, because of the fact that they

Figure 3—Flak Effectiveness and Priorities of Approach.



are close in to the defended area are among the most vital parts of the whole defense.

FLAK ANALYSIS OF THE DEFENSES

For purposes of analysis, as shown in Figure 2, each gun position was given a lettered battery designation, ranging from Battery A of 14 guns in the north, to Battery SS of 6 guns in the exterior ring to the southeast. It was then assumed that the enemy attacked the Pentagon Building from 20,000 feet at 250 miles per hour under two different conditions: (1) with no wind, and (2) with a wind of 50 miles per hour from 150° (S 30° E).

A target-centered flak position computer for a 120mm gun having a gun circle of 10,400 yards against a single plane at 20,000 feet was used to analyze the defenses. A bomb release line of 4600 yards, a critical zone for a 60-second bombing run, and evasive action outside the critical zone was assumed. Contrary to our opinion in the Eighth Air Force, the German director could not follow a curved course or changes in altitude.

The flak effectiveness for the various angles of approach are plotted in Figure 3, the priorities of approach being underlined. This shows that the best approach would be from due north on course 180° , and the worst possible approach, which would give at least 75% greater casualties, from the northwest on course 120° .

A wind from 150° of 50 miles per hour was then assumed at 20,000 feet. This would result in a ground speed of 300 miles per hour on course 330° , and of 200 miles per hour on course 150° . This represents a decrease in effectiveness of roughly 16% on course 330° with the wind, or an increase in effectiveness of the batteries of roughly 25% on course 150° against the wind.

The polar flak clock for this "wind-from- 150° " condition is also shown in Figure 3, the priorities being the figures not underlined. It is seen that the No. 1 priority now shifts from the north on course 180° to the southeast on course 330° . The worst entrance, with a 20% increase in effectiveness of the guns, still remains in the northwest on course 120° .

The decrease in effectiveness in the southeast sector, and the increase of effectiveness of the defense in the northwest sector are shown by the cross-hatched areas.

EFFECT OF ADJACENT DEFENSES

Assuming adjacent AAA defenses in Baltimore, course 210 and Annapolis, course 240, the best enemy approach to Washington would be over the ocean with a rendezvous point off Cape May. His plan, under no-wind conditions, would then include an initial point north of Washington and an approach due South on course 180 degrees. In this approach he would avoid the defenses of Baltimore and Annapolis. With a prevailing wind from the southeast or southwest of over 50 miles per hour, his approach would be from the southern sector, courses 330 - 0 - 30 degrees. Further analysis of the defense would show his proper line of retirement, and the plan would include a turn of at least 45 degrees immediately after "Bombs Away."

Prior to the emplacement of guns, a careful analysis of the defense by the AAA commander would prevent such an unbalanced defense. Considering the defenses of Balti-

more and Annapolis, the weakest effectiveness should be on courses 210 and 240.

EFFECT OF WIND

This effect of the wind aloft on the effectiveness of an antiaircraft defense had been noted by the British flak officers attached to the American heavy bomber wings even before the advent of flak analysis. The first flak computers were merely gadgets for finding the vector sum of the airspeed and the wind aloft in order to find the ground speed. The greatest single factor, after the single shot probability, and the most troublesome one, was the wind at high altitudes. However the wind will remain constant for long periods at the high altitudes of the heavy bombers.

LESSONS FROM ANALYSIS

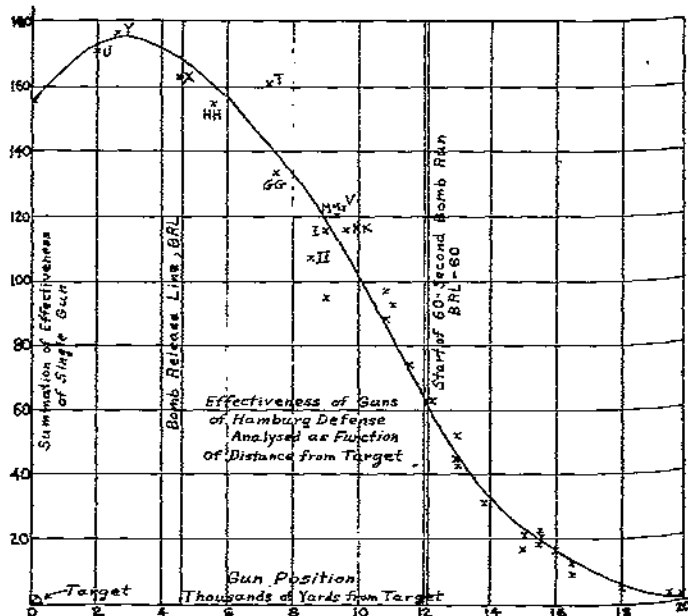
In analyzing the German plan of defense, certain factors are particularly noticeable:

(a) Batteries U, X, Y, and HH, sited within the defended zone, or near the specific target (the Pentagon building), are able to bear on the airplanes at all angles of approach. This is one of the tremendous benefits of a centripetal defense, one which has increasing strength inward rather than outward. The idea that depth in an antiaircraft defense should be extended outward is correct only when the deterrent effect of such batteries is considered more important than the destructive effect. In the no-wind defense, Battery Y is the most effective, with U in second place, X in third place, and T in fourth place.

(b) Batteries A, B, C, M, Q, CC, DD, RR, and SS of the exterior line of defense have little or no destructive effect if the planes take evasive action prior to and immediately after the bombing run. In fact Battery CC is so far out that it cannot bear on any one of the axes of attack. These batteries would be of use only in maintaining barrage fire along the twenty-six barrage lines.

(c) Certain batteries were sited to give their greatest effectiveness along definite angles of approach. Particular mention should be made of Battery F of 20 guns along

Figure 4—Effectiveness of Guns of Hamburg Defense Analyzed as Function of Distance from Target.



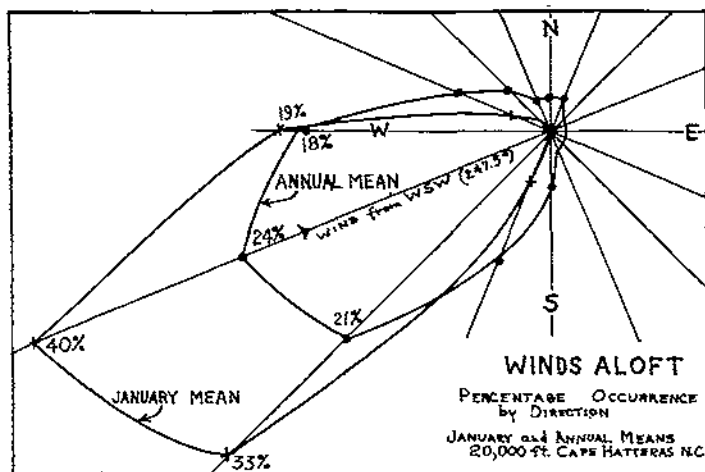


Figure 5—Winds Aloft Percentage Occurrence by Direction.

150° and 120°; Battery T, the flak tower, along 240° and 270°; Battery V of 12 guns along 120° and 90°; and Battery MM of 10 guns along 0° and 30°. One reason for the top priority of approach of course 180° is that only Battery I, and possibly D, produce a major effect along this course, although A, B, E, F, G, J, K, T, U, V, X, Y, and HH all bear along some part of the approach.

EFFECT OF GUN POSITION

All flak analysis computers show that there is a wide variation in the all-around effectiveness of a battery as a function of its position, or distance from the target being attacked. A study was made of position vs. effectiveness, the results being plotted in Figure 4. Batteries U, Y, X, HH, T and GG, that is, those closest to the target, have the greatest summation of effectiveness along the twelve cardinal courses. After the bomb release line is passed the effectiveness per gun drops off rapidly until at the start of the bombing run, BRL-60, the effectiveness has dropped to only one-third of its maximum value. This would indicate that the maximum number of guns should be placed about 3000 yards inside the bomb release line for each individual target. It is recognized that the Hamburg defense was constructed for an initial bomb release line of 6500 yards outside the defended zone. It is believed that a better BRL would have been a composite circle made up of the BRL's from the three top priority targets in the area. Certainly the defense should have been as centralized as possible with more batteries in or near the defended zone.* (See footnote p. 14.)

The above conclusion is somewhat at variance with American anti-aircraft tactical thinking. This thinking should be modernized by adopting the methods of flak analysis to the study of the effectiveness of a defense. Flak computers should be used to analyze our tactical thinking in order to increase the destructive fire of batteries.

In following the theory of mutually supporting distance we fall into the error of reducing our defenses as the target is approached. For example, assume that five batteries were placed on the BRL of radius 4500 yards, this giving a mutually supporting distance between batteries of 5280 yards. If then another ring of batteries were constructed at a radius of 9000 yards it would require 10.6 or 11 batteries in order to maintain the same mutually supporting distance. A much better solution, according to the results obtained from flak

analysis, would be to divide the defense, eight batteries in both the inner and the outer ring. If we must bow to the god of mutually-supporting-distance then the eight batteries of the outer ring could be pulled in until this condition is satisfied, and the inner ring pulled in accordingly.

German policy with regard to the defense of single small objectives required an absolute minimum of six batteries, with eight preferred. Our teaching has always emphasized the "too few,"—our shooting is not that much better than that of the Germans.

PREVAILING WINDS ALOFT

One of the arguments against including the effect of prevailing winds in the planning of the dispositions of guns in any defense has been that there is no persistency in the prevailing winds over our major cities. This is definitely a false assumption. Data has just been secured on the winds at 6000, 7000 and 8000 meters over Cape Hatteras, N. C. This shows that there is a seasonal variation in the winds aloft, but that particularly during the six months from November through April there is a definite persistency. The results for January 1946-47-48 are shown in Figure 5, indicating that 92% of the winds aloft are in the 45° sector from W-WSW-SW. During July and October this drops to 38%, but the annual mean for this sector is 63%. The mean speed for this period was 37 miles per hour with about 2% calms, and 1% winds over 100 miles per hour.

With such a persistency of wind over our east coast, all planning of anti-aircraft defenses should include the effect of winds aloft. This prevailing wind must be a consideration in tactical planning. Such a study could well be combined with one on the value of auxiliary positions. The commander of a defense could well have auxiliary positions prepared for various directions of the wind, and then order certain batteries into these auxiliary positions when the winds aloft warranted the shift. In the meantime these auxiliary positions should be maintained as dummy positions.

In the photo-interpretation of aerial photographs of Kyushu and Honshu the Japanese did such an excellent job of setting up dummy positions that it was difficult, if not impossible, to distinguish them from the real positions. Evaluation of the defenses therefore became inaccurate. Camouflage in many cases can be detected by good photo-interpreters by comparison methods, whereas dummy positions when properly constructed are difficult to detect.

LESSONS LEARNED FROM GERMAN DEFENSE

The following lessons appear to be self-evident from the above analysis of the Hamburg-Washington defense:

(a) If Hamburg was worth defending with 398 heavy guns and Berlin with 785 guns, our previously planned defenses of New York, Washington, Norfolk, Philadelphia, Boston, and Bridgeport—to mention only a few key cities on the east coast—were far from adequate. Certainly 300 guns in a centripetal defense of Washington would have been a minimum. This would have meant well over 1000 guns for the greater New York area.

(b) A centripetal defense with many guns close to the target and the bomb release line is far superior to one "in-depth-outward."

(c) Flak towers are unnecessary, provided open spaces similar to Hains Point, the Ellipse and other parks are available. The German towers were 140 feet high and 230 feet square at the top, and thus required much expenditure and effort in their construction. The Germans admitted that the chief value of the flak towers was that they served as bomb shelters for the civilian population, and hence were a morale factor.

(d) The heavier caliber guns should be placed in the inner line of defense. The German 128mm gun of the flak towers is comparable to our excellent 120mm gun. These proved quite effective in the German defenses.

(e) The effect of prevailing winds and adjacent defenses should be considered in planning an antiaircraft defense.

(f) The effectiveness of any defense is greatly increased by a lack of proper evasive action by the bombardment airplanes. Evasive action should definitely be taken immediately prior to the bombing run, and immediately after "Bombs Away." The policy of long bombing runs, supposedly for greater bombing accuracy, or of continuing the run over the target to secure strike photographs, must be discouraged if losses in bombers are to be held to a minimum.

(g) The balloon barrage was essentially a waste of personnel and matériel. This was of use only in restricted harbors for the protection of shipping, and frankly had little effect even in the defense of London, Berlin or Hamburg.

(h) The question of the value of smoke to the defense is a debatable one: whether the obscuring of the ground is of greater disadvantage to the airman than the obscuring of the air is to the trackers. However, it is felt that for heavy guns, in which the observation is by radar, there is a definite advantage to the defense in smoke. Many times the accuracy of Eighth Air Force bombing was greatly decreased because of the smoke screens over Bremen, Hamburg or Berlin. Target identification is difficult enough normally without having it complicated by smoke.

PROBLEMS REMAINING

Many problems still remain in the realm of flak analysis and the evaluation of an antiaircraft defense. The following are suggested for study, evaluation and solution:

(a) A study of Antiaircraft Artillery dispositions made as a result of known probabilities of destructive fire, as shown by flak computers and methods, rather than by the old methods of concentration of fire and mutually supporting distance.

(b) Inclusion of winds aloft and adjacent defenses as factors in these dispositions.

(c) A study of altitude of attack vs. effectiveness of antiaircraft fire. We used a rule-of-thumb that from 15,000

to 30,000 feet an increase of altitude of 5,000 feet reduced the effectiveness of the defense and the probable losses by 50%.

(d) A study of the effect of caliber of weapons, and a means of differentiating between calibers from aerial photographs. Our practice of calling all guns an average German gun was not sound, as in April 1945 40% of the German guns were high performance 88mm (Flak 41) guns. We had no alternative however.

(e) A study of light and medium flak (AA machine guns and automatic weapons) to include a proper method of flak analysis based upon probabilities, and proper tactics in a separate mission or in support of heavy guns.

(f) A study of gun performance against dive bombers or close-in airplanes. This would probably include some method of pre-cut or electronic fuses.

(g) A study of the necessity of Anti-Flak Tactics by our own Air Force so that key flak positions could be neutralized during the bombing run of the heavy bombers.

(h) A study of size of airplane formation as a function of probable flak damage. At the end of the war the Eighth Air Force was flying six- and nine-plane formations instead of the 22- to 18-plane formations of 1943 and 1944.

CONCLUSION

During World War II we taught certain policies with respect to the strength and dispositions of antiaircraft defenses. We were fortunate in not having to apply these to our own "precious jewels" of the east and west coasts, as it is now felt that our "strongest guards" were insufficient. Certainly in the light of German concentrations around major cities and important targets this is true.

Flak analysis was adopted during the war by our Air Force to analyze the enemy defenses and to find that axis of attack which promised the probability of minimum damage. The methods of flak analysis can also be used to guide our thinking as to the tactical dispositions of our own defenses.

We now know what should have been done in 1945. The first major change came with the adoption of the VT fuse. The next step came with guided missiles. Our Antiaircraft Artillery whipped the V-1 in front of London and Antwerp. We were helpless against the V-2 with its high altitude and high speed approach.

This is 1948. How should we further extend our plans to compete with guided missiles and atomic bombs? Certainly we should not retreat to our prewar thinking.

"Should we not be taught, e'en by the price that others set upon it?"

*The reader should refer to the short article on "Proposed Revision of Field Manual 4-104" on p. 39 of the May-June issue of the JOURNAL which indicated that thought is being given in certain quarters to the revision of our fundamental concepts of an adequate defense. E. W. T.



The Antiaircraft Guided Missile

By Lieutenant Colonel William L. Clay, Ord.

INTRODUCTION

During the last year, the attention of the reader of articles on guided missiles has been focused on the German V-1 and V-2 rockets which were conceived and employed offensively during World War II. Although these rocket-propelled devices, strictly speaking, were not guided missiles in the true sense of the word since no control was exercised after launching, they did represent the first step in this direction and were intended ultimately to be completely automatic in control. Particularly, in the case of the V-2, these articles have illustrated the complexity of engineering problems which are encountered in the development of weapons of this type. This complexity is also apparent from the fact that approximately ten years of German research and development work in the fields of propulsion, control, and aerodynamics were required before successful results were obtained. However, despite the great technical achievements that were attained, the resultant product was expensive in man-hours, inefficient in payload, and inaccurate in range.

Previous articles in the JOURNAL have emphasized the complex nature of the research program in the guided missile field, particularly with reference to the development of an antiaircraft guided missile which requires, for successful application, a completely automatic guidance system and extreme accuracy at relatively long range. Since this

weapon has been little publicized as yet because of security restrictions and since it is vitally important for defensive purposes, it is believed that a general description of such a system as presently visualized will better acquaint the layman with the various types of complicated engineering problems to be encountered in the research and development program.

But before discussing the components of this system, perhaps it would be of interest to comment briefly on the reasons that motivated German and American development in the missile field.

TREND IN DEVELOPMENT

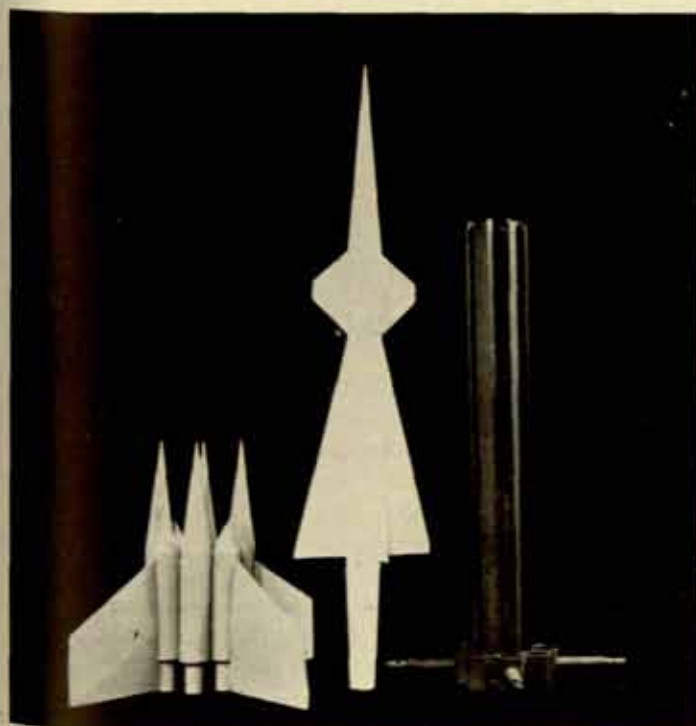
In the German program, emphasis on the development of specific types of missiles was influenced primarily by the progress of the war. Although fundamental research was initiated in the early 1930's, rocket-propelled missiles did not make their appearance until the middle of 1943. At that time, the Germans began employing radio-controlled bombs which were guided remotely by visual observation. These missiles were used offensively against Allied shipping since the control aircraft could remain out of range of antiaircraft fire from the ships. In this phase, the Germans definitely had the initiative and therefore development was concentrated on air-to-surface weapons.

As the war progressed, German air superiority decreased and finally they were unable to utilize their guided bombs effectively. In addition, the attempt to bomb England into submission also failed because of effective British air and ground defenses. As a result, German effort was directed toward the development of surface-to-surface weapons which would enable them to carry out long-range strategic bombing. This program resulted in the development of the V-1 and V-2 missiles which were employed tactically in the middle of 1944.

As the Allied bombing attacks continued to increase in frequency and effectiveness, the development of guided missiles for defense against bombers was finally given first priority. Although several of these missiles had reached their final tests and were in limited production, none were employed tactically. However, their immediate effectiveness probably would have been limited, since they were guided visually by remote radio control. The development of completely automatic control systems was suspended in 1945 because of the critical manpower shortage and scarcity of materials. Thus, it can be seen that the fortunes of war had a pronounced effect on the trend of German development.

Guided missile development in the United States during the war was undertaken by civilian universities, research laboratories, and industrial concerns in addition to that work

Figure 1—Booster, Missile and Launcher.



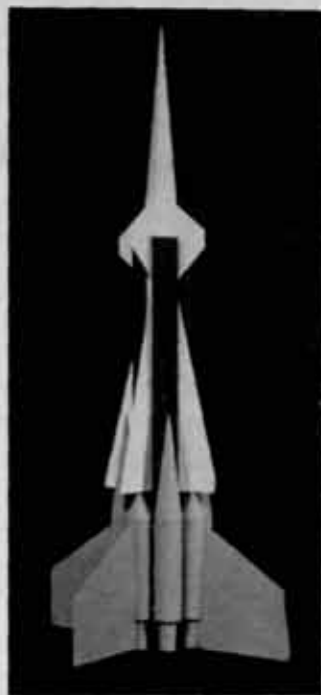


Figure 2—Assembled Components showing the booster, missile and launcher.

which was under the sponsorship of the Office of Scientific Research and Development and the National Defense Research Council. Since it was recognized that we were pioneering in a new field, fundamental research was initiated in 1944 in the fields of guidance, control, aerodynamics, propulsion, fuel and high-temperature materials. Development of specific types was limited primarily to air-to-surface missiles which were guided by remote radio control with the observer using either visual or television contact with the target.

However, it is essential now that considerable effort be devoted to the development of the other types of missiles in order that we may be adequately prepared to meet any future emergency. The remainder of the discussion will therefore be devoted to a general description of the essential components and limitations in development of one of these other types, namely, the anti-aircraft guided missile.

THE ANTI-AIRCRAFT GUIDED MISSILE SYSTEM

The ultimate objective of this development program is to produce a missile which can be controlled during flight with accuracy sufficient to insure a high probability of kill against high-speed, high-altitude bombers. Present defenses consist of large, mobile anti-aircraft guns which are limited in accuracy at long range because of the long times of flight of their projectiles. Time of flight can be reduced only by increasing muzzle velocity, but it is highly improbable that this factor can be increased sufficiently to be of any value considering the present art of gun design. Therefore, a weapon such as the guided missile is essential in order to provide coverage at ranges where standard anti-aircraft guns are at present ineffective.

Present design problems are concerned with defense against highly maneuverable bombers flying at altitudes between 20,000 and 60,000 feet and at speeds of 450 to 600 miles per hour. Although the upper limit of the above

figures may seem extremely high, it has recently been revealed that the Air Force has under test today heavy bombers, such as the Flying Wing, capable of speeds up to 400 miles per hour and operating altitudes up to 40,000 feet. Since the design of an effective anti-aircraft guided missile system will take several years at least to perfect, it must be assumed that aircraft performance will continue to progress and therefore these systems must be able to provide adequate defense against bombing aircraft which are probably being conceived today.

With these brief comments on the design objectives of the system as a background, the major components will be described briefly according to the following classifications:

- (1) Launcher
- (2) Booster
- (3) Missile
- (4) Ground Control Equipment

The first three of these components are illustrated by models of a proposed system which are shown in the photograph in Fig. 1. The fourth component is not shown but for clarity may be visualized as consisting of fire control radars and computers which are alike in physical appearance to similar items of equipment used for anti-aircraft batteries in World War II.

a. *Launcher.* The primary function of the launcher is to provide guidance initially during the acceleration period until such time as the missile-booster combination is stable in flight; thereafter control will be exercised by the particular guidance system selected. The particular type of launcher to be used must not only fulfill the above requirements but also must be limited in size and weight in order to satisfy the tactical considerations. The latter limitation immediately eliminates the use of inclined launching ramps or fixed vertical towers which have been illustrated in previous articles but for different applications. A proposed solution in this case consists of providing two or more vertical guide rails which accommodate the booster and missile and provide the control necessary during the initial part of the trajectory. The above-mentioned components assembled in the launcher are shown in Figure 2. Although no mobile launching devices have yet been produced, the problem of mounting these relatively lightweight guide rails on a mobile platform does not appear particularly difficult. Thus, as presently visualized, the launching device would consist of vertical guide channels mounted on a base capable of being transported, large enough to contain both the missile and booster, and of sufficient strength to direct the vehicle in its vertical ascent. Because the missile is controlled throughout its flight, it is not necessary to send it off in any given direction and therefore the launching mechanism may be simplified by dispatching the missile vertically.

b. *Booster.* The booster may be defined as a short duration supplementary jet power plant which provides the necessary impulse to accelerate the missile up to a desired speed. Since the booster becomes a dead load at the end of burning, it is essential that it be dropped from the missile after its impulse has been delivered. In application, the booster consists of one or more solid propellant rocket motors which are arranged so as to exert a thrust along the axis of the missile for a period of time varying from .5 to 5 sec.

onds and to drop away from the missile after the desired velocity has been attained. Experience has indicated that where a large thrust is required for a short time, the solid propellant rocket motor is simpler in design and operation and, more important, is lighter in weight than a liquid propellant motor of the same thrust.

The specific number of solid propellant rocket motors of a rated thrust which are required during the boosting period is dependent on the total impulse necessary to accomplish the design requirements of the missile. In order to calculate the total impulse required, definite values have to be selected as to: (1) Total mass (missile plus booster) which has to be accelerated, (2) Average velocity during the boost period, (3) Booster burning time. Since specific values of mass, velocity, and time will vary between different system designs, the requirement on total impulse for each application will cover rather broad limits. However, in all cases, a high initial acceleration is desired in order that a control by external fins may become effective; to reduce the time spent at subsonic speeds, for which drag is excessive; and to traverse the transonic zone where control by external fins is impossible.

The value of total impulse required in each case serves as a basis for the design of the solid propellant rocket motors for the booster. Up to the present time it has been rather difficult to fulfill the requirements of total impulse by using a booster which consists of a single unit rocket motor. However, future developments in this direction look promising. The principal disadvantage in using a single unit rocket motor is that the booster unit becomes relatively long, and when attached to the missile, the over-all length of the booster-missile combination may be undesirable from the tactical point of view. Although sufficient impulse can be obtained by using a combination of two or more rocket motors, the weight and complexity of the booster assembly increases considerably. In addition, multiple rocket boosters are inclined to have more dispersion because of the variation in thrust and burning time between the individual rocket units. Again, continued engineering experience in the solid propellant field will increase the uniformity in performance between individual motors.

However, because the time element is so critical in the successful application of the anti-aircraft guided missile, a booster performs several important functions. First, the booster provides a means of accelerating the missile up to its design speed in the minimum of time. This can be seen by the fact that the booster develops a thrust many times in excess of that developed by the missile power plant alone. In addition, the booster provides a means of reducing the missile weight by dropping off after imparting a high initial acceleration. It is essential that the missile weight be kept to a minimum so that high lateral acceleration can be obtained at extreme ranges by relatively small control forces.

c. *Missile.* The missile may be defined as a highly streamlined body which is aerodynamically stable both at subsonic and supersonic speeds and is capable of being controlled in such a manner as to intercept and destroy a high-speed aircraft target. The missile consists of three principal components: A jet or rocket power plant which is capable of propelling the missile at supersonic speed for

a sustained period of time; Internal control equipment which will cause the missile to execute command orders and to follow a specific course to the target; and third, A warhead which is sufficiently effective to cause a high kill probability.

In the present state of design, a missile weight of 1000 lbs. appears to be the minimum that can be met and still incorporate all the required components to provide maximum effectiveness. A brief description of the three major components will complete the picture of the missile itself.

(1) *Power Plant.* Because of the high operating speeds required for the successful application of the anti-aircraft guided missile, it is necessary that either a thermo jet or pure rocket motor be employed for propelling the vehicle at supersonic speed. Specifically, a high thrust lightweight unit capable of an operating speed in excess of 1500 miles per hour is essential.

In the field of thermo jet power plants, the ram jet appears to be the only type which will meet the above requirements. The ram jet is classified as a compressorless thermo jet since the high combustion pressure is achieved by means of a diffuser inside the unit rather than by a mechanical device. The kinetic energy of the high velocity air stream entering the nose of the ram jet is converted into pressure by means of a diffuser. Fuel is mixed with the air under high pressure in a combustion chamber and the resultant products of combustion are expanded through a nozzle in the rear of the unit. The ram jet is particularly suited for short duration operation at high speed. By obtaining oxygen from the atmosphere during flight to support the combustion process the over-all fuel consumption is considerably less than in the case of the rocket motor. The principal disadvantages of the ram jet engine are: (a) The dependence of the unit on atmospheric oxygen to support combustion limits the maximum operating altitude to approximately 60,000 feet, (b) Operation of the unit is dependent on a minimum forward velocity of approximately 350 miles per hour and therefore a ram jet propelled vehicle must be boosted by an auxiliary power plant (booster) up to the above speed before the ram jet will sustain combustion.

The second type of power plant presently being used for propelling missiles is the liquid fuel rocket motor. In contrast to the solid propellant motors used in the booster, liquid propellants are used for the missile motor because operating times in excess of thirty seconds are normally required. A gas pressure feed system is used to force one or more liquid propellants into a combustion chamber at a specified rate. Ignition is in some instances spontaneous but when necessary, an auxiliary ignition device is used. The products of combustion are then ejected as a high velocity gas stream through a nozzle in the rear of the unit. Although the specific fuel consumption of rocket motors is extremely high (approximately six times that of the ram jet) their over-all weight is still light enough to make them well suited for short duration applications. Also, the performance of the rocket motor is not affected by altitude since one of the propellants known as the oxidizer provides the oxygen to support combustion. For efficient operation, the flight velocity of the vehicle should be relatively high. In fact, maximum efficiency is attained when the flight velocity

is greater than the exhaust velocity of the motor. Since present motors have exhaust velocities above 5500 ft./second, maximum efficiency is approached when the flight velocity is in excess of 3700 miles per hour. The rocket motor is therefore given primary consideration for propelling missiles which require high operating speeds both within and outside the earth's atmosphere.

(2) *Warhead*. The design of warheads for antiaircraft missiles is still in the research stage and consequently a discussion of specific types is limited by security restrictions. However, a few general comments on this component will indicate the problems involved.

The first problem is concerned with the weight of warhead that can be carried. At present, the ratio of warhead weight to total missile weight is rather low. However, it should be realized that the immediate problem to be solved is the development of a missile than can be accurately guided and controlled with sufficient accuracy to intercept the target. When this has been accomplished, emphasis then can be placed on reducing the weight of the missile structure, control equipment, and other components so that a larger warhead can be carried. Considerable improvement has already been made over the V-2 in this respect since the warhead of the V-2 was approximately only 6½% of the total missile weight.

A second problem is determining the optimum time of burst. Since the warhead is limited in size and the target is small, it is essential that the warhead be exploded at such time as to give the maximum probability of kill. These factors dictate that the detonation of the warhead be determined automatically by some device either in the missile or in the ground control equipment.

Last of all, warhead design must keep pace with aircraft development, and warheads being designed today must estimate the vulnerability of aircraft which will be in existence in the future.

(3) *Internal Control Equipment*. The amount and complexity of the internal missile control equipment required are dependent primarily on the type of the ground guidance system employed. However, some components are ordinarily common to all types of missiles or controlled research test vehicles and these will be mentioned briefly. One component is a radio receiver which is necessary in order that the missile may intercept the control signals being transmitted from the ground. Connected to the radio receiver will be one or more amplifier networks for boosting the received signal up to the required strength. This amplified signal will then be used to operate a servo system which in turn will position the external control fins or surfaces. An internal power supply will also be necessary to operate the electrical equipment. In addition, some missiles will require a radio beacon to transmit signals back to the ground radar equipment in order that the missile can be picked up in space after launching and tracked accurately out to extreme range. These components must be carried aloft in the missile and therefore must be designed to operate

efficiently through wide variations in temperature and pressure and under high accelerations as the missile ascends into the upper atmosphere.

d. *Ground Control Equipment*. Two types of control systems could possibly be used for the antiaircraft application. One is designated the Beam Rider and incorporates the control components inside the missile so as to follow the beam of a target tracking radar. The other is known as the Command System and utilizes control equipment on the ground for directing the flight of the missile. A brief description of these systems will further illustrate their differences.

(1) *Beam Rider*. This system would employ a fire control radar to track the target and the missile would be launched vertically so as to intercept the radar beam. Control equipment would be included in the missile which by activating movable control surfaces would cause the missile to stay within the radar beam and to follow the beam as it tracked the target. In addition, a target seeking device would probably be included which could take over control near the end of the flight in order to insure destruction of the target. In this system the missile is required to fly a highly curved pursuit course and consequently a ram jet engine which is more economical on fuel is required.

(2) *Command System*. Two radars would be employed in this system—one tracking the target and one tracking the missile for its guidance and control. The present position data are fed into a computer which converts the data into control information for the missile. Again, the missile would be launched vertically into the upper atmosphere and then turned into the general direction of the target. By traveling through the less dense air, the missile would attain a longer range with the same given fuel consumption. It is seen that in this case the greater portion of the control equipment is located on the ground, thereby minimizing the additional equipment required in the missile which in turn allows more space for fuel or warhead.

Both of the above-described systems are rather complex and will no doubt present many difficult engineering problems before they are successfully developed. However, one of these types will probably have to be used in order to achieve the control accuracy necessary to insure destruction of the target.

CONCLUSION

It is believed that the above general description of the antiaircraft guided missile system will better acquaint the reader with the essential components of a weapon which will augment present antiaircraft defenses. However, it can readily be seen that there are numerous technical and complex engineering problems involved and much intensive effort will be necessary before the ultimate objective is achieved. But such a system will eventually be necessary for defense against high-speed bombers, jets and rockets which are probably being conceived on the drafting boards today.





Fort Bliss artillerymen are briefed by antiaircraft officers before a simulated ground attack on a fortified position as demonstrated for West Point Cadets on the Fort Bliss Range on 12 June. (U.S. Army Signal Corps Photograph)

FORT BLISS HOST TO USMA CADETS

Effectiveness of antiaircraft artillery in ground attack, as well as against aerial targets, was displayed in the series of demonstrations presented for Cadets of the West Point Class of 1949 during their visit to Fort Bliss, Texas, June 11-16.

Fort Bliss troops of the 59th Antiaircraft Artillery Automatic Weapons Battalion opened the demonstration series on Castner Range, June 12, with antiaircraftmen utilized both as infantrymen and artillerymen for the show. Antiaircraft weapons, fired at ranges of 800 and 1000 yards, were used in support of a ground attack against a fortified position. Among the antiaircraft and other weapons employed in the demonstration were: 40-millimeter antiaircraft artillery guns, the M-19 which is a full-track twin-40 antiaircraft weapon, the M-16 which consists of four .50-caliber machine guns on a mobile mount, 60-millimeter and 81-millimeter mortars, light and heavy machine guns, and 57-millimeter and 75-millimeter recoilless rifles.

Light antiaircraft problems and their solutions were illustrated in the second demonstration, held on Hueco Range No. 2 on June 14. Equipment in the light antiaircraft classification, both standard types and recent developments, was displayed for the visiting Cadets. Troops gave a demonstration of drill and firing at radio-controlled target planes and towed sleeve targets.

Heavy antiaircraft guns were demonstrated on the same day at Hueco Range No. 4 where standard heavy AAA equipment was on exhibit along with recent developments in this line. The heavy AA guns were fired at radio-

controlled target planes and towed sleeve targets during this demonstration.

Troops of the Antiaircraft and Guided Missiles Branch of The Artillery School assisted in the demonstrations.

Another high point in the instructional program prepared for the Cadets at the Antiaircraft Artillery and Guided Missile Center was a display of the latest developments in electronics and radar as applied to antiaircraft artillery and guided missiles. This was shown to the West Pointers in the course of a tour conducted by officers of the garrison.

One day of the Cadets' stay at Fort Bliss was devoted to a tour of White Sands Ordnance Proving Ground in New Mexico.

The 581 Cadets were accompanied to Fort Bliss by three officers: Lieutenant Colonel R. H. Tucker, Lieutenant Colonel G. T. Kimbrell, and Lieutenant Colonel D. V. Bennett.

Seven additional officers from the United States Military Academy arrived June 13 to join the West Pointers in witnessing demonstrations. They were: Lieutenant Colonel Harry E. Mikkelsen, Lieutenant Colonel Raymond M. Clock, Lieutenant Colonel H. K. Katz, Major Robert H. Edgar, Major Gregg L. McKee, Captain Daniel M. Kramer and Captain Earl L. Hehn.

The visitors departed June 16 for Fort Benning, Georgia, next stop on the annual summer tour of the First Class.

The Cadets were flown to Fort Bliss from Wright Field, Ohio, by the 313th Troop Carrier Group which is based at Bergstrom Air Force Base, Austin, Texas.

CIVIL DEFENSE*

By Leonard J. Grassman

When Secretary of the Air Force W. Stuart Symington revealed that all of Russia is within striking range of our B-29 bombers, by implication he revealed that all of the United States is within range of air attack by Russia. This revelation brought into the limelight a long-neglected component of our system of national defense—civil defense.

His revelation also added great emphasis to the assumptions of the so-called *Bull Report* on civil defense. These assumptions were that "there can be no guarantee of a specific warning against an attack, and that strategic areas in the United States and its possessions, territories, and trusteeship territories may be subjected to initial surprise attacks by air to cripple our industrial effort and destroy the will and ability of the people to resist."

The growing awareness that the United States is facing the same predicament which Great Britain faced in World War II, and that we are not prepared to cope with such a predicament, has spurred national defense planners to action. A big job has to be tackled, and, fortunately for our nation, a start has been made. Early in March, the Secretary of Defense announced the establishment of a unit of his office which would be devoted to civil defense planning. He also announced the appointment of Mr. Russell J. Hopley, President (on leave) of the Northwestern Bell Telephone Company, as director of the civil defense planning unit.

Mr. Hopley's task is no easy one, and presents some of the most complex planning problems imaginable. The objectives in civil defense planning are innumerable, and, consequently, the planning pattern must cross organizational barriers, entering the purview of other governmental agencies or authorities. This, of course, creates some problems in political science.

The political aspects of civil defense planning are extremely important, and cannot for an instant be overlooked.

Controversy over authority and responsibility was one of the great weakening elements of the civil defense systems of all the nations in World War II, and it is mandatory that areas of responsibility be defined completely in our peacetime civil defense planning and organization against future emergency.

Similarly, our lack of successful experience in this field further complicates the task. True, we had a civil defense program in World War II, but it was untested, and, according to experienced observers and students of civil defense, totally inadequate. An analysis of the British and

German systems indicates some admirable elements, which could be adopted by this country. It might even prove wise to acquire the services of some of the individuals experienced in, or responsible for, the most successful elements of the foreign systems. The experience of those individuals who developed a system of civil defense in World War II superior to our own, and who had their theories proven or disproven through actual test by fire, could be a valuable asset.

One of the basic weaknesses in our own civil defense system in World War II was the fact that it became the dumping ground for a great number of components of the war effort not truly pertaining to civil defense. Activities such as victory gardens, consumer interest, salvage, war-bond drives, etc., were included under civil defense, and the major part of the civil defense effort was diverted to assure their success. In future civil defense effort these activities, though valuable and necessary to our war effort, should be separate from civil defense. This distinction should be made irrevocable through legislation. A separate agency heading up activities of this nature—known as "Civil Support" or something similar—should be instituted, to leave the civil defense effort free to perform its intended function; i.e., to minimize the effects of enemy action on the home front.

The *Bull Report* did a good job in defining the task of civil defense as the mobilization, organization, and direction of the civil populace and necessary supporting agencies to minimize the effects of enemy action directed against communities, including industrial plants, facilities, and other installations, and to maintain or restore those facilities essential to civil life, and to preserve the maximum civilian support of the war effort. It indicated that active defense measures, such as aircraft warning systems and static anti-aircraft participation which may utilize civilian volunteers, are the responsibility of the Armed Forces.

The report eliminated internal security as an integral part of civil defense, although granting that it was related to such defense. It recommended that if the agency or agencies responsible for internal security should determine that certain assistance can be given by the civil defense organizations, specific assignments can then be made.

In his first press conference, Mr. Hopley indicated that the *Bull Report* "will be a very definite part of the foundation of our work in carrying on with the development of these civil defense plans." The *Bull Report* outlined the planning as follows:

Civil defense planning will embrace many fields: Gov-

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ernment (Federal, State, and municipal), Industry, and the people themselves. Some of the more important problems requiring consideration are:

a. Government

1. Civil defense organization—from the national level down to and including the municipal level.
2. The degree of uniformity required within the State and municipal organizations.
3. The degree to which Federal, State, and municipal organizations are to be completed during peacetime.
4. The number and types of fire, police, rescue, medical, and other emergency units.
5. Standardization of equipment for fire-fighting and other protective services.
6. Mobile reserve requirements and movement plans.
7. Establishment of reserve supplies for critical areas.
8. Repair and restoration of essential community services.
9. Relief and rehabilitation of persons.
10. Plans for the emergency evacuation of large numbers of civilians.
11. Adequate civil defense warning system.
12. Passive defense measures against existing and new weapons.
13. Plans for inter- and intra-state mutual aid and Federal assistance to States.
14. Manpower requirements for civil defense.
15. Integration of civil defense plans with other national security plans, including internal security.
16. Preparation of necessary legislation to provide for various civil defense measures.

b. Industry

1. Dispersion.
2. Use of underground sites.
3. Protective construction.
4. Internal and external plant protection.
5. Protection of essential communications and transportation facilities.

c. The People

1. Information to be provided to the public regarding the nature of future warfare and its possible effects on civilian communities.
2. Education of the public regarding the necessity for establishing a civil defense organization, the tasks to be accomplished in order to determine priority, and the responsibility therefor.
3. Mobilization and training.

This pattern provides an adequate starting point for tackling the general problem of civil defense. Each item, as it is studied, will present thousands of problems, each of which will demand sensible solution before we have a system of civil defense to carry our nation through a war in the future—a war which by its anticipated nature, demands the total effort of every individual; a war which is going to be strictly a personal affair.

Following this pattern by item, the civil defense organiza-

tion must include everything from the Federal Government level down to the individual in the municipality, with coordination at one end (Government) and cooperation at the other, and with efficient communication going both ways. It is also mandatory, if we are to preserve our democratic way of life during the debacle of another war, that voluntary cooperation on the part of the individual be absolute. The only alternative is submission to regimentation under totalitarian law.

Federal, State, and municipal civil defense planning and organization should be completed during peacetime, and periodic activation practice is necessary, too, if civil defense is to be effective.

The number and types of fire, police, rescue, medical and other emergency units, naturally, must be contingent on the locality concerned, since population will govern the extent of need for such civil defense elements.

One of the biggest headaches which will present itself in civil defense planning is the standardization of equipment for fire-fighting and other protective services. First of all, much of the equipment in the United States for fire-fighting, damage-control, and emergency is old, tired, and, in many cases, obsolete. It should be brought up to date, and kept that way. In addition, there is little possibility of interchangeability between municipalities and between states, and to make such interchangeability possible through standardization would mean an obstacle in progress for those companies which develop and perfect such equipment in order to compete successfully in business. Cooperation between themselves, if they should desire to make their equipment universally standardized, would assume the aspects of anti-trust violation. Offhand, it would seem that standardization and interchangeability must be a matter of cooperation between communities using like equipment, with a peacetime plan for building and maintaining a healthy, if costly, reserve of replacements and spare parts for their apparatus.

In the field of mobile reserve, the Armed Forces would be required to participate, although it is most desirable to leave such forces free for active measures, offensive and defensive.

In time of war the Armed Services have hundreds of thousands of men in training or awaiting transport. Their military training provides an excellent basis for their effective utilization in the restoration of an area after attack. Little additional training would be requisite, though such training would be desirable. Then, should an attack occur in an area near a military installation, available personnel could be routed into the attacked area to assist in the restoration of order.

The Germans used this idea on a more formal basis by maintaining troops organized and trained for the purpose of civil defense. These mobile reserves were equipped with the best available fire-fighting, demolition, and heavy rescue equipment. They were manned with able-bodied men of combat standard. Fifty-three of these battalions were organized and used, employing almost 27,000 men. In addition, thousands of Wehrmacht troops were employed in debris clearance to open the way for protective services, in augmenting emergency feeding, etc.

In the field of supplies for critical areas, our inadequacy in peacetime gives unhappy indication of what our plight

would be in time of wartime attack. Vivid illustrations may be found in such instances as the Texas City disaster, when medical supplies had to be drawn from military storage, where, fortunately, they happened to be; or in the outbreak of smallpox in New York City last year, when it was discovered that the total supply of vaccine on hand half filled a quart bottle. New York's big snow this year, insignificant in its crippling effect as compared with saturation bombing, paralyzed that metropolis, threatening it with disaster through shortages in food and fuel. Such situations as this give adequate evidence of the necessity of developing a system, in peacetime, of reserve supply for critical areas.

In considering this particular problem it is apparent that, in order to maintain an adequate reserve supply for critical areas, outlandish projects would have to be instituted, highly impracticable and prohibitive in cost. However, certain practical steps can be taken. Food surpluses, such as last year's potatoes, could be processed and preserved and held in stockpile in strategic locations for distribution to attacked areas, or for early emergency distribution. Similarly, medical supplies could be produced and preserved and distributed strategically. In addition, fuel stocks can be purchased by communities and stored adjacent to the community—underground, if necessary.

Repair and restoration of essential community services must necessarily be the result of careful planning and practice, all of which should be done as soon as possible. Planning and organization for the relief and rehabilitation of persons and for emergency evacuation should likewise be accomplished in peacetime.

In time of attack, our national system of communication—wireless, telephone, radio, teletype, etc.—will be the nerve system of our military forces, and it is logical that the civil defense warning system should be provided by our Armed Forces.

Planning for inter- and intra-state mutual aid and Federal assistance to States; establishment of manpower requirements for civil defense; integration of civil defense plans with our national security; and preparation of necessary legislation for civil defense, are steps which can and must be taken through peacetime planning and action.

In the industrial field, the recommendations offered for

study are more open to debate than the general pattern for civil defense planning. Dispersion of industry, which has much merit as a method of protecting our industrial facilities, is occurring now through economic trend, with expanded or new industrial facilities being built away from the old industrial strongholds. The Southwest, West, and Northwest offer profitable locale for industry, but the mistake of centralization must not again be made in the new areas. And, although economic dispersion is happening, it is not happening at a pace which offers great protection in an emergency. Further steps to facilitate dispersion may have to be taken.

The use of underground sites, when considering cost and a great number of other factors, seems less promising than it did several years ago when it first came under consideration. However, despite the great drawbacks, there still remain a good number of possibilities for the utilization of the underground, if only for storage purposes.

Internal and external plant protection is a problem to which the individual company may well devote its time now, on its own, for the job will probably have to be done ultimately by the plant, cooperating with Government and in accordance with whatever legislation and directives are passed or provided.

As for protection of essential communications and transportation facilities, reports on our own strategic bombing of Germany give an idea of what might well prove to be the situation with us in the event of attack. Those reports show that there was little protection for such facilities against strategic air attack, and that the problem boiled down to rapid restoration rather than protection. Here again the planning of a system, training of individuals, and practice, are musts. Key rail systems and communication facilities must be replaced quickly after attack, and such restoration cannot be accomplished without experience.

All told, the burden of the job falls on the people—on you, me, and the fellow reading over your shoulder—for should we be so unhappy as to have another war in our day, it is going to mean full employment and not on an eight-hour-day basis. Every one of us is going to be in the service of his nation—whether 4-F or four-star—so we might just as well get started now instead of tomorrow.



AAA And FA To Be Separated In ROTC

The Department of the Army has issued the necessary instructions for reestablishing separate antiaircraft artillery and field artillery units at Senior ROTC schools where the two had been merged.

In the fall of 1947 both artilleries were incorporated into one course of instruction and ROTC students were simply enrolled in the Artillery rather than Antiaircraft, Field or Seacoast Artillery.

Now after a year's trial, separate instruction will be resumed this fall since it has been ascertained that time pre-

cludes educating the ROTC student in all types of artillery and necessitates that he specialize in one type.

In addition to the AAA units hitherto allocated to the various colleges and universities, the Seacoast Artillery units at Fordham University, New York, and the University of Washington, Seattle, have been redesignated as AAA, and new AAA units have been established at the College of Mines and Metallurgy, El Paso, and at the Florida A&M College for Negroes, Tallahassee, University of Puerto Rico, Rio Piedras.

HOW NOT TO DO IT

By Major Benjamin A. Spiller, C.A.C.

I rode along the beach at Dulag watching the LSTs pull into their slots, the trucks zigzag down the beach looking for the proper place to dump their loads, and the general confusion which accompanies the outloading of any operation. I was looking for the beachmaster to see if he might have some idea as to where I could put my 124 tons of 90mm battery.

As we rounded a bend in the beach there appeared a pyramidal tent with several figures standing in front talking and gesticulating to a disheveled, frustrated looking individual with railroad tracks on one side of his collar and rifles on the other. As we neared the scene the crowd dispersed either to give the disheveled one peace or because they were getting nowhere.

We stopped and as I opened my mouth to speak, the Captain made a dive for his tent.

"Wait a minute!" I shouted. "Aren't you the beach—?"

"Don't say it," wailed the Captain, cautiously poking out his head. "Just don't say it."

I looked startled. "But you are the beachmaster?"

"Yes, I guess I am, but don't ask me anything, please, because I don't know. I don't know where your LST is, or when it will land or how many voyage rations you need, or the clearance of the tank deck, or the Skipper's name or anything. This is the most snafu affair I've ever been on, and I'm the most confused man on the Island of Leyte." He sobbed a final plea. "Just give me five minutes without any questions."

Joe, my jeep driver, nudged me. "C'mon, Captain, this guy's got sunstroke." Still a little puzzled, I climbed in the jeep and we started back down the beach. It shouldn't be hard, I thought. The Old Man had said that a company of Engineers and a battery of 90's went on each LST. All you do is contact the beachmaster and he'll tell you which one to hop on. Sure, that's all. The beachmaster had been contacted so many times, he'd lost contact. In another couple of days he'd have a plan. You know about that—a plan to win the war. They all seem to have one just before they blow. Our S-2 wanted to fly piggyback on a B-25 to General MacArthur to deliver his. He got no farther than the Station Hospital. Well, better do something. Let's see, a battery of 90's and a company of Engineers. That's it, find the company of engineers. Then all you have to do is find an LST to fit. This is a cinch.

We had now reached a point on the beach which seemed impassable because of the large amounts of heavy equipment scattered here and there. I spotted scrapers, carryalls, D-7's and 8's. Hot dog! Engineers! At the same moment that I discovered the Engineers, a Major with Castles discovered me.

"You Ack Ack Cap'n?" he said.

"Yes indeed, Major," I smiled happily. "Here I am."

"That's fine, pull your jeep over here and your driver can help Supalski start loading these maps in the back. Okay, Supalski."

"Maps? What maps?"

"Here they are, maps for the Ack Ack. See, they're marked."

"Well, I . . . uh, that is, . . . Say, wait a minute. These are marked for the Group Commander. These are the maps for all the Antiaircraft units on the operation!"

"You're Ack Ack, aren't you?"

"Yes, but . . ."

"Well, these are Ack Ack maps."

"I know, but I'm just a battery commander. These are for a full Colonel and a lot of units. They're way up . . . or over . . . They're somewhere anyway."

"Captain, you are Ack Ack and the maps are Ack Ack maps, so I have now disposed of them. What you do from here on is your problem. See ya again." He gave me a Dagwood grin.

"Huh? But, I, . . . Yes, sir."

Things weren't exactly looking up. Now in addition to not getting anywhere with my own battery's loading, I was the sole possessor of all the maps for the AAA. Great! I could see me on the carpet a long time from now with the Colonel screaming at me asking what the hell I thought I was doing giving him those maps after the operation was over and how would I like it being battery mess officer again after he got through with reclassification procedures. Oh me. Well, I'm sorry Colonel, but to hell with it for now. My first duty is to my command, small as it is. Your maps will have to wait.

Things did begin to look up in a minute. A lean and dirty, but sharp looking Lieutenant of Engineers accosted me. "You C Btry, Capt?"

"Yeah! Are you A Company?"

"Yes, sir. Boy, I've been looking high and low for you. There's our tub. Your outfit ready to load?"

"Well, they're about a mile up the road. I can have the head of the column here in fifteen or twenty minutes."

"Okay, bring 'em on."

"Right, see ya later."

Joe, grinning and looking as relieved as I, wheeled the jeep and gave her the gun. With the eager anticipation of kids starting on a fishing or hunting trip we covered the distance back to the old gravel pit, where I had left the battery, in less time than we probably should have.

From the looks of the kitchen area and the few stragglers in the mess kit line, chow was just about over. The place didn't look too bad, just typical of G.I.'s when they are waiting. One man was using the QM box on top of empty oil drums which we always carried; two or three were asleep under the shadows of gun covers; the inevitable quartet

had a blanket spread out and were trying to make money off one another; a three-way game of catch with a softball was going on at the far end of the area; the rest were involved in bull sessions and miscellaneous activities known only to the G.I.

"Let's let 'em have it, Joe," I said. Joe was the only enlisted man I ever called by his first name. His last name was beyond pronunciation as far as I was concerned and his first name actually was Joe, so that made it good.

"Okay, Cap'n."

We cupped our hands over our mouths and together shouted, "March Order!"

Thank God for training and discipline. Six months ago in the States there might have been some hesitation or question as to what was up or why. But now, as one man, they began to move. Whether a gunner or a cook, everybody had something to do and did it.

The Exec came running up. "Find the ship, Capt?"

"Yeah, finally. Get the kitchen down, the latrine covered, the area policed and the column lined up and I'll tell you about it."

Twelve to fifteen minutes later we had started beachward in good shape—machine guns, 90's, kitchen truck, range section, radar, more machine guns, and finally the trail vehicle with radio.

The beach activities had settled down a little when we got there with things proceeding in at least more orderly confusion. The Engineer Lieutenant I had met earlier took the battery into tow and began maneuvering the vehicles and equipment into the order he wanted them for loading. As this was his sixth operation and our first, we watched. His loading crews meanwhile were functioning smoothly under noncom supervision, putting on oil drums, voyage rations, and ammo. Jim Svenson, my big Range Officer, suddenly nudged me as a truck loaded with triangular-shaped containers of ammunition pulled up beside the ship.

"Say, isn't that 75 ammunition in that truck?"

"Oh, no," I groaned, "it can't be. I knew things were going too well. Better go have a look."

While Jim was investigating the new development, I studied the activity around the ship. Here were men I realized who knew their business. There were lots of things to think about when loading a ship. Don't put the gasoline and ammunition together; distribute the loads, not too heavy a load to port or starboard, fore or aft. What is maximum tonnage allowable? What will we leave off if we can't load it all? Don't forget to load in inverse order so that the things we want first go in last. What's the priority for loading the tank deck and the main deck? Remember that when we land the main deck can't be unloaded until the tank deck is half unloaded. Are the voyage rations where we can get at them? We've got to keep revising our loading diagrams and plans because the best laid plans . . .

At this point in my reverie Jim got back. "You guessed it—75mm."

"Well, this is enough fiddlin' around," I said, beginning to get mad. "Some of the things that have happened to date have been funny but this is starting to get serious. The fun's over—75mm ammunition for 90 millimeter guns. Where's that loading officer?"

"Right over there, sir," responded Jim quickly. The "sir"

being because he knew I was starting to boil. I walked over to a bulldozer which seemed to be stalled right in front of the bow doors. The loading officer was bending over talking to a T/4 mechanic.

"Lieutenant, can I see you a minute?" I said using all the self-control I could muster.

"Yeah, sure." His head bobbed up from the engine.

"Listen, I've got a bunch of 90mm guns here and all I can see is 75 ammunition being loaded. See what your manifest says, will you?"

"Okay, wait a minute." He took his clip board and started thumbing through the various loading instructions. Finally he looked up.

"Yeah, that's right, Cap'n. It doesn't say a thing about 90 ammo."

"Well, listen, you look like a sensible guy. I know you've got your loading orders, but if I don't get my own caliber ammunition aboard, you might as well start unloading my guns. I can't throw rocks at the Jap airplanes. My arm's not that good."

He thought for a few seconds. "Okay, Cap'n. Hey. Sergeant Jaconski! Hold up that ammunition! No more 75 ammo goes on."

"Thanks, boy. They need a few more people like you on this rat-race."

He grinned. "Aw, hell, I'm too low-rankin' for it to make any difference anyway."

I knew what he meant.

It was then 1700. By 2100 our last box of 90 was going aboard. In that time Svenson had rounded up a detail with trucks, chased down the Battalion Supply officer along with B Battery C. O. who had discovered the ammo situation on their LST about the same time we had, made several 5-mile trips to and from the dump over mud- and bomb-rutted roads, and loaded a unit and a half of fire. Not a bad job. We felt pretty good. Ten per cent of our ammunition was fuzed with the new VT fuze which we had heard described but which we had never fired.

And so to bed. Things were looking up. I still had all the maps for the AAA but our ship was just about loaded; maybe we were going to get in the war after all. It looked like it, but wait'll I tell you.

Next morning dawned bright and blue and clear. It was one of those gorgeous tropical days that people write about who have nothing to do but write about tropical islands and don't have to live there unless they want to. We did! I wondered how the weather was about 10,000 miles away this fine January morning. A surge of activity overcame my wave of nostalgia as the final bit of loading started up.

By 0900 the last jeep had been backed in facing outward ready to hit any beach we might land on. By 0940 the bow doors were closed, and we were standing right over them on the main deck feeling the exhilaration which comes with accomplishment and also the thrill of anticipation of what our next move would be.

"Look at that, Captain," said my Exec pointing at the other ships lining the beach. "We're the first ones loaded: old C Battery first again." I saw some of my men who had heard the remark grinning. We thought we were pretty good and they were glad to be part of an outfit which was first more than its share of the time. We were glad that

we happened to be part of a good team of Engineers and Navy who had managed to be the first LST on the beach completely loaded with bow doors closed. Childish maybe, but we didn't think so. What else was there?

Five minutes later I felt even better. The Group S-4 and his Sergeant rode by in a jeep and I managed to make them stop long enough to take a line from our bow and untangle the maps which remained after I had helped myself. My mind was now free and I thought we were about ready to go to war.

I strolled over to the port side where the C.O. of the Engineer Company, a First Lieutenant, was standing looking down at the beach.

"Pretty smooth loading, wasn't it?" I said. "We ought to be pulling out pretty soon, huh?"

"I don't know," he said. "We're pretty far up."

"What do you mean?" I countered, taken aback.

"Well, to tell you the truth, every officer on the ship tells me we don't have a chance of pulling off the beach. It seems that the beachmaster ordered the ship brought in at standard speed with no ballast. The Skipper has taken the attitude that the Army got him up on the sand and they can get him off."

I looked over the side. I hadn't noticed it before but we certainly were sitting farther up than any of the other ships. As I moved around the ship that morning I confirmed the opinion of the Engineer Lieutenant. Everyone was in agreement that we weren't going to get off. Another thing all hands seemed to agree upon was the Skipper. I couldn't find a favorable expression of opinion about him.

About noon the engines began to turn over and the screw began to churn up water and sand. But as for movement, there wasn't any. We didn't even sway at the stern. We just sat and churned. We continued this hopeless process intermittently throughout the afternoon, giving one final mad churn and quitting just about chow time in the evening. It was then that I caught my first and last glimpse of the Skipper. He was strolling up and down the poop deck, alternately stroking a ridiculous little goatee and twirling a waxed mustache. If looks meant anything, I was forced to agree with all hands.

During that night and the following morning we continued our helpless and hopeless churning. About noon my roommate, a Lieutenant jg and ship's radio officer, breezed in, smiling.

"Good news for you, fella, I just got a radio saying that a tug is coming to our rescue."

"Do you think it'll do any good?" I asked conservatively. My bubble of youthful enthusiasm had burst the day before.

"It might," he came back. "Or we might need two."

We did, and more. One tug pulled on us all afternoon while our engines gave with everything they had. The next day it was joined by a second one and the two pulled while we groaned and sweated it out with them. But to no avail. We swung a little but didn't move one inch seaward.

Next afternoon about 1300 (this was the fourth day we had been loaded) the ship's First Lieutenant delivered the *coup d'état*. I was shooting the bull with the Engineer officers near the rail when he walked up. "Okay, boys, the

Skipper says we'll unload the main deck." That was all.

For a second the pins were knocked from under me. I hadn't been looking for this. Then I began to get mad. But before I could open my mouth to blow off, the Engineers had started to move. Apparently anticipating such a situation they were ready with the proper orders to start the movement.

They started it and we all finished it—pooped, bedraggled and wet, some seventeen hours later. As we came on board the First Lieutenant met us, stretching, yawning, and blinking in the early morning sunlight.

"All finished, lads?" was his cheery quip. No one even glanced up. There had no doubt been many times in their past voyages when the Navy crew had been irked at the Army on board. This morning we didn't care for the Navy.

Between the Lieutenant's two remarks, the first at 1300 the day before, the second at 0600, quite a few changes had been made. As we became aware soon after the first order, unloading the tank deck wasn't going to be enough. At 1700 practically without orders we had begun unloading everything on board that could roll. In good order we moved it all onto the beach where it had been some five days before. The two tugs then working on an almost empty ship began to pull while the ship's screw kicked like mad. Suddenly like a wild bronc released from its pen the LST bucked seaward and left us standing on the beach feeling anticlimactically neutral to the event we had been anticipating so long. The tugs having performed their function lumbered off to sea while our Skipper proceeded to take on 700 tons of water in his ballast tanks.

Needless to say he was overcautious when he brought her back in, with the result that she ended up parked about thirty feet out in the ocean. When he opened the bow doors the ocean began to seep gently into the tank deck. All this cost the Skipper was a little salt water, while the cost to me was half the sandbags I was saving to build machine-gun emplacements when and if we should happen to land in enemy territory. The way I lost them was by trying to beat the tide and get the ship loaded before the tank deck again swamped.

The Engineers had seen what had to be done as soon as the ship stopped its forward motion. The D7's and 8's dropped their blades and began pushing sand to build a ramp strong enough to take the heavy items. We needed something to keep the sides of the ramp from being washed away, and my sandbags filled the bill. A continual process of pushing sand up on the sides by the Engineers and keeping it there by my men filling sandbags was carried on during the evening and on through the long night while the waves splashed and banged away relentlessly trying to beat down our improvised causeway. Time squeezed us in a death grip while the tide tried to deliver the final blow. Only a three-quarter moon was on our side keeping us company and saving us from breaking blackout orders. Just as dawn broke and the last carryall rolled on, the sea was victorious and what remained of our hard-fought-for causeway slipped quietly into the water. The jeeps went on by their own sheer courage and waterproofing, and we strolled blithely through waist-deep water oblivious of everything except a desire to hit a bunk and stay there for a long time. It was then that we had met the ship's First

Lieutenant and had been subjected to his cheery "Good morning." I heard as if from a great distance something about the convoy's forming and taking off at 1800 the previous day but the full meaning of it didn't register on my numbed brain.

I fell asleep seeing a bulldozer with a radar riding on its engine and a 90mm gun dipping its muzzle in and out of the sand, over and over again filling sandbags while I tried to pick them up and pile them against a wall of churning, splashing water as fast as they were filled. My arms ached and my legs wobbled and would hardly hold me. I picked up a huge bag and as it started to slip through my fingers, I summoned all my energy to try to hold it—but it was no use. Down went the bag, my knees hit the dirt, and as I slid into prone position my head plopped onto the sandbag as if it were a pillow made to order. One last feeble effort to struggle up was of no avail.

The heat of the noonday sun was too much even for the fan in my room and I woke in a mild sweat, but feeling deliciously at ease and rested. That is until my mind got awake and began refiling the various unpleasant thoughts in their proper places. I couldn't remember where I had heard that we had missed the convoy, but somehow I knew that we had. I also felt that we were moving though I

didn't know how long we had been at it. A glance out of the porthole confirmed this, and a look at my officers' faces when ten minutes later, bathed and shaved, I encountered them at the rail, confirmed the former.

"Where are we heading?" I asked.

"Well, we're not going north," replied my Exec. "The convoy's going that way. I understand we're trying to rendezvous with the rear echelon." He paused and gazed thoughtfully out over the sunlit expanse of endless blue. "You know, Captain, I wonder what all this was supposed to prove. . . . I mean the last five days of rat-racing. Who was wrong, the Army, the Navy, or a little of both? I don't know. Maybe Fate planned the thing so that each side could better appreciate the other's problems and work toward mutual cooperation in the future."

"I don't know either," I came back. "One thing is certain though. If I ever have to give this one a name, there's only one that will fit—'How Not To Do It.'"

EDITOR'S NOTE: *As an interesting sequel to this experience, the battery, although landed four days late, was thrown into the center of the Division artillery twenty miles ahead of the rest of the battalion and fired ground missions with its nineties.*



"For Better or For Worse"

By Mrs. Charles E. Shepherd

In November Nineteen twenty-eight I became an Army wife
For Better or for worse I swore to share my shavetail's life
We've had many different stations and have covered many miles
Have had eighteen sets of quarters—a variety of styles
We've travelled on Army transports—some were terrible old tubs
Went in for post dramatics and played in post bridge clubs
We'd watch parades, we'd cheer post teams, on their way to victory
We made staunch friends and proudly sang of the Coast Artillery
In short, a peacetime Army life which really was great fun
Then abruptly this was ended in nineteen forty-one.
The war and much confusion, troops moving with the dawn
Air-raid shelters, special passes, all that's tranquil—gone
Separations, broken homes, darkness and emotion
Secret orders, embarkation, fighting—quick promotion
Activating regiments, the bazooka and the jeep
Long hours at the Pentagon—interrupted sleep
Heroes, medals, bravery, many casualties
Tales of horror on the earth, in air, on seven seas
Roosevelt, Stalin, Churchill, secret meetings—strategy
Factories humming, fearful people, V-for Victory
Japs, Die Fuhrer, Buy a War Bond—help to get this over
Wishful thinking, voices singing, "There'll be bluebirds over—"
Prayers of millions—hope that soon hostilities would cease
And then—Thank God—in forty-five came word that there was peace
Orders cancelled, new assignments—I'll not forget the day
My Colonel left for Russia as Assistant Attaché
After eight months separation I heard that it was certain
We'd soon be reunited behind the "Iron Curtain"
At once there was so much to do—preparations for the trip
Orders, packing, endless "shots"—reservations on a ship
Visas, passports, shopping—then finally came the day
On August twenty-fourth I left the good old U.S.A.
Then a period of traveling—bothersome suitcases
Languages I didn't know—new and different places

Sweden, Stockholm, Finland covered in short order
Then on September seventeenth I crossed the Russian border
Moscow—destination reached—I embarked upon a life
Completely unfamiliar to a U. S. Army wife
The drab, the sad, the glamorous, the good, the bad—all muddled
Friendliness, antagonism, thinking most befuddled
Diplomatic functions, pomp, formality
Picnics, swimming, baseball, feeling clean and free
Going out to shop a bit or merely take a walk
Know you're being followed—seeing people "gawk"
Playing games and laughing—enjoy a little joke
People bowing, smirking, scraping, wishing you would choke
Time it seems is always filled by doing things you must
A whispered word, a knowing glance, a feeling of distrust
The ballets—sheer perfection—music soft and sweet
Big strong men are standing by as women clean the street
You can't get this, you can't do that, you aren't free at all
It matters not which way you turn you run into a wall
Tovarich this and Stalin that—nauseous propaganda
Exaggerations, misquotations, false and vicious slander
Dances, fun and gaiety—a host of charming friends
Folks from every land on earth, each charm and color lends
But Russians are conspicuous because they're never there
To associate with foreigners they simply wouldn't dare
I've been living in a country that from ours is miles apart
I'll leave it with an understanding heavy in my heart
The time's gone by—our tour complete—it's April Forty-eight
I'm anxious to get going but for orders we must wait
What does the future hold for me? What's ahead of us in life?
Quiet, peaceful, happy days—bloodshed, tears and strife?
Exactly where the answers lie is difficult to say
However it behooves us to say prayer each day
May the dark clouds hovering over us very soon disperse
As for me, I'll stay an Army wife for better or for worse.

The National Guard—Our Modern Minutemen^{*}

By Major General Kenneth F. Cramer

Famous battle flags have been broken out and are flying from every armory the length and breadth of the nation. The National Guard is back on its traditional job—securing America's defenses in time of peace by preparing America's men for a possible future emergency. Never since frontier days when quick, stealthy, murderous Indian attacks wiped out whole communities has the United States had such need for a well-trained, heavily armed and widely deployed civilian army. For, like Indian attacks of old, aggressions of the future will be undeclared, sudden, and deadly. The United States needs modern Minutemen in order to survive.

The new National Guard has been called upon to furnish 683,000 Minutemen to serve in 25 Infantry Divisions, 2 Armored Divisions, 21 Regimental Combat Teams, 123 Antiaircraft Battalions, 45 Field Artillery Battalions, 72 Fighter Squadrons, 12 Light Bombardment Squadrons, and necessary supporting troops in every State of the Union, the District of Columbia, the Territory of Hawaii, and Puerto Rico. Furthermore, this total M-Day force, capable of immediate mobilization in case of attack, is to be ready by 1952.

This new National Guard represents the largest peacetime military organization manned by civilians that the United States has ever possessed. In view of its defense mission, the United States can afford no smaller.

The first citizens of this country protected their right to bear arms by the 2d Amendment to the Bill of Rights which reads:

"A well regulated Militia, being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed."

Legislation in 1795 and 1798 provided for Federal use of this State Militia and these local volunteers. A law in 1808 inaugurated the practice of providing annual Federal aid to the States for the support of their forces. This practice continued throughout the 19th Century under the strong supposition that the Militia would ultimately be employed in National Defense. As you well know, this strong supposition once again became a proven fact early in the 20th Century.

Of all legislation passed by the Congress for the purpose of increasing the efficiency of the Militia, two bills were outstanding in their effect upon the military establishment of the United States. First, the Dick Bill, which was intro-

duced in 1903 by Major General Charles Dick, United States Senator from Ohio, gave the Federal Government authority to use National Guard troops in any theater of war. This Bill was really but one phase of Elihu Root's general program to reorganize the military establishment after the Spanish-American War and became actually effective some years later with the enactment of the National Defense Act of 1916, as later amended in 1920. This Act provided for local volunteer units, raised and housed by the States, but formally recognized and given drill pay by the Federal Government.

Sparked by local spirit and aided by Federal cooperation, the National Guard came a long way along the road to military efficiency. When World War I was declared, the National Guard was a well organized and adequately trained tactical force. Its regiments had only to be redistributed into combat divisions and it was ready for service in the AEF of 1917-18. All in all, the National Guard furnished the country with 17 divisions and other organizations which were manned by over 300,000 Guardsmen.

The fighting worth of these divisions was more than evident upon the battlefields of Europe. They comprised two-fifths of all divisions in the AEF and of 25 which saw combat, 11 were National Guard. These 11 spent more days in combat than did either the Regular or National Army Divisions. The German Imperial Staff rated only 8 American Divisions "superior" or "excellent." Six of these divisions were National Guard. Who can forget the 32d—first to break the Hindenburg Line, and nicknamed "Les Terribles," or the 28th which rescued the Lost Battalion in the Argonne, or the 26th which earned more combat decorations than any other Guard Division.

The value of Guard contributions to the successful prosecution of World War I was illustrated by its formal designation in 1933 as the National Guard of the United States and its assignment as a reserve component of the Army of the United States.

Once again when war came in 1941 the National Guard was ready. Between September 1940 and 1942 a total of 300,000 were inducted into Federal service. The Guard put 18 combat divisions and many separate units into the field. These units trained Selective Service men equal to about half their own number, and furnished something like 100,000 officers to the Army of the United States from their own officer corps and from their enlisted men. For example:

1. One division furnished one regiment of infantry at

^{*}Reprinted from May-June 1948 issue of *Armored Cavalry Journal* and amended so as to include full details on CAC.

war strength, to complete a Regular Army division; one regiment of infantry and a battalion of field artillery, as a separate task force; sufficient commissioned and enlisted cadres for three new divisions. In August of 1942 the strength of this division was less than one-third its original strength.

2. Another division furnished three regiments of infantry and one battalion of field artillery, at intervals of about 90 days, for special task forces. This in addition to commissioned and enlisted cadres for two new divisions. Two new regiments of infantry were organized from other cadres. Only one original infantry regiment remained with the division.

Despite this constant drain of experienced personnel, a National Guard Division was on its way overseas within one month from the declaration of war. Within five months, 5 National Guard divisions were already in the Southwest Pacific Area. Names of Guard Units appeared prominently and with distinction in the fiercest engagements of the war—Bataan, Guam, the Philippines, Bizerte, Salerno, Cassino, Anzio, Omaha Beach, the Ardennes Forest. The price was high. The 29th and 34th Divisions each suffered more than 20,000 casualties and the average for all National Guard Divisions was 9,166.

They received more than their share of honors. More than 100 Presidential Unit Citations were awarded Guard outfits and 14 National Guardsmen were awarded the Congressional Medal of Honor.

This is, in part, the proud record of the National Guard. It is a story of tremendous accomplishment in time of dire national emergency. However, the story is not at an end.

Realizing that demobilization of the Army would virtually strip the country of its defenses, a committee composed of 5 Regular Army and 5 National Guard officers was appointed in August 1944 for the purpose of coordinating all postwar planning for the Guard. By July of 1945, the committee had submitted a series of recommendations concerning mission, strength, composition, organization, distribution, personnel, training, and maintenance of efficiency. These were considered by R.A., N.G., and Reserve officers and were approved in final form October 13 by the Secretary of War under the title "War Department Policies Relating to Postwar National Guard."

These policies form the basis of the new National Guard and bring some entirely new concepts of civilian-soldier defense into the military establishment of the nation. No longer is the Guard primarily a reserve component of the Regular Army. It has become the first line of defense charged with the responsibility of immediate mobilization to war strength and immediate execution of necessary action in case of enemy aggression. In full, the new National Guard must stand ready:

"To provide a reserve component of the Army of the United States capable of immediate expansion to war strength, able to furnish units for service anywhere in the world, trained and equipped:

"First, to defend critical areas of the United States against land, seaborne or airborne invasion.

"Second, to assist in covering the mobilization and concentration of the remainder of the reserve forces, and

"Third, to participate by units in all types of operations, including the offensive, either in the United States or overseas."

In order to fulfill the responsibility imposed by this mission, the new National Guard must be a large, well balanced, self-sufficient, well trained, and widely deployed civilian army comprised of every modern arm.

Plans for the new Guard, as approved by the Secretary of War, indicate that this new force will be able to fulfill its mission. The component units are being given authority to organize with respect to their importance in fielding a fighting force as quickly as possible: first divisions and appropriate air units, then regimental combat teams, then antiaircraft artillery and signal aircraft warning units, and finally nondivisional combat units of the type used to reinforce divisions.

Within 60 days of receiving specific authority to organize from the Chief of the National Guard Bureau, the State must present its unit for Federal recognition with a strength—if it is a line unit—of 25 per cent officer and 10 per cent enlisted. From that date on, the unit is required to grow over stage periods of three months each in accordance with a prescribed Stage Table.

The new National Guard will be widely deployed. First, units of various types will be organized in every State, Territory, and the District of Columbia. Second, because the greatly increased strength would work hardship on many States, unit allotments were assigned on a manpower ratio basis—the ratio of men between the ages of 18 and 35 in any given State to the total population of males in that age bracket in the country.

Thorough training will be insured by the large number of veteran officers and noncoms who will lead the new Guard; by the close cooperation of the Regular Army as evidenced by the assignment of instructors to Guard units; by the opportunity of Guard officers and men to attend Regular Army Service schools in all echelons; and by the most modern equipment with which the Guard is to be armed.

The National Guard Training Program is so planned that each unit will be completely trained and ready to carry out its assigned mission six years from date of Federal recognition. The first two years are known as "Interim Training" during which the unit will be coming to full strength and training will not exceed company level. The next four years are divided into three phases with heavy emphasis on field tactics. Two years will stress tactics not higher than a battalion level. The next year will be spent on the Regiment with division training taking up the last and 6th year of the Training Program.

So far in this article, the new National Guard has been discussed as if it were still in the future. On the contrary, the United States right now has a Guard which boasts more men, 231,043, and more Federally recognized units, 4,222, than the average prewar Guard could. This dramatic growth has all taken place since June 1946, when the first air unit was recognized, and August 1946, when the first army unit was recognized.

Two complete Divisions are already in existence—the 45th of Oklahoma and the 43d of Connecticut. Rhode

Island, and Vermont. Moreover, there is every reason to expect that a total of 15 Infantry Divisions, 15 Regimental Combat Teams, and one Armored Division will have all component units Federally recognized by the middle of this year.

Even more gratifying has been the growth of the Air National Guard. Fifty-five fighter squadrons have been put into operation flying P-51 Mustangs and P-47 Thunderbolts. Three squadrons are scheduled to begin receiving jet-propelled P-80 Shooting Stars this year. Nine Light Bombardment Groups flying A-26 Invader type of planes have also been put into operation and it is expected that every air tactical unit will have gained Federal recognition by the time this article is published.

This remarkably swift growth in strength and number of units is only one indication that the new National Guard really means business. Since reorganization began the National Guard Bureau has ordered distribution to the States of approximately half a billion dollars worth of clothing and individual and organizational equipment for Army units. Another quarter of a billion dollars in equipment has been issued to Air units of the Guard. Guard Technical Services have an estimated half-billion additional dollars of equipment on hand and it is expected that another billion dollars will be required to fully equip Army units of the Guard at their full, authorized strength of 623,000 men in 5,857 units.

Practically the entire small-arms requirement for full troop basis, 880,000, are on hand. Of 7,521 artillery pieces required for full troop basis, 2,339 units are in condition for issue. Forty-eight 120mm antiaircraft guns are in repair shops and are scheduled to be ready by the end of the calendar year.

The National Guard has adopted the "new look" in Coast Artillery. The units which formerly were charged with the defense of the nation's coastal areas now have been expanded into a vast network covering 27 States, Puerto Rico and the District of Columbia to give the greatest protection from enemy aerial attack where it is most needed—at industrial centers, at military installations and in areas of heavy population concentration.

During the emergency prior to the last war, the National Guard furnished 38 regiments and 9 separate battalions of Coast Artillery to the Army of the United States. Of the regiments, 23 were of the antiaircraft type, 11 were Harbor Defense, and 4 were equipped with 155mm guns.

In the new National Guard, the Harbor Defense units consist of 9 group headquarters, 25 battalion headquarters and 69 firing batteries, with an authorized strength of 9,646 men allotted to the several States. Of these, 25 units with a strength of approximately 1,000 men have been Federally recognized. They include 1 group headquarters, 6 battalion

headquarters, 12-90mm batteries, 5-6-inch batteries and 1 mine battery.

The greatly expanded National Guard Antiaircraft Artillery will have 809 separate units with 77,822 men deployed throughout the 27 States, Puerto Rico and the District of Columbia, when fully organized. With the other arms of the National Guard, the Antiaircraft Artillery will be an integral part of the nation's M-Day Force—the first line of defense in the event of an enemy attack.

There will be 14 brigade headquarters, 14 operations detachments, 43 group headquarters and 123 battalions, when organization of the National Guard AAA is complete. The 123 Battalions, all of which are completely mobile, or self-propelled, are divided as follows: 32 mobile automatic weapons battalions, 27 self-propelled battalions and 64 mobile gun battalions. At the same time that all semi-mobile gun and automatic weapons battalions were eliminated from the National Guard troop basis last November, AAA Searchlight Battalions were eliminated and the firing power of the National Guard antiaircraft artillery increased by converting them to firing batteries.

In the reorganization of the new National Guard, which began 30 June 1946 with the Federal recognition of a fighter squadron in Denver, Colorado, the third priority was given to antiaircraft artillery and signal aircraft warning units. First priority was given to divisions and tactical Air units and second priority to infantry regimental combat teams.

Today 4 States: Alabama, Maine, Rhode Island and Texas, and the District of Columbia, have organized all of the antiaircraft units allotted to them. Throughout the country, a total of 534 units have been Federally recognized, or 66% of the 809 units in the entire troop basis. They have an aggregate strength of more than 21,000 men, or 27% of their ultimate projected strength.

Eleven brigade headquarters, 8 operations detachments and 35 group headquarters have been Federally recognized and already are working in close liaison with the Air National Guard, whose long-range radar would supply the early warning of approaching enemy planes.

Considering the type of aggression we can expect in the future, the United States is indeed fortunate that succeeding generations have followed the traditional concept of national defense. The new National Guard, comprised as it is of local units, raised and housed by the State, armed and supported by the Federal government, is admirably adapted to counter enemy action without fatal delay.

Add to the above—volunteer spirit, local leadership, and the Guardsman's sure knowledge that he fights for his own home and family—and it is obvious that America has the essentials of an indomitable defense.

† † †



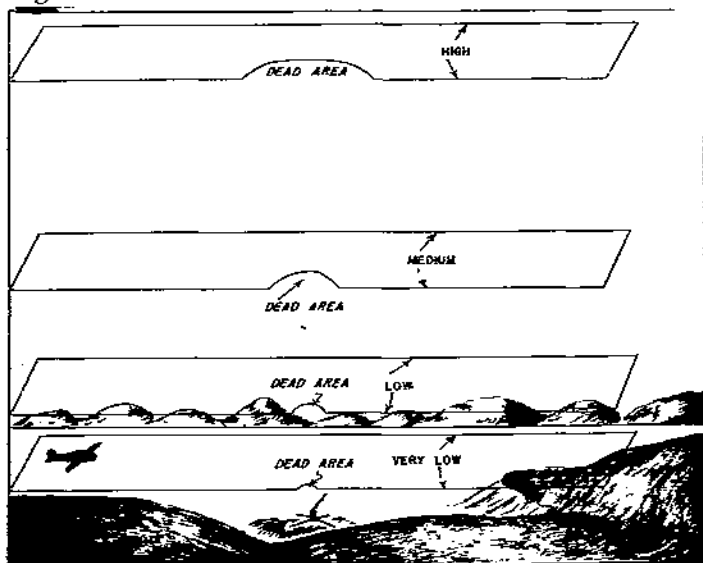
Determination Of Firing Errors For Heavy Antiaircraft Artillery

By Major John J. Shoemaker, CAC

During the air war over Europe the flak damage suffered by our heavy bombers became a problem of major importance. The air force solution to this problem was "flak analysis," or analysis of enemy antiaircraft fire. Briefly, flak analysis, as used during the war, was an attempt to exploit the weakness in the antiaircraft defenses of a particular objective. Usually only two elements of a defense were known: the number of guns and the ground pattern of the defense. These elements were used to determine an effectiveness index of a defense, based on the number of rounds to which a bomber formation would be subjected during a bomb run. The weakness of this solution was recognized at once, this weakness being the assumption that the expectancy of each round was inversely proportional to the cube of the time of flight.

The requirement for efficient flak analysis is an answer to the question, "What are the capabilities of antiaircraft weapons engaging targets at all altitudes and ranges?" The task of obtaining data required to answer this question can be divided into two major parts, namely: determining the lethality of antiaircraft bursts occurring at all possible positions about a target, and determining the distribution of firing errors. Study of combat firing will not give the desired results since not enough is known about the conditions under which this firing was done. The study of the distribution of firing errors was assigned to the ANTIAIRCRAFT AND GUIDED MISSILES BRANCH, THE ARTILLERY SCHOOL, at Fort Bliss, Texas. It is with this firing error study and the collection of experimental data for it, that this article is concerned.

Figure 1—General conditions under which data were taken.



A practical definition of firing errors is, "The distribution of burst positions about a target in flight." The Research and Analysis Department of the Antiaircraft and Guided Missiles Branch of the Artillery School designed an experiment to obtain data on this distribution in the form of individual miss distances corresponding to those of single rounds. For reduction of these data to understandable proportions, *standard deviations* were computed. "STANDARD DEVIATION" is a term with which all artillerymen should be conversant. In determining the probable error, a dispersion ladder is used to measure a large number of deviations. The size of the deviation which will include one-half of all shots fired is known as the probable error. In like manner the size of the deviation which will include two-thirds of all the shots fired is known as the standard deviation. The advantage of the *standard deviation* over the *probable error* as a means of describing the distribution of firing errors lies in the ease of handling the standard deviation. The probable error must be determined by a complete analysis each time a single variable is changed unless it is obtained from the standard deviation. The standard deviation on the other hand is easily adaptable to changes in any variable used in determining the initial value when the effect of the variable is known. In addition to the ease of obtaining the standard deviation for changing conditions, it lends itself readily to combination with other mathematical values. This property of ready combination stems from the fact that the square of the standard deviation is the *variance*. This term, variance, appears in many formulae used in solution of statistical problems.

In using the measure, "standard deviation," it is necessary to consider a sufficiently large number of errors to obtain statistical stability. Design of the experiment, within the limitations of ammunition and time which could be allotted, had to be such as to give the large number of individual error readings required.

Theoretically, it was desirable to obtain large samples of data under all possible conditions and at large numbers of points in the sky. Practically, it was expedient and sufficient to obtain data for selected points, in order to establish curves from which data for any other point within range could be read. Inasmuch as the distribution of firing errors depends mainly on the range and altitude of the target, the experiment was designed to obtain data at several altitudes and a number of ranges at each of these altitudes.

At each altitude the variables were: minimum range, system of fire control, type of attack, target speed, and caliber of weapon. Figure 1 shows the general conditions under which data were taken. Since the weapons being

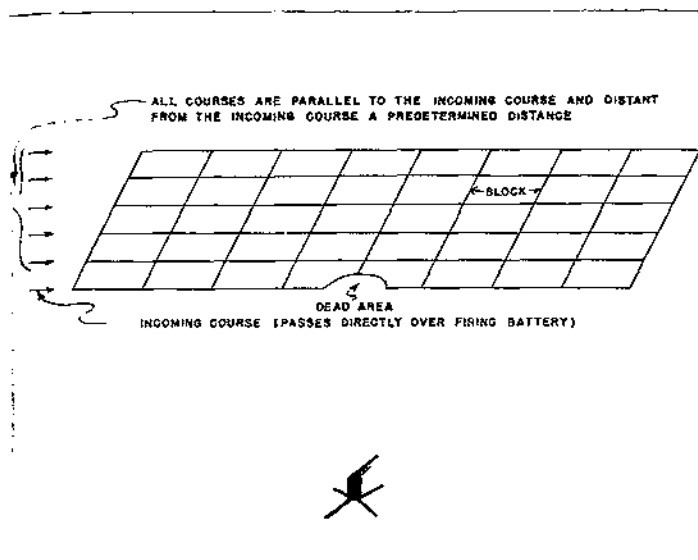


Figure 2—Courses used to obtain the data for changes in minimum range.

considered have a 360 degree field of fire, and their accuracy is not affected by the azimuth of the target, it was necessary to study only one area of the sky with respect to field of fire. Figure 2 shows the courses which were used to obtain the data for changes in minimum range. The first course at each altitude was flown directly over the battery giving the data on incoming targets. Succeeding courses at each altitude were flown parallel to the first course and at various minimum ranges. On each of the courses shown, data were taken with each type of fire control, radar and visual. Since the type fire control which a potential enemy might use would generally be unknown, the values obtained by averaging the results of the two groups were considered of more value than either group considered alone. The effects of changes in target speed were determined by a combination of experiments on a limited scale and application of the results obtained to all other points for which experimental data with respect to target speed were not obtained. The requirement that an average battery conduct the experiment caused some difficulty. However, with normal turnover of personnel and replacement by relatively inexperienced personnel, the possibility of the battery becoming too highly trained to be considered average was overcome.

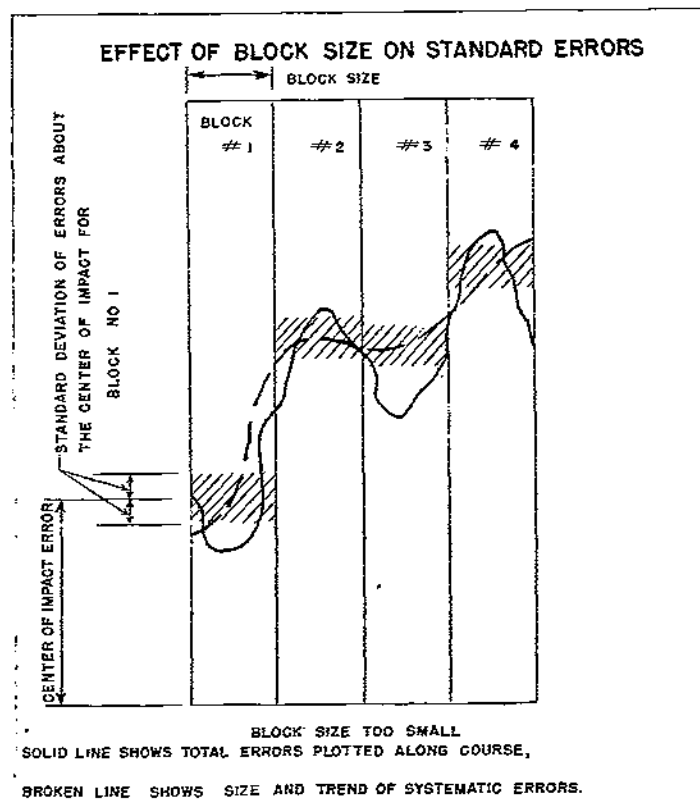
Data were taken on both *firing* and *simulated firing* courses. Simulated firing courses were necessary due to safety requirements and the huge ammunition requirements of an "all firing" problem. Errors of simulated firing data were obtained by a comparison of true firing data with firing data furnished by the director. True data for this comparison were obtained by an electronic ballistic computer using target present position data determined by phototheodolite methods. The ballistic computer solves for future position in terms of quadrant elevation and azimuth, and prints errors based on the comparison with director data. No data on fuze errors were compiled at this time, since the study was made assuming *variable time fuze* conditions. Only prediction errors could be determined by simulated firing. Actual firing was done with *mechanical time fuze* ammunition, and bursts were then moved by computation to determine the points at which bursts would have occurred if

variable time fuzes had been used. The points so computed were used to establish errors in azimuth and quadrant elevation.

The difference between actual firing errors and simulated firing errors is an increment of error due to ballistic conditions and matériel and personnel errors. Considerations which affect the size of this increment are (1) Parallax, (2) Dither, (3) Additional Computer Circuit errors, (4) Density and Muzzle Velocity Computer Correction errors, (5) Firing table errors, (6) a group of other sources of small errors which do not individually affect the result but which collectively may be significant. It is a popular misconception that the firing errors listed in the firing tables are the only ones which should be expected when firing at aerial targets. The firing tables list firing errors for static problems only. The errors determined by this study are for dynamic problems. This difference, or increment, was obtained theoretically and added to the simulated firing errors. The summation of simulated firing errors and the computed increment was then checked against firing errors obtained in actual firings. Agreement between the summation and actual firing errors indicated that use of the summation in lieu of actual firing errors was permissible. This use of a measured prediction error plus a computed firing increment error is further supported by a comparison of the size of the two components. The comparison shows that prediction error makes up the major portion of the whole firing error.

Simulated firing has the distinct advantage over actual firing in that data are furnished every second instead of only when bursts occur. This materially decreases the number

Figure 3—An example of total errors with the erroneous center of impact errors resulting from using a block size too small to include a complete cycle.

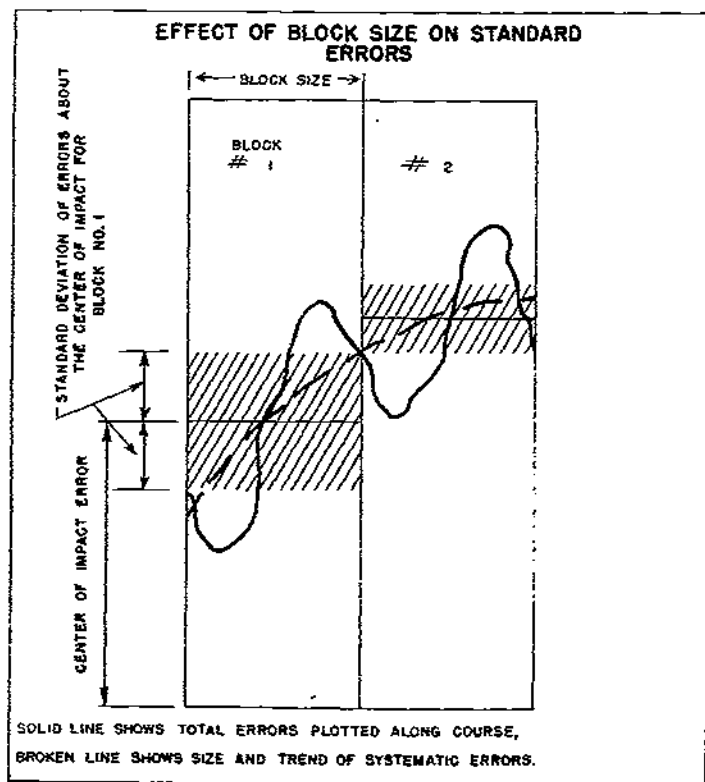


of target runs which would have been necessary for an "all firing" experiment.

Sufficient repetitions of each course were flown to obtain statistical stability, the number of target runs necessary to obtain this stability having been determined by experiment. A great number of runs was made under the same conditions, and analyzed in groups varying in size from four to more than fifty runs per group. Results from the various groups were compared to the results obtained by using the total number of runs. This comparison demonstrated that the number of runs needed for analysis of total errors was greater than the limits of practicability allowed. The characteristics of the firing error were responsible for the failure to analyze total errors.

Firing errors may be characterized by two considerations. One is the error of the center of impact and the second is dispersion (the error about the center of impact). Since in any small linear portion of a course there is little change in the error of the center of impact, it is possible to use a single value to represent this error for that portion of the course. For purposes of analysis into center of impact error and dispersion, it was desirable to divide each course into blocks along the course. The change in accuracy as a target flew along any course was thereby obtained for a number of points on that course. These points were used to establish a curve from which data on all other points could be interpolated. This type of analysis gave a center of impact error for each block along course and a distribution of errors about the center of impact (dispersion) within each block. In order to determine what portion of a target run could be considered as having the same center of impact error, a separate study was made.

Figure 4—In contrast to Figure 3, here is a similar set of total errors with the center of impact errors resulting from a block size which includes a complete cycle.



A great number of runs was divided into uniform portions or "blocks" along each run. By using blocks of various sizes, it was discovered that different block sizes gave varying interpretations of error characteristics. As the block size was varied, the breakdown of the *total error* into *center of impact error* and *dispersion* varied in a definite pattern. Using a small block, that is, breaking runs into short lengths, the center of impact error, the dispersion, and the total error were computed. The same errors were computed on the same data using blocks of increasing size. A graph of the error characteristics against block size indicates that a small block size would be unsafe to use, since the sharp slope of curves in that region indicates a rapid change in the error breakdown with a small change in block size. The curve levels off as block size is increased. However, to obtain the most information from the data available, it is desirable to fix the block size small enough to obtain sufficient blocks along a course to give an adequate number of reference points. Since the miss distances vary along the course, these reference points will establish a pattern of firing errors. The choice of block size was limited in both directions. Too small a block gave an incorrect breakdown into error characteristics. Too large a block resulted in too few reference points to establish firing error patterns.

In choosing the block to be used within the limits indicated by the study of error characteristics, the cyclical nature of antiaircraft data had to be considered. Any block size to be reliable must include at least one cycle. Figure 3 shows an example of total errors with the erroneous center of impact errors resulting from using a block size too small to include a complete cycle. When block size is too small, the standard deviation of the center of impact follows the fluctuating cycle of the dispersion and absorbs part of the dispersion. The effects of small block size are (1) large changes in center of impact error from block to block making the values obtained unreliable and (2) reduction in dispersion characteristics making the values obtained in each block unreliable. Figure 4 shows a similar set of total errors with the center of impact errors resulting from a block size which includes a complete cycle. The only other consideration on block size is ease of handling during computation. All these factors having been considered, a block size was selected which approached most closely the requirements listed.

Standard deviations of dispersion were computed for each block. By combining all runs made under a specified set of conditions, the standard deviation of dispersion for each block for that set of conditions was obtained. The center of impact obtained in each block is a single value per run. The standard deviation of this variable was obtained for each block by combining the center of impact errors of each block for all runs of that block.

Azimuth errors were studied separately from elevation errors. For the purpose of obtaining damage probabilities for antiaircraft weapons, it is desirable to express the miss distances in terms of a single dimension variable, i.e., radial miss distance, or a straight line from the burst to the target. To obtain the standard deviation of the radial miss distances, the geometric mean of the corresponding standard deviations of azimuth and elevation errors was used. In this use of the geometric mean, the assumption is made that azi-

math and elevation errors are of the same order of magnitude and independent of each other. Actually, the studies indicated that the ratio of these errors varied from unity to one and a half. A separate study was made on the degree of independence, and a small degree of dependence was found. An additional study was made to determine the amount of error which would be introduced by the assumptions used, and this study indicated that no significant error resulted.

The study described above will, when completed, have obtained the standard deviations for a large number of points in space. Interpolation, and to a lesser extent, extrapolation, can be used to obtain standard deviations for any point in space within range of the weapon studied. The

distribution of firing errors having been determined, there remains only the problem of combining this distribution with the lethality of bursts to obtain an answer to the question, "What are the capabilities of antiaircraft weapons engaging targets at all altitude and ranges."

The techniques described are applicable not only to the antiaircraft weapons on which the experimental data were taken, but to modifications and improvements of present weapons as well as to new equipment. Where the behavior of the new equipment can be forecast, theoretical explorations can be made. Where a combination of factors makes theoretical analysis impractical, equipment can be tested by the methods described or by variations thereto.



Centennial To Be Held At Bliss In November

Fort Bliss, Texas, will be the scene of one of the Army's top shows of 1948 when on November 5th, 6th, and 7th, the centennial of the founding of that post will be celebrated.

Suggested and sponsored by the El Paso Chamber of Commerce and other civic groups, the celebration will be managed by Mr. Chris P. Fox, Executive Director of the Chamber of Commerce, and Major General John L. Homer, present Commanding General of the fort.

The central attraction of the show will be a reproduction of the original fort. A gift of the citizens of El Paso, Texas, the reproduction will contain 4,600 square feet of displays typical of the time of the founding. The displays will be on loan from the Smithsonian Institution of Washington, D. C., and from other museums throughout the country.

The buildings of the reproduction will be of permanent construction, and will remain at Fort Bliss as a museum and memorial.

The celebration will be featured by pageant parades in downtown El Paso, a review of troops, a costume ball for over 4,000 people, and a dedication of three plaques that will remain permanently in the memorial. The plaques will be presented in memory of the 200th Coast Artillery (AA) of the New Mexico National Guard, which was decimated on Bataan; the 7th Cavalry Regiment, and the dead of World War II.

Also a feature of the celebration will be a \$10,000 fireworks display on the top of Mount Franklin to be touched off instantaneously by remote control from Washington, D. C., as a contrast to the nine months it took in

1848 from the time the War Department order was signed directing the setting up of the fort until the date of the actual founding of the post.

The original order directing the founding of Fort Bliss, War Department General Order Number 58, was dated November 7, 1848. It required nine months in those days for the troops to move from New Orleans to Texas, where they were to protect the growing numbers of settlers in that area. A high Department of the Army official will press the button setting off the display.

Top Department of the Army officials will be on hand to take part. Invited also will be all living former Commanding Officers of Fort Bliss. Included among these are Lieutenant General Ben Lear, and Major General Terry Allen.

An international polo tournament will be held during the three days. The best United States and Mexican teams will compete.

The Army Ground Forces' Band will be present to play for the celebration.

A fifteen-minute coast-to-coast radio program is planned. Nationally known radio stars will be invited to appear.

The Director of The Adjutant General's Exhibit Section at Cameron, Virginia, is contributing the best of the Army's static exhibits and is coordinating the over-all presentation.

The Post Office Department has announced that it will issue a postage stamp to commemorate the founding of the fort.

The final feature of the three-day celebration will be a display of searchlights on the statue of Christ on Mount Cristo Rey across the border in Mexico.

General Devers Urges College Language Training As Defense Asset

The importance of training college and university students in the basic fundamentals of foreign languages as a vital requirement for national security in the event this nation is ever forced into another war was stressed recently by General Jacob L. Devers, Chief, Army Field Forces, with headquarters at Fort Monroe, Virginia.

General Devers pointed out that a working knowledge of foreign languages is essential so that American troops would be able to deal intelligently with personnel of any foreign allies this country would have in a future war as well as a necessity in questioning prisoners of war of a foreign foe and in relations with enemy civilian nationals when enemy territory is occupied.

Relating his own experiences while serving in North Africa, Italy, France and Germany, General Devers stated that many of the difficulties encountered in dealing with Allies of the American Forces could have been more expeditiously and efficiently resolved if there had been a common meeting ground of language.

"The inability of American troops to communicate with their foreign allies and the inability of our Allies to express themselves to our troops led to frequent misunderstandings which caused friction and even delays in the prosecution of the common war effort," he said.

General Devers also stated that economy in the use of personnel could be effected if the majority of American officers and enlisted personnel had a working knowledge of foreign languages. He pointed out that during World War II it was necessary to detail American personnel who spoke foreign languages as liaison officers with Allied headquarters and to use them widely as interpreters. When foreign-speaking Americans were not available it was necessary to employ Allied personnel who spoke English as liaison officers at American headquarters.

General Devers said that he heartily endorsed the views expressed by Doctor Andre M. G. Bourgeois, professor of French at Rice Institute, Houston, Texas, who emphasized the need for language instruction as a vital element to national security in addresses to the Oklahoma Teachers Convention in Norman, Oklahoma, and the Conference on Modern Languages at Northwestern State College of Louisiana.

Doctor Bourgeois, who served as a captain on intelligence duties in the European Theater of Operations during World War II, presented a paper titled, "Let's Be Ready If A War Comes."

In this address he stated in part:

"Three years ago I was in Germany; the German armies had collapsed; we were expecting VE-Day. People at home would have been outraged if someone had told them that only three years later, at a conference of this kind, an educator would cast a somber note by reminding his audience of the role played by languages in wartime.

"This does not imply that I disagree with those of you who spoke on the importance of giving our students more than a mere knowledge of the language, or with the distinguished speakers who stressed the value of languages in establishing world peace. With them I feel that to become acquainted with foreign literatures and to learn to understand our fellow men in strange countries is the true and ultimate goal in the study of languages; but since we live in the year 1948 we should be willing to face the problems that confront us. We must be realistic, therefore we teachers of foreign languages should accept the threat of a new war and prepare our students for it as if we were sure there will be one. Whenever it comes, speaking foreign languages will play its small part in the winning of it, as it did in World War II.

"Most people know that the army fully recognized the imperious necessity of having men able to speak foreign languages, but they have a very hazy idea of what these men did with their knowledge of languages. Let me enlighten you by mentioning my own experiences during the three years I spent overseas. During the fall of 1942, a few weeks before the invasion of Africa, the army assembled in Fort Meade about sixty middle-aged men like myself, former French citizens, importers, high-school or university teachers, even singers who had a thorough knowledge of French. We were part of the Western Task Force.

"The language situation in Africa was pitiful: almost none of the regular reserve or newly commissioned officers spoke French, still less Arabic! Yet, a great many of them had to be in daily, even hourly contact with French army or civilian authorities. In the Provost Marshal Section to which I was attached, we had 1,500 Moroccan riflemen and 400 Senegalese as security troops to guard the ports of Casablanca, Fedalah and Port-Lyautey, as well as all kinds of dumps, Quartermaster supplies, Army Air Forces gasoline, ammunition and lumber, plus the pipe line from Casablanca to the Marrakech air base. Moreover we had M.P. companies scattered all over Morocco. This meant that the Colonel Provost Marshal and his staff officers had French problems of all kinds which I had to handle with the help of a young French- and Arabic-speaking sergeant, or which necessitated my accompanying them everywhere to act as their interpreter, without speaking of numerous inspection tours to keep in close contact with the French officers commanding our Moroccan and Senegalese troops.

"Signal Corps officers had daily business talks with the P.T.E. (Post, Telegraph and Telephone) authorities, and the poor G.I.s who manned our switchboards did the best they could in pidgin French whenever they had to pass from the Army to the civilian exchanges. Engineer Corps officers in charge of the Real Estate Division needed a large number of liaison officers to handle their numerous requisitions of acreage, plants, hotels, restaurants, schools for

hospitals, rooms for billets, etc. Q.M. Corps, Medical Corps, and mess officers were plagued by their hourly unpleasant contacts with French help, be they charwomen, laundry workers, waiters, etc. Military Railway officers of the Transportation Corps had to solve countless thorny problems with their French counterparts; Port Officers had daily squabbles with the French stevedores in charge of thousands of Moroccan longshoremen. And what was true of our officers was true also of our noncoms, who, once the policies had been set at higher levels, had to carry out their execution with French or Arab subordinates. Thus, because most of our army technicians did not know French, they had to depend, for every little thing, on the services of a liaison officer, or a civilian interpreter.

"When we landed in Italy new problems arose, since we were forced to bring along a very large Italian-speaking personnel to handle what was called 'Civilian Affairs.' Those AMGOT officers had to take care of thousands of problems connected with the daily needs of the civilian population and a pitifully small number of them was prepared to do so. In Italy also, a new headache was added by the fact that several French divisions were part of the U.S. 5th Army. A number of our older French-speaking liaison officers who had seen service in World War I, were sent to the headquarters of the generals commanding each division, while some of us were attached to the general commanding the French Supply Base 901. All of us had to be jacks-of-all-trades, handling problems connected with every branch of the service; the worst came when a French mountain division disembarked with thousands of mules which had to be taken care of.

"Then, when we started preparing for the invasion of Southern France, more French divisions arrived. Naples was like a tower of Babel with U.S., British, French, Polish and Moroccan soldiers filling the streets. One should not forget that Air Force ground officers went through the same throes as Army officers when it came to language problems. Add to this the fact that Red Cross personnel had to be found who spoke Italian as well as French. And U.S. nurses who spoke French were at a premium since some wards in our hospitals were used exclusively for wounded men from the French divisions.

"We landed in France. The French divisions had been withdrawn from the 5th Army and, with new ones added, formed the French 1st Army. This time, an important French liaison section under Brigadier General Schwinn and Colonel Chamberlain (who had taught French at West Point before the war) was attached to the Headquarters of General de Lattre de Tassigny to handle all of the liaison work with the U.S. 7th Army, since both formed the 6th Army Group under command of General Jacob L. Devers whose liaison officer was no other than U.S. Senator Henry Cabot Lodge, Jr. From this central liaison section, French-speaking U.S. Army officers were detached to the Headquarters of each French division. On the supply echelon, the organization had been completely revamped: the French Base 901 had been integrated into CONAD Base; French and U.S. officers and enlisted men worked side by side in every service; but, for lack of enough French-speaking U.S. personnel, most of the liaison work

was carried on by English-speaking French personnel.

"We had a great deal of security work to do in the Provost Marshal Section, and a thorough knowledge of French was more important than ever before: we had seven Military Police companies scattered behind the front line of the 6th Army Group, and everywhere the security as well as the C.I.C. and C.I.D. work was done in close liaison with city police, and especially with the Gendarmerie Nationale whose help proved invaluable in our daily quest for German parachutists and saboteurs. Since the M.P. activities include establishing and guarding Prisoner of War cages, a large number of men speaking German was required; many more were needed on the teams which questioned the P.W.s. Also, German was priceless for the men in the C.I.C. groups who, very often, had to enter German cities ahead of the infantry. But German never was so complicated a problem as French since many of our men from all sections in the U.S. spoke it fluently, having learned it at home.

"Many other problems presented themselves: serious ones like the coaching of men who were parachuted behind the lines, and the training of men for G-2, C.I.C. and O.S.S. work; trivial but important ones nevertheless like those of the Red Cross Personnel who had to establish G.I. clubs, snack bars, movie houses, etc., in hundreds of towns and cities where our men were bivouacked or sent to rest. These Red Cross organizers had to speak French to be able to get along. This should be enough to give you an idea of the complexity of the task for which foreign language speaking personnel was in great demand overseas during World War II.

"One should also remember that each one of our men speaking the language of the country he is invading is a potential ambassador of good will. Since, usually, he is a college educated man, he is able, in his conversations with the inhabitants, to explain to them many points about our military, political and social problems. It is he who builds the opinion that these people have of us. After VE-Day, when I was brought back from Germany to become Dean of Studies in charge of 450 U.S. army students at the University of Nancy, I realized more than ever the wonderful understanding created by a group of fine young men speaking a foreign language. Not only did they make a great impression on the man in the street because of their fine appearance, their nice manners and good behavior, but the university teachers were amazed at their knowledge and their willingness to learn more.

"We must keep in mind that if we must fight a new war, the students who are in our classrooms at present will be the officers of tomorrow. College graduates formed the majority of the officers in World War I, and it was truer still in World War II. With the increasing need for technicians in the army, the demand for men with college degrees will be still greater if there is a World War III.

"In the last war, the army learned to make good use of its men according to their qualifications, and it is probable that carefully selected liaison personnel would be sent and kept in the countries of our Allies, the language of which they would be familiar with.

"But in my opinion, liaison officers and interpreters are not the proper solution to the problem of foreign languages

in the army, *since it means using two men to do the work of one.* What we need in a modern army that would have to fight overseas is a large number of enlisted men as well as officers who would be technicians in their own branch of the service, and who would know a language well enough to be able to make use of it whenever it would be necessary to do so. This is where all of us language teachers can help. We should strive to give our students such a solid founda-

tion that, for years, they should remain able to read a text at sight, to write a few understandable lines, and, after a few weeks in a certain country, to carry on a conversation in the language of that country. I think that we can do so in the two years that we are given to teach a language to most university students. And in doing so, we would do a great deal to help serve our country if a new war comes which requires sending our troops overseas."



New Rockets Get Test At Aberdeen

Eighty per cent of America's predesign testing of supersonic missiles and special weapons is being done at Aberdeen, Maryland.

* * *

Also, the Ordnance Department disclosed the 6600 persons there are working on projects which include:

Superscret projects for the Atomic Energy Commission.

Development of a "mother and daughter" rocket with more than twice the present 250-mile range of the V-2 rocket.

Tests of the Navy's Neptune Rocket being built by the Glenn L. Martin Company.

Improvement and development of more conventional weapons of a less spectacular nature.

It was Major General A. B. Quinton, Jr., who disclosed officially for the first time that the Ballistic Research Laboratories are working "in close harmony with the Army, Navy, Air Force and the Atomic Energy Commission."

He declined to amplify beyond this brief statement:

"That doesn't mean we know all the Atomic Energy Commission knows, but we do do some work for them."

Colonel Leslie E. Simon, director of the Ballistic Laboratories, said that during the early postwar period "the country depended almost exclusively" on the Aberdeen laboratories for useful supersonic measurements.

* * *

Even today, he continued, 80 per cent of the models of the Army, Navy and Air Force come here for testing before final designs are prepared.

Dr. A. C. Charter, chief of the free-flight aerodynamics range, described development under way for a "mother and daughter rocket."

It is planned, he explained, to fit a WAC Corporal rocket onto a V-2 rocket in place of a warhead. Tests of such a rocket may be held within a year at White Sands, New Mexico, it was said.

The WAC Corporal, America's first high-altitude rocket, is designed to rise about 60 miles in the air by itself and weighs 700 pounds.

The mother-and-daughter rocket would then be able to

climb several hundred miles into the air, while the missile's range would be 500 miles.

Dr. L. A. Delsasso, chief of the full-scale free-flight ballistic measurements of guided missiles for the Army, said that the present extreme range of the V-2 is 250 miles. The highest V-2 fired in America reached 114 miles.

* * *

Dr. Delsasso discounted the use of such rockets for military purposes in the immediate future, but said they would be used mainly for gathering data on flights through the upper air.

According to the Aberdeen scientists, the Martin Neptune rocket should be ready for testing some time next fall.

Designed as an experimental shipboard missile, its vertical range is placed at 200 miles and horizontal range at 400 miles.

Dr. R. H. Kent, director of the Aberdeen supersonic wind tunnels, said that, given enough money, it would be possible to build a satellite missile in five years.

Such a world-circling missile is extremely unlikely to be produced for many years, however, he added.

In discussing the possible uses of supersonic missiles as atomic-bomb carriers, Dr. Delsasso said that at "the range of 200 miles an atomic warhead would be ideal" for a missile of the V-2 type.

* * *

Other sections of the laboratory are working on other problems related not only to ordnance and missile problems, but the problems of supersonic flight.

Research at Aberdeen is still lagging behind demand, despite the use of electronic computing and calculating machines; cameras that take pictures at the rate of one-millionth of a second; gauges that measure pressure in millions of pounds, and tunnels with wind speeds equivalent to 3040 miles an hour.

According to Colonel Simon, the laboratories can meet only 25 per cent of the demand.

At present there are 6600 persons on the post, including 3400 enlisted men, 500 officers and 2700 civilians.—*Army Times.*

MANAGING MEN^{*}

By Samuel Henry Kraines, M.D.

PSYCHIATRIC PROBLEMS AMONG SOLDIERS

There are four main kinds of mental problems which the unit leader will see in the service. These mental difficulties will be discussed here not from the medical point of view but as the commissioned and noncommissioned officer sees them and must deal with them. Too often serious mental conditions arise in the service but because they are not recognized or because they are thought to be the result of malingering, the soldier is improperly treated. As a result many such men develop severe disciplinary problems or become completely "broken down" mentally. Moreover, many of the "nervous breakdowns," are the result of minor army or personal problems, so that in many cases the unit leader can actually treat these nervous conditions. Even more important, by use of the right principles of human thinking the sergeant can PREVENT nervous breakdowns.

The four main kinds of mental illness seen in the service are:

Feeble-mindedness—or "dumbness"

Neuroses—or severe nervousness

Psychopathic personalities—or peculiar persons

Psychoses—or insanity.

Practically speaking, most of the mental problems in the army center about the first two, feeble-mindedness and neuroses. The last two conditions are much less common and need more expert diagnosis and treatment.

Feeble-mindedness.

From a layman's point of view feeble-mindedness is "dumbness." But there are various degrees of this condition, and various causes. Some men with feeble-mindedness can be transformed into good soldiers—while others are worthless. Only a thorough study and trial can provide the correct answer.

All intelligence (and we are not being scientifically exact) lies in the brain. Man's superiority over the animal is the result of his larger brain. The average human brain weighs 3½ pounds and, according to one scientist contains over ten billion brain cells.

Only a small part of the brain is related to intelligence. Most of the brain is composed of "white matter" which is like telephone wires. Most of the ten billion (some say as high as twenty billion) brain cells lie in the cortex of the brain which is the outer covering and is about one-tenth of an inch thick. The cortex which contains all the brain cells concerned with thinking covers the brain (and is part of

it) like the skin covers the body, and fits into every groove and indentation.

Native intelligence seems to be dependent upon the number of certain kinds of these brain cells and the number of connections between them. However, this problem is not clearly solved, and many new discoveries have yet to be made in the field. For the purposes of this discussion, however, we can assume that if a man has a large number of his brain cells destroyed he has little intelligence left, whereas the more he has intact the better is his intelligence.

Below "normal" intelligence, in general, is due to three main causes: a) heredity, b) disease of the brain, and c) injury to the brain. The most common cause seems to be heredity. Just how it acts we do not know, but some children are born with very little intelligence and never develop very much no matter how much schooling they have. Children born with little intelligence do not walk, talk, or grow teeth till much later than the average child. Similarly, when in early childhood a disease strikes the brain cortex and destroys many brain cells, feeble-mindedness may result.

The feeble-minded person has so few brain cells that he CANNOT learn as much as the average person no matter how much teaching is given. It is important to understand the difference between men who are uneducated and men who are feeble-minded. The uneducated man may have the normal amount of brain cells but he may not have had the opportunity to go to school. Such a man may be illiterate and be unable even to sign his own name—but he may have normal intelligence and will thus be able to learn rapidly if properly taught. On the other hand, a man may be feeble-minded because of a lack of brain cells and no amount of education could make him have "normal" intelligence.

For this reason it is well to ask each man who is illiterate how far he went in school. If he had a chance to go to school but didn't learn at least to read and write then the chances are that he is feeble-minded. It is important to ask the soldier at what age he left school because the man who left the fifth grade of grammar school at the age of ten may have normal intelligence; if he only reached the fifth grade of school despite continuous attendance until he was sixteen years old, as many of our case histories show, then the chances are that he is mentally retarded.

There is another common sign of feeble-mindedness in the army—and that is poor coordination. While many men who are mildly feeble-minded can learn to be well coordinated, at first most of them find coordination difficult. You will find that most of them cannot perform the flanking movements quickly, that they turn the wrong way when a

^{*}Extracted from the book of the same name by permission of the author, copyrighted by the author in 1946.

column order is given, that they are clumsy with their feet and often cannot keep in step. Here again the most important reason for this poorness in coordination is that there are not enough brain cells to send down all the necessary orders to the different muscles in the feet at one time, leaving the man confused.

There are many intelligent men who are poorly coordinated but in these cases the brain is "nervous" and so sends "conflicting orders" to the muscles of the feet and thus makes for awkwardness. Consequently, whereas most men who are mentally retarded have poor coordination, the reverse is not true. Not all men with poor coordination are feeble-minded.

There is still another method of telling whether a man is feeble-minded. That is the AGCT score, or the Army General Classification Test. Although technically this test is not a pure intelligence test, in practice it can be regarded as one. There are five classes in this test with the lowest score being 42 and the highest 164. The classes are as follows:

Class 1		score 130 to 164
Class 2		score 110 to 129
Class 3		score 90 to 109
Class 4		score 70 to 89
Class 5		score 42 to 69

For practical purposes men in Class 5 may be regarded as feeble-minded or bordering on it. Even some men in Class 4 may be regarded in this group, depending on other factors.

It is important to note, however, that the AGCT is to be used as an aid to judgment of a man's intelligence and not as a substitute for it.

* * *

The emotional level of feeble-minded (Class 5) persons is essentially the same as that of normal people. They do have, however, feelings which are easily hurt, and they are easily confused when they are criticized or in a hurry. If they are criticized and made to feel ashamed they may cry, or get violent, or perform some action which indicates they have little intelligence and little control. This lack of control is easy to understand for some of these men, no matter how old they are, have the brains of a small child. If they fail to make the right flanking movement, for example, and are "bawled out," then their next movements will be even worse since their brain cells are now "nervous" as well as few in number. But if these men are treated kindly and with consideration of their slowness they may have as good a disposition as the best of your men.

How to Train Feeble-minded Men

Between 5 and 7% of the men who were first inducted into the Army (World War II) fell into Class V. Such a number means that in every company of 200 strength there were 10 to 15 of these men. Most of these men can be made into good or into worthless soldiers depending on the kind of treatment they receive. There are several principles to remember.

1. When feeble-minded men fail in training, DO NOT CRITICIZE THEM BEFORE THE GROUP. Such criticism will make them self-conscious, and it will make

their relatively few brain cells so nervous that they will be unable to learn the simplest of your regulations.

2. Always inform these men that the special instructions are given because they are "poor coordinators." NEVER TELL A FEEBLEMINDED MAN THAT HE IS DUMB. If a man is dumb he cannot make himself clever, and all name-calling does is to create a feeling of inferiority—and a good soldier needs a lot of self-confidence. Besides, remember that WHEN YOU BREAK A SOLDIER'S PRIDE YOU RUIN A SOLDIER. That statement holds true for all men—but especially the feeble-minded. So whatever you do and say KEEP UP THEIR PRIDE and when you call them out of class tell them that they are good men but all they need is a little practice. Don't, whatever you do, call them dumb—you will lose a possibly good man.

3. If you can't train them yourself, put an NCO in charge who has PATIENCE AND KINDNESS. You don't need a smart noncom to train these men but you must have someone who can take his time and who is sympathetic. A brilliant teacher who is impatient and cross is the worst kind of teacher for these men. Remember this principle in the handling of these men in all phases. If you are kind and patient you can get them to do almost anything, but if you get abusive you only make them nervous, inferior, and actually less able to learn.

4. Teach them one simple thing at a time, and repeat it over and over. It may take five times as long for one of these men to learn to do an about face as it does a normal soldier but if you teach it five times and then repeat it at every opportunity, and then congratulate him so as to elevate his pride, what you've taught him will stick "even in his sleep." Remember the principle of teaching ONE THING AT A TIME, OVER AND OVER, AND WITH MUCH ENCOURAGEMENT. These soldiers will never admit that they are "dumb" but they appreciate more than they can ever tell when someone is patient with them.

5. Firmness is important with these men—but it should always be preceded by a careful explanation, if a man does something wrong, think carefully whether that misdemeanor was the result of deliberate breaking of the regulation or a lack of understanding. If you believe it to be misunderstanding because of his lack of intelligence, and it is always worth while giving a man an extra chance, then explain calmly and pleasantly what was wrong, and how it was wrong and inform the man of the punishment that results. If the act is again committed, he should receive the same punishment that the rest of the group gets, but again, if you wish to save the man for a good soldier, explain carefully why you are punishing him, and be sure to let him know that you personally are not angry—that regulations must be obeyed and violators need punishment. The important thing is to be sure to let him see that you hold no grudge—and that you are merely carrying out your duty. And wherever you can—be more considerate of him than of others who perform similar offenses, because he does have less brain power than the normal man.

6. Finally, give this man a job which is within his capacity. Do not make a feeble-minded man a radio mechanic. Some of these men will do very well in a job which is within their intelligence but will develop all sorts of physical and nervous complaints when they are forced to do work

which their minds cannot comprehend. Once you give him a job that he can handle, let him stay there if at all possible—for his limited number of brain cells make it difficult for him to learn new things each day.

* * *

NEUROSES (NERVOUSNESS)

Most psychiatric cases in the army will fall in the group called "neuroses." You will see many neurotic cases in training camps and on the battlefield. In days gone by, many soldiers suffering from nervousness were called "gold-bricks" and through mistreatment the army lost the use of many men who might otherwise have been converted into valuable soldiers.

A neurotic man is not insane. Neuroses are conditions which most persons call nervousness although in the extreme forms these men appear to suffer from a physical illness or even a mental disease. Normal people may develop nervousness, and soldiers are particularly prone to nervous reactions when they first enter the military service and when they are on the battle front. Nevertheless, by proper understanding of these nervous states, the platoon sergeant can do much to prevent and cure them.

It is interesting to note that the same conditions which will bring about neuroses among soldiers will also increase in the military unit the AWOL rate, the number of court-martials, the venereal disease rate, and the sick call rate. The reverse is also true, when the causes of neuroses are removed in an army camp there will simultaneously be a decrease in AWOLs, sick call rate, etc.

The Causes.

There are two sets of causes of nervous reactions: Personality causes and precipitating causes.

Personality causes have their bases in the nervous personality which in turn is usually the result of a poor childhood environment. The important thing about environment is not the financial background but the kind of parents one has, the nature of the childhood training, the development of habits of self-reliance, decency, and belief in certain social standards. Children learn primarily by example, and it is easy to understand how the child becomes irritable, complaining, and emotional when a father comes home tired, irritable, complaining, and "takes it out" on his wife and children. It is easy to understand how the child, who imitates like a monkey, becomes cross, nagging, unhappy and fearful when the mother is always cross, nagging, unhappy and crying. When families are very poor, tempers are often short and emotional instability more common, but it is the instability in the home, not the lack of money, that makes men unstable. There are many families throughout this world which have little food and poor homes, but do have a nice kind of family life and rear children who are self-reliant, decent, kind and determined.

There is much more to the development of personality than these home factors—but it is important to recognize the fact that most men of 18 who enter the army have not been away from home, and that what they think and feel, the way they react to life, the emotions and the prejudices they carry, their self-reliance or lack of it—all these are the result not of their own choosing but of the environment in

which they were brought up. Men begin to change their environment and their feelings when they begin to think—and most men do not really begin to think for themselves till after the age of 16—or 18.

For this reason it is difficult to "blame" 18-year-old soldiers who have poor personalities, since their personalities have been made for them, in most cases, by their parents and their environment. Their personalities can be changed but unfortunately it is usually the school of hard experience that does the changing. In a civilian army, we do not have the time to remold personalities, for good fighting men are needed—and quickly.

* * *

Physical Signs of Neuroses

Many of the signs of nervousness are not recognized by the average man. Often symptoms which seem to be definitely physical in character have their basis in a neurosis, and many other symptoms which seem to be the result of malingering (gold-bricking) stem from a high degree of emotional instability. To further complicate the picture, there are real physical diseases which result from nervousness, such as high blood pressure, headaches, vomiting, diarrhea, pains over the heart, etc. Neurotic symptoms may be physical or "mental" in character, and have to be studied separately.

Let us suppose you were in bivouac "over there" and awakened in the middle of the night to see an armed soldier standing at the edge of the woods. If in the dim night light the uniform which the soldier wore seemed to you to be that of the enemy, your heart would begin to beat fast. The usual explanation given for the rapid beating of your heart would be that you were excited—but just exactly what was the physical connection between your heart and a man standing some 20-30 yards from you? If you thought that man had an American uniform, your heart would not have increased its beat.

The eye saw the soldier. Impulses are sent from the eye to the brain. It is at the brain level that something happens which determines whether the heart beats fast or not. If the brain INTERPRETS the stimulus coming from the eye as something which is dangerous to the man, then the brain becomes "excited." In medical discussions, we never speak of the brain becoming excited—but for practical purposes the brain acts as if it had suddenly been electrified. But it is most important to keep in mind always, that it wasn't just the sight of a soldier that caused the excitement, but the interpretation in the brain, which produced an emotional response. This same principle is true in nearly everything else which creates fear or emotion in men—it is not what one sees, or hears, or feels that upsets one—it is the attitude the brain takes towards that stimulus which creates the excitement. Some men have developed "emotional habits" so that almost any unusual sight or sound will be interpreted as dangerous and thus create an excited brain. Men who are neurotic tend to have a chronic "emotional attitude," and the cure of their neurotic condition often lies in removing this "habit."

The brain is connected through nerves with every single part of the body. The exact method of connection is not too clearly understood even medically, but when the brain

becomes "excited" as a result of the emotional attitude, many impulses are sent down all the nerves to every part of the body. When the nerves to the heart are "excited," the heart becomes stimulated and begins to beat rapidly. In an oversimplified form, that's all there is to physical symptoms caused by nerves. There is an actual physical change in the heart action—you can count the difference in the pulse—as a result of a nervous irritability which in turn was the result of an emotional attitude.

In an excited brain, many nerves are stimulated and other parts of the body have symptoms—although for a number of reasons one or two parts of the body seem to show most of them. Thus the nerves to the stomach are excited and the person feels a "knot or lump" in his stomach. The stomach is made of muscle and when its nerves are stimulated, the muscle begins to tremble, or go into spasms just as the hands will in a nervous person—and that spasm or trembling of the stomach muscles causes the feeling of nausea. If the nervous stimulation to the stomach is very strong (and there are many medical reasons for different intensities of reaction) the stomach muscles may go into such violent spasm as to cause vomiting.

In the same way the intestines may be stimulated by the "excited brain," and if the stimulation is mild there may be spasms of the intestinal muscle and the soldier will feel cramps in the abdomen. Physical examination and even X-rays will not show any physical defect in the stomach or intestines but the actual physical cramps will still be there—the result of the nervous stimulation of an excited brain.

In severe cases, there may be so much stimulation from the nerves that the intestines will be totally upset and produce diarrhea. Emotional diarrhea is not uncommon on the battlefield in the presence of great danger.

The blood vessels are also made up of muscle tissue and nerves go to them from the brain. Thus when the brain gets "excited" the muscles of the blood vessels may go into spasm and so raise the blood pressure. Blood pressures often are elevated in civilian life by men and women whose brains become excited by "emotional attitudes."

In the same way a great many other symptoms which are truly physical in character may be produced by nervousness. These symptoms are often called neurotic but one must understand that these symptoms are not imaginary. They are real and the patient feels their presence as keenly as if they had a germ as a cause. Even though the original cause of the condition is a nervous one, the actual symptom is real enough.

The emotional attitude is the basic cause of the whole difficulty. If a soldier in the bivouac area were a veteran with many years' experience, his heart might not beat rapidly. His emotional attitude would be one of calmness, of confidence in his own ability to handle the situation. His mind would be thinking—thinking of ways and means to deal with the enemy—and there would not be "room" in his brain for an emotional attitude. In such circumstances, the brain does not become excited, there is no stimulation of the nerves and hence no effect on the body.

One must not get the impression that it is only in acute situations that the brain becomes excited. There are many chronic conditions which can do the same thing. If, for example, a man is worried about his wife who isn't getting

along on the allotment, that worry may bring about a mild chronic excitement of the brain (the result of an understandable emotional attitude) and thus cause mild but chronic cramps in the stomach, a constant nausea and inability to eat, a continuous headache, etc. In these cases, the soldier may insist that he has a real disease of the stomach, even though the dispensary surgeons cannot find a physical cause.

In the same way, a GI who has gotten into the bad graces of his sergeant may feel that he is always getting the "dirty end of the deal." He may find himself on KP duty every week end and have no passes. He may find himself "gigged" for the slightest irregularity in appearance or in saluting. He may find that he is always criticized, especially in public and before his squad, and under these circumstances he may become very emotional and upset. With such emotional disturbances—sometimes justified—the excited brain may stimulate his heart, chest, stomach, legs, etc., and produce many aches and pains—so that he will have to go on sick call often. When the dispensary surgeon can find nothing physically wrong with such a man, the sergeant then really goes after him, calls him a "gold-brick," thus creating more emotional instability and thus making the symptoms even worse. The treatment and cure of this soldier's aches and pains is not in "easy jobs" but in creating a different emotional attitude. It is for this reason that personal problems and morale factors are so important in production of neurotic symptoms in the army.

Since most habit patterns of emotional instability are built up over a long period of years, most soldiers, especially in training camps, who are neurotic or unstable have family backgrounds of instability. They frequently have histories of having many fears and nervous symptoms for years before admission into the service. Sometimes there are domestic or financial situations which tend to make the "brain hypersensitive" and situations and conditions which might not disturb the ordinary man will produce a violent emotional attitude in these men—with the consequent physical symptoms described above. All these cases with physical complaints on a nervous basis can be understood only when one understands the background of the soldier as well as his habits of emotional thinking.

* * *

MANAGEMENT OF THE NEUROTIC SOLDIER BY THE PLATOON SERGEANT

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There are roughly five steps to be taken in the treatment of any case where a man has developed nervous symptoms. There are many more refined methods to be used by the medical officer, but in general each of these steps should be followed:

- 1) Find out why the man developed his condition.
- 2) Find out what practical steps can be taken to relieve the soldier's problem.
- 3) Change his ATTITUDE.
- 4) Get the soldier interested in his training or assignment.
- 5) Get him to be sociable and to have recreation.

It takes a lot of work to do a good job of preventive

maintenance on a soldier who is nervous. Careful attention must be paid to each of the steps mentioned above—in order to achieve maximum success. There are many exceptions to the above rule, and these exceptions need special medical care.

1) WHY? So often men who have nervous symptoms may be criticized by their leaders for having symptoms—when as we have pointed out, each symptom has a cause—and the symptom will not disappear unless the cause is removed. The nervous symptoms may be the result of a sick wife, or an unpaid mortgage, or a pregnant girl friend. Similarly, when a man goes AWOL, before the punishment is given, it is important to find out WHY he went AWOL. It may be that he missed the bus, or it may be that he received a telegram that his child was dying—or it may be that he was a coward and was afraid to ship out with his group. One cannot treat all these AWOLs alike—each one demands a different treatment. Whenever a man is nervous, or in any way does not seem to be adjusted—before you do anything to him, either as discipline or treatment, FIND OUT WHY he is the way he is.

Talk to the soldier man to man—as a sympathetic person. No one will open up and tell you about an unhappy love affair if you ORDER him to talk. Treat him as you yourself would wish to be treated if you were in trouble.

Some men may be secretive about their troubles—but remember he is in your outfit and you should do your utmost to let him understand that you are a friend of his. Find out WHY as the first step in the treatment—why he is nervous.

2) Often there are many actual and practical steps which can be taken to help men with difficulties. In home problems, the American Red Cross has done excellent work in relieving acute situations. Often help can be obtained from the allotment section or at times from the dependency discharge section. In many instances the special service officer or your company commander are the ones who can give some practical help. Frequently an emergency furlough will do more to clear up real domestic difficulties and relieve nervous strains than any other single thing—but before a man goes on such a furlough he must understand just what he can do and he must be informed that another such furlough will ordinarily not be granted. Sometimes the legal advice from the SJA will be such that the situation can be handled without a furlough. Every possibility for help should be explored, in each case.

There is rarely a substitute for real and practical help. Yet, as in everything else, the soldier should thoroughly understand—through a discussion with you—just how much advantage he can obtain from that practical help—and how much he must resign himself to unpleasant results



WE SALUTE

WE SALUTE the *Reserve Officers' Association* and the *National Guard Association* for having influenced passage of the following legislation:

Reserve Officers' Association:

Removal of the words "A Reserve Officer shall not be entitled to pay and allowances except when on active duty" from section 37a of the National Defense Act.

Provision for the organization and training of the Organized Reserve Corps (Public Law 460—80th Congress).

The Reserve Retirement Law (Public Law 810—80th Congress), which will insure the continued interest and participation by Reserves in the National Defense program.

Revision of the courts-martial system of the Army (Title II of Public Law 759—80th Congress).

In addition to the foregoing items of legislation, ROA supported and actively assisted in obtaining favorable action by the 80th Congress on the Unification of the Armed Services, Military Leave for the Enlisted Reserves, The WAC and WAVE Bill (This provides regular and reserve status for women in the Armed Services.): Pay and Allowances for Terminal Leave for both reserves and regulars, the establishment of a separate Air Judge Advocate, Selective Service, and consideration of the removal of discrimination between the Regulars and the Reserves on disability retirement, which was found by Congress to exist.

National Guard Association:

Establishment of a system of retirement benefits for the civilian components, compensating in part for the personal sacrifices of National Guardsmen and others who have devoted years to voluntary service to their country, and offering an incentive to continuing service.

Inclusion of provisions in the 1948 Draft Law which exempt active Guardsmen from induction, barring a shooting war; providing for a flow of men into the Guard and other civilian components upon completion of tours of Regular service, and for establishing the policy that the Guard must be called into Federal service in an emergency requiring more men than the Regular Services can supply.

Granting longevity pay for National Guardsmen for armory drills, while authorizing armory drill pay for other reserve components.

Appropriation of \$290,000,000 to support a National Guard strength of 341,000 in Fiscal Year 1949, an increase of \$95,000,000 beyond the figure recommended by the Bureau of the Budget.

Inclusion of a provision in the Unification Law requiring that the National Guard Bureau shall be the channel of communication between the Air Force, as well as the Army, on the one hand, and the States and Territories on the other, in all matters affecting the National Guard.

OFFICER PROCUREMENT PROBLEMS RELATIVE TO AAA EXPANSION

By Colonel Perry McC. Smith, CAC

The planned Antiaircraft phase of the impending Army augmentation, resulting from passage of the Selective Service Act, calls for a greater percentage increase of Antiaircraft units within the Zone of the Interior than the percentage increases of any other combat arm. It is generally accepted that the proportion of Antiaircraft troop units in our Army of the future will continue much higher than has been the case in the past. This fact warrants a brief analysis of our Coast Artillery officer personnel situation. In considering the availability of officers with respect to present and future needs, the problem resolves itself into two phases. First, we must obtain within the next few months, sufficient officers to man our new units. Second, we must insure that there is a sufficient yearly input of junior officers to compensate for normal attrition.

A large percentage of our officers has been diverted to branch immaterial positions because of the relatively few Coast Artillery troop units in the troop basis during the past few years. A large number of these officers must now be released into the troop duty stream. Consequently, the Department of the Army has approved levies for Coast Artillery field officers against all Zone of the Interior Armies, Headquarters Army Field Forces, and the Department of the Army General and Special Staff Divisions. In addition, the greater percentage of Coast Artillery field officers who have completed about five-sixths of their foreign service tours are being returned to the Zone of the Interior to participate in the augmentation. Quotas of students of the combat arms at the Command and General Staff College, and the Advanced Courses of the Arms Schools have been materially reduced, giving an additional number of officers to be applied against our immediate expansion needs. These actions, together with a limited number of recalls of majors to active duty, should provide all the field officers needed for Antiaircraft troop units for immediate expansion.

The situation with respect to company grade officers is somewhat different. There are an insufficient number of Coast Artillery company grade officers on active duty to provide all our needs in the expansion. Hence, we must depend largely upon recalls of non-regular officers to active duty (See page 52 for further details. *En.*). So far, requests for recall have been received in considerable volume, but the number of such requests must be increased for us to meet our immediate needs.

In viewing our long term problem of insuring an adequate input of junior officers to take care of normal attrition, an examination of the percentages of our officers of various grades now on active duty is rather startling. At the present

time, approximately 13 per cent of all combat arms regular officers are Coast Artillerymen. Broken down by grade, however, the Coast Artillery has the following representation in the combat arms: 14 per cent colonels, 13 per cent lieutenant colonels, 15 per cent majors but only 12 per cent of the captains and 9 per cent of the lieutenants. It is apparent that we have sufficient field officers to take care of our needs, but that we have a serious deficiency in company grade officers. Indicative of the present trend is the fact that only three graduates of the last two classes at USMA have chosen the Coast Artillery, and that only five 1948 ROTC honor graduates chose the Coast Artillery, although from a percentage point of view we should have received twelve or thirteen of the latter. Coupled with this small input have been numerous requests of company grade officers for detail in or transfer to other arms or services. Many of these requests apparently are based upon a feeling that opportunities for advancement or for troop duty are not as favorable in the Coast Artillery as in the other arms or services. While this impression was not illogical in the immediate past, it is apparent that in the future, such opportunities probably will be at least equal in the Antiaircraft to those in the other arms.

It would appear to be to the interest of our arm as a whole for all officers, particularly our senior officers, to make every effort to insure that the future of the Coast Artillery as reflected in the great increase of Antiaircraft troop units, be thoroughly understood within the arm, and that every effort be made to retain our outstanding junior officers and to bring into our arm, a greater number of newly commissioned officers than in the past few years.

The proposed change in the name of our arms publication to the "Antiaircraft Journal" may have some effect in accomplishing this purpose. The term Coast Artillery has always connoted fixed Artillery in the minds of other arms and services, and the civilian populace as a whole, whereas the new term will be more indicative of the troop duty being performed by the greater proportion of our personnel. Although the Seacoast Artillery, particularly submarine mine duty, will continue to be an important part of our arm, and qualified Seacoast and Submarine Mine personnel are always in demand, we must accept the fact that our predominant role from now on will be Antiaircraft. We must all make every effort to continue to obtain and hold officers of the quality for which the Coast Artillery has always been noted, to insure an adequate qualified officer corps for our increasingly important role in the Army of the future.



Comments on "Proposed Revision of FM 4-104"

The following letters were received in answer to our request for comments on the article entitled "Proposed Revision of FM 4-104," that appeared in the May-June issue of the JOURNAL:

To the Editor:

The May-June issue of the COAST ARTILLERY JOURNAL contains an article titled "Proposed Revision of Field Manual 4-104" upon which comment is invited. After reading the article, there are a few comments I should like to offer for what they may be worth.

It is apparent that many of the recommendations included in the article are based on operations against V-1 missiles in the defense of Antwerp. To include information on the defense of an objective against such weapons is appropriate, but I believe it should also be borne in mind that PAC of a future war may have characteristics which depart materially from those of the V-1, with necessary corresponding changes in the pattern of defense, and any field manual revision at this time should make it clear that a given type of defense may be satisfactory for but limited categories of PAC. As a matter of fact, it is a moot question in my mind whether PAC of the V-1 type will ever be used again, and if tactical concepts are built up around the characteristics of this weapon, they may well be useless if it becomes necessary to take defensive action in the future. For instance, had the Germans incorporated in the V-1 a weaving control which would have caused it to proceed on a more or less sinusoidal course, the tactics which were found to be satisfactory at the time of Antwerp would have been practically useless. What would have been done I do not know, but it would have been something other than the type of defense (and type of fire control) which was used. In a nutshell, a field manual should not teach us how to fight the war which has just ended.

Specific comments:

a. Bottom of page 39, last paragraph states "If the spare radar." Suggest the use of a statement such as "Additional radars used to supplement the AAIS radar net, their positions."

b. Page 41, under Amphibious Operations, Preparations. Reports were current from time to time during the war that AA gun units were landed with a full complement of guns, but without fire control, on the theory that they could engage aircraft by emergency means, and reinforce the field artillery with a maximum number of guns in a ground role. Since there is no emergency AA gun fire-control system available at the present time which is worth using, tactics of the sort described above actually amount to supplementing field artillery with an expensive, albeit long-range, gun which cannot be used in the performance of its primary mission with any degree of efficiency. Where lift is at a premium, I believe that AA doctrine should be to always include the fire control, even if by so doing one or two guns per battery must be omitted. This will at least permit an active, effective AA defense to be set up, with somewhat less "hitting power," until such time as the remaining guns can be landed. If, on the other hand, the ground role is para-

mount, then it should be clearly stated that the AA units cannot be expected to protect the beach from the attack of enemy aircraft except at very low altitude and short range. If there is a successful development of an on carriage fire-control system applicable to major caliber AA weapons; the above comment will not necessarily hold. In addition, some mention should be made in the new manual of the possible role of intermediate caliber AA weapons which I believe would be of considerable value in amphibious operations.

c. Page 41, under Amphibious Operations, Early Warning. Emergency early warning in an amphibious operation will not necessarily come from a floating operations room.

d. Page 41, under Pilotless Aircraft, Additional Gun Belts. A separation of 15,000 yards between gun belts is proposed. This separation may not be sufficient where the defense includes guns of longer range than the 90mm gun.

e. Same as d, above. It is stated that normal fire control will be by visual means with radar range. This again fails to take into account improvements in radar characteristics, which may make it advisable habitually to track by radar means entirely.

f. Same as d, above. It is stated, on page 42, that volley fire may be utilized with time fuze ammunition to insure proper fuze setting. The subject of volley fire has been controversial for some time, and as far as I know, has not yet been resolved. In a study started by the AA & GM Branch, The Artillery School, in 1945, the conclusions were reached that volley fire has no merit where VT fuzes are used, or where automatic fuze setters of the type used on the 90mm M-2 gun are used, and that its advantages were, at best, questionable where the M-13 fuze setter on the 90mm M1A1 gun is used. Be that as it may, the statement gives a false impression that the use of volley fire will insure correct fuze setting. In many tests conducted by the AAA Board (now the AASTS, AFF Board No. 4) during the war, the chief causes of faulty fuze setting on the M-13 fuze setter were lack of proper training of the fuze setter operators and improper fuze setter maintenance. The great disadvantages of volley fire are that it causes a longer dead time and decreases the fire power of the battery. The increased dead time, due to the method by which the dead time computation is handled in the M-9 director, seriously degrades the accuracy of the fuze data, so that even though slower fuze setting resulted in zero fuze setting error (which it doesn't), the over-all accuracy of the fuze computation and setting is just about the same. I believe that the statement as made should be deleted entirely. If there is contrary opinion to this, then I believe that it should be modified by stating that if the gun crews are not well trained and experienced, volley fire may result in a higher percentage of accurate fuze settings being made, but at the possible expense of less accurate fire.

g. Same as d, above. On page 42 are given some distances relating to siting of early warning radars and posting of observers. The distances given are predicated on missiles having characteristics similar to the V-1. If the missile speed is appreciably higher than that of the V-1, the dis-

tances must be modified accordingly. I believe that distance should be replaced by a time measure, which will tie the tactics directly to the missile characteristics. In addition, if a diving type missile is encountered, it may be necessary to bring visual observers closer in in order that they may sight a reasonable percentage of missiles.

I appreciate your policy of soliciting comments on matters of this sort. There is much experience which could well be incorporated in texts and field manuals, to the benefit of all. The COAST ARTILLERY JOURNAL is to be congratulated for attempting to tap this experience by this means.

Sincerely yours,

s/A. A. CURRIE
t/A. A. CURRIE
Lt. Col., CARes.

To the Editor:

1. In reply to your letter 16 June 1948, soliciting comments pertaining to an article entitled, "Proposed Revision of FM 4-104," appearing in the May-June issue of the COAST ARTILLERY JOURNAL. Officers of this Group feel that the contents contained in the proposed revision, as a whole, are clearly written and correspond to the need of a consistent policy in gun tactics to be followed by AA units.

2. Recommendations and comments that may assist in the revision of the above manual are:

a. *Location of Gun Batteries About a Defended Area.*

(1) *Under paragraph A 1*

It is thought that the caliber of guns should be considered, i.e., 120mm guns should be placed in inner defense rings.

(2) *Under paragraph A 2*

There should be numerous illustrations showing typical defenses required for different shapes and sizes of targets.

b. *Selection of Positions*

(1) *Under AAOR*

Alternate positions should be selected in every case.

(2) *Under Gun Battery*

Guns should *normally* be placed in "Y."

(3) *Under Machine Guns*

Available machine guns should be placed in a perimeter defense. A rough sketch of the area indicating local defense will aid in detecting flaws and will assist in readjustment of defense in the event of any matériel failure.

s/W. CRAIG BOYCE, JR.
t/W. CRAIG BOYCE, JR.
Lt. Colonel, CAC
Comdg, 267th AAA Gp.



ABOUT OUR AUTHORS

Colonel Frederick R. Chamberlain, Jr., was the AAA Officer of the Third Army during its operations in Europe. (Page 2.)

Captain John G. Wynn joined the AAA Section of Third Army in the spring of 1945 and remained with it until June 1946. (Page 2.)

Colonel Earl Wentworth Thomson favors us with another article on flak analysis. As previously mentioned, he was the first flak officer in the United States Army. After serving in Europe with the VIII Bomber Command and the Eighth Air Force, he went to the Pacific as Chief of the Flak Intelligence Section, Pacific Ocean Areas. (Page 7.)

Lieutenant Colonel William L. Clay served as Liaison Officer for the Army Ordnance Department with the Bell Telephone Laboratories prior to his present assignment in the Rocket Branch, Research and Development Division, Office, Chief of Ordnance. (Page 15.)

Leonard J. Grassman is Chief of Public Information of the Munitions Board.

Major Benjamin A. Spiller tells us that his story is "one hundred per cent fact except for changing identifications to prevent embarrassment." He was the battery commander however, to whom all this happened. (Page 23.)

Major General Kenneth F. Cramer is Chief of the National Guard Bureau. (Page 27.)

Major John J. Shoemaker is in the Research and Analysis Department of the AA and Guided Missile Branch, T&S, Fort Bliss, Texas. (Page 30.)

D. Samuel H. Kraincs writes on the basis of his broad experience as an Army psychiatrist during the war. He did extensive work in preventive psychiatry. (Page 37.)

Colonel Perry McC. Smith is Chief, Coast Artillery Branch, Personnel and Administration Division, WDGS. (Page 42.)

Susie-Lane Hoyle Armstrong and her family have been in the Regular Army for five generations. She is the wife of Colonel Devere Armstrong, FA (Page 48.)

Army Establishes Reserves' Inactive Training Pay System

Secretary of the Army Kenneth C. Royall has announced the method by which the Army will distribute \$12,000,000 in inactive duty training pay to officers and enlisted men of the Organized Reserve Corps, based upon a system of priorities giving preference to Reserve units which will be part of the 18-Division Army planned to be built up during the coming year.

Reserve personnel in units supporting the 18-Division Army total some 314,000 officers and men, and with a view of utilizing the limited funds available for 1949 to the best advantage, the Department of the Army, as the first step established training categories for the types of units concerned. These training categories are relative and reflect the minimum amount of training each type unit should receive each year to bring it to a minimum standard acceptable for D-Day readiness.

Training Category I includes units requiring the maximum amount of training yearly which for the Reserve Components is set at 48 drills with at least 15 days active field training. Training Category II requires 24 drills per year; Category III, 12 drills per year; and Category IV, 4 drills per year. A fifth training category is established which includes highly specialized units requiring a minimum of military training. Training Category I units will be mainly combat support units, such as a tank battalion which obviously requires maximum preparation for combat. Only units which are authorized to have full complements of officers and enlisted men will be placed in this first category. Pay priorities are based upon the training categories thus established.

First priority will be given to some 35,000 Reservists who are members of units in Category I, and require 48 drills per year in addition to field training. In the case of these organizations, the Army will reserve sufficient funds to insure their maximum training for the coming year.

Second priority for pay will be given to the Reserve units of the 18-Division Army which fall in Categories II, III and IV since it was desired to bring along all the units of these categories on a pay basis regardless of the number of drills per year established as a minimum for D-Day service.

Funds which may be available beyond this point will be utilized for other reservists, on the following priority basis:

Third priority: Individuals having Department of the Army mobilization assignments and necessary filler replacements for the 18-Division Army.

Fourth priority: Reserve units which require 24, 12 or four training periods per year to perform their assigned missions, but which are not part of the 18-Division Army.

Fifth priority: All reservists not included in the above schedule.

Selection of existing Reserve units by type requiring the various degrees of training has been made by the Department of the Army and sent to the Commanders of the Army Areas in the United States and our possessions. The Area commanders will make a survey of such units in their areas, considering factors such as geographical location of population centers, facilities available for each unit, availability of ORC personnel in the region, and the state of each unit's present organization and training. On the basis of this survey, they will recommend the specific units which they believe should be incorporated in the 18-Division Army, subject to approval by the Department of the Army.

As it is planned that the 18-Division Army, the "mobile striking force" which will be built up before the end of June, 1949, will be merely an initial, minimum-strength D-Day force to be achieved in that period, and will be the forerunner of a 25-Division Army which will more nearly meet national security requirements, instructions to the Army Commanders emphasize the importance of training by all Reserve units, no matter what their category. In this connection, the Army is carrying forward the work of abolishing present "composite groups" in the Reserves—made up of personnel who have no definite training assignments. These Reservists are being placed in training organizations designed to fit them for future Army needs.

Some of the Reserve units which will be affected by the designation of the new training categories are Affiliated Units, that is, organizations such as railway operating battalions, laboratory units, engineer, signal and quartermaster units, etc., which are sponsored by civilian business organizations. In these cases, affiliation agreements signed by the Army and the sponsoring agency may indicate willingness on the part of the sponsor to hold a greater number of drills than the number authorized in the new training category. However, payment for drills within the available funds would be up to the number established by the new training category. Should the affiliation agreement for a particular unit indicate a lesser number of drills than that now authorized, payment will be based on drills accomplished in excess of the agreed-upon number, up to the maximum authorized for the new training category.

Under the above policy based on degree of unit readiness for service, it is apparent that many Reserve units, such as those in the fourth priority which are highly important in the over-all Reserve Program, will not receive inactive duty pay during this fiscal year.



Association ROTC Medal Winners

Last year the Coast Artillery Association resumed its pre-war practice of donating a medal for award to the outstanding advanced student in each of the Coast Artillery Corps Senior ROTC units. When the artilleries were merged in the ROTC during the past year, it was decided to award the medal as before except that the recipient would simply be a member of the Artillery instead of the CAC.

The Association left the method of selecting the recipient to the discretion of the president of the college or university concerned.

The letters received to date from the medal winners, PMS&T's and faculty member of the various schools clearly indicate the value of this award and the prestige which it enjoys.

A short sketch of each of this year's winners follows:

University of Alabama: William Chesley Howton, Jr., of Birmingham, Alabama. Cadet Howton is 21 years old and a graduate law student. During the war, he spent some time as an aviation cadet but transferred to the Infantry and spent eighteen months in that branch. He is active in two campus fraternities.

University of California: Charles D. Noonan of San Francisco, California. Cadet Noonan is 20 years old and a premedical student. He is a member of two campus honorary societies.

University of California at Los Angeles: James V. Traugher of Inglewood, California. He was commissioned a second lieutenant in the Coast Artillery Reserve upon completion of his ROTC work in June. During the war, he participated in two campaigns with the 16th Armored Infantry Battalion of the 13th Armored Division. Besides winning the Association award for the second time, he was designated a distinguished military student and the outstanding cadet at the 1947 ROTC camp at Fort Bliss.

University of Cincinnati: Harley B. Fisk, Jr., of Cincinnati, Ohio. Cadet Fisk is 27 years old and was graduated in June with a B.S. degree in Architecture. During the war, he participated in five campaigns with the 2nd Marine Division Medium Tank Battalion. He belonged to one honorary society and was designated a Distinguished Military Student.

The Citadel: Maurice B. Nussbaum of Ehrhardt, South Carolina. Cadet Nussbaum is 19 years old. Besides being a member of two military groups, he is a member of a campus honorary society.

University of Delaware: Louis H. Coxé IV of Newark, Delaware. Cadet Coxé is 23 years old and a Political Science student. During the war, he served 35 months including combat service with the 100th Infantry Division. Besides the Bronze Star Medal and Combat Infantryman's Badge, he is entitled to two campaign stars and the Presidential Unit Citation. He is a member of the tennis and swimming teams and two campus organizations.

Fordham University: Patrick J. McGann of North Bergen, New Jersey. Cadet McGann is 21 years old and is tak-

ing a Bachelor of Arts course. During the war, he held the grade of third-class petty officer as an electronic technician in the Navy. He is co-captain of the Rifle Team and belongs to two campus societies.

Georgia School of Technology: William E. Cheeley of Buford, Georgia. Cadet Cheeley is 22 years old and is studying Mechanical Engineering. During the war, he earned two campaign stars with an Armored Field Artillery unit in the ETO. He is affiliated with five separate campus activities.

Hampton Institute: Harold P. Fields of Evansville, Indiana. Cadet Fields is majoring in Biology and Chemistry. During the war, he was a sergeant in the QMC. He is an honor student, belongs to two campus societies and is a member of the varsity football team.

University of Illinois: James Ward Mann of Hutsonville, Illinois. Cadet Mann is 21 years of age and is taking a Liberal Arts and Science course. He served in the Navy from July 1945 to April 1946. He is a member of two campus societies.

University of Kansas: James Hardwick Davis of Holton, Kansas. Cadet Davis is 26 years old and an Electrical Engineering Student. During the war, he served as a platoon tank sergeant with the 11th Armored Division in Europe. Besides the Bronze Star Medal, he is entitled to four campaign stars.

Kansas State College: Nobel K. Peterson of Randolph, Kansas. Cadet Peterson is 27 years old and plans to take graduate work in Soil Fertility. During the war, he served over three years in the Ordnance Department including a tour of duty in Hawaii. He was an honor student and Distinguished Military Student.

University of Maine: Kenneth Rodney Jackson of Bridgewater, Massachusetts. Cadet Jackson is 21 years old and is majoring in Education. During the war he was a sergeant in the Air Force.

Boston College: The winner will not be announced until after completion of summer camp so this information will be published in the next issue of the JOURNAL.

Massachusetts Institute of Technology: Due to the lack of students in the advanced course, no award was made this year.

Mercer University: John P. Hicks of Macon, Georgia. Cadet Hicks is 23 years old and a Chemistry major. During the war, he served over three years with the Marine Corps. 27 months of it overseas with the 3rd Marine Division Artillery, and is entitled to three campaign stars. He is a member of two campus groups besides being active in intramural sports.

Michigan State College: Theodore A. Goetz of New York City, New York. Cadet Goetz is 20 years old and is majoring in Economics. He is an outstanding student and has been particularly active in ROTC affairs.

University of Minnesota: Kenneth W. Blackmer of Minneapolis, Minnesota. He is 27 years old and a Pharmacy student. During the war, he served three years in the Army including one year in Europe where he earned three campaign stars as a platoon sergeant in the 65th Infantry Division. He also has the Bronze Star Medal and Combat Infantry Badge. He belongs to three campus societies.

Mississippi State College: Thomas H. Dantzler of Sunflower, Mississippi. Cadet Dantzler is 23 years old and is a Chemical Engineering student. During the war, he spent two years and five months in the Corps of Engineers and attained the rank of Master Sergeant. Ten months of his service was in the ETO.

University of New Hampshire: Robert E. Cook of West Nottingham, New Hampshire. Cadet Cook is 20 years old and a Mechanical Engineering student. He is a member of two honorary societies and one social fraternity.

University of Pittsburgh: William Orval Keeling, Jr., of Mount Lebanon, Pennsylvania. Cadet Keeling is 24 years old. During the war, he served overseas with the 42d Infantry Division. Besides the Bronze Star Medal, he earned two campaign stars. He participated in two campus activities during the past year and belongs to a social fraternity.

University of San Francisco: Charles T. deLorimier of San Francisco, California. He is 25 years old. During the war, he served overseas 33 months and was a platoon sergeant in the 24th Infantry Division. Besides the Presidential Unit Citation, Combat Infantryman's Badge and Philippine Liberation Medal, he is entitled to three campaign stars and bronze arrowhead on his Asiatic-Pacific Theater ribbon. He is a member of one campus society.

St. Mary's University: Charles F. Schwab of San Antonio, Texas. Cadet Schwab is 19 years old and a Business

Administration student. He is a member of one honor fraternity.

Agricultural and Mechanical College of Texas: Nathaniel R. Leatherwood of Beaumont, Texas. He is 20 years old and a Management Engineering major. He has been a class officer in all four of his classes. He is both a Distinguished Scholastic and Military Student. In addition, he has been active in four campus groups and intramural sports.

Utah State Agricultural College: Charles V. Jarman of Everett, Washington. Cadet Jarman is 23 years old and a Radio Engineering student. During the war, he served approximately four years in the Marine Corps including one and a half years in the Pacific as a communications sergeant in the 1st Marine Division. He is an outstanding academic student and attained the highest ROTC standing in the advanced class at Utah State.

Virginia Polytechnic Institute: R. L. Miller of Harrisonburg, Virginia. Cadet Miller is pursuing the course in Forestry, Wild Life and Conservation. He is very active in campus activities, belonging to eight different organizations and has held office in two.

Washington University: Arthur J. Werlich of St. Louis, Missouri. Cadet Werlich is 20 years old and a graduate of Christian Brothers College, St. Louis. He served in the Army from June 1945 to April 1947.

University of Washington: James E. Moran of Centralia, Washington. Cadet Moran is majoring in History. During the war, he served in the ETO with the 609th F. A. Battalion of the 71st Division. He entered the service in February 1943 and was separated in April 1946.

William and Mary: The medal will be awarded at the regular fall Honors Convocation so details will be published in a subsequent issue of the JOURNAL.

Draft Deferment Requirements for Reserve Component Units

Secretary of Defense James Forrestal, in a memorandum to the Secretaries of the Army, Navy, and Air Force, has prescribed the drill period and training requirements for "organized" units of the reserve components of the armed forces, for the purposes of the Selective Service Act of 1948.

Under the Act, the Secretary of Defense is required to define such units to determine draft exemptions for non-veterans 19 through 25 years old who were members of reserve components prior to midnight of June 24, 1948, the date the act became effective, and to prescribe attendance requirements for continued deferment in them.

The definitions approved by Secretary Forrestal were recommended by his Ad Hoc Advisory Committee on Selective Service, composed of representatives of the three military departments, with Mr. John Noble, Jr., of the legal staff of the Secretary of Defense, as Chairman.

Organized units in which enlistment prior to midnight June 24, 1948, gives draft exemption are defined as those having a minimum requirement of "35 scheduled drills or training periods, or days of active Federal service, or any combination thereof, per year."

While the standards for satisfactory participation in such organized units in general will be prescribed by the individual Departments, a high standard of attendance will be mandatory, with not over 10% absences authorized in any case.

Mr. Forrestal, in his memorandum to the Secretaries of the Army, Navy, and Air Force, also requested each to furnish him, as soon as possible, with a list of the reserve components of his Department which qualify under the definition he has prescribed. As a general proposition, for purposes of deferment of non-veterans belonging to units as of midnight June 24, 1948, they will include:

Army—Authorized to be organized or Federally recognized National Guard units as of midnight June 24, 1948.

Air Force—Authorized to be organized or Federally recognized Air National Guard units as of midnight June 24, 1948.

Navy—Organized Reserve units including the associated volunteers in a drill status, the electronic warfare companies, and the Platoon Leaders Class of the U.S. Marine Corps Reserve, all as of midnight June 24, 1948.

A WORD TO THE WIVES*

By Susie-Lane Hoyle Armstrong

It would be both foolish and presumptuous for anyone to draw up a rigid set of rules, blandly label it "The Army Way," and expect our many thousands of new Regular Army wives to read it and then live happily ever after. That happy ending always has depended upon the individual. In or out of the Army, the happy ones are those who are prepared to give before they expect to receive. If you have been a good civilian you are bound to make an excellent Army wife.

One of the saddest sacks in the Army is the female whose last post is always the best. Never satisfied with the present, some wives reconstruct the past in rosy hues they probably overlooked at the time. I learned that lesson long ago. We were living in the Midwest after years at eastern stations. The flat plains, the strong winds, and hot, dry summers were alien to my experience; and I found it hard to feel at home. Nursing this mood, I was riding with a native son who galloped past me and drew up near some small hills. As I came abreast, he turned and exclaimed, "Have you ever seen more beautiful country?" His question rang with such sincerity that I hesitated before replying, and decided to try seeing his land as it looked to him. As I watched, the sky seemed immense, the clouds hung low, and over the hills and prairie poured swift changes of color from the bright sun—lavender, rose, dusty blue. It *was* beautiful, and I was ashamed.

Since then I have tried to see with the eyes of those who love their part of the country, and have never been disappointed in our lovely land. Each new station offers a tacit invitation to explore its history, its people, its problems, and to share it all.

To look with intelligence, however, one must use proper guides. We can find time to study the history of an unfamiliar town by using its museums and libraries. The WPA American Guide Series, available in all public libraries, devotes a book to each state. The series' greatest appeal lies in its ability to convey the flavor that sets each state apart. I can think of no better homework for mothers confined by young babies than this reading habit. It banishes the dishpan mind and sets up a good foundation for the less restricted days ahead.

By all means, join in the community affairs, too. See the things that make your new station unique. Do what you can to improve your adopted community. I envy those Army wives who have been trained in some specific field. They and the Army will be losers if that knowledge is not brought into play. Neither talented nor trained for any profession myself, I became a jack-of-all-trades. So far, I have been a lieutenant and a captain of Girl Scouts, a reviewer of children's books, a secretary and den mother

for Cub Scouts, a minor cog in amateur theatricals, a library chairman, the head of one Sunday School and a teacher in others, and even (because of devoted attention to a garden) a judge in a flower show. In every job I have learned more than I taught, and have gotten more than I deserved—for these duties are really selfish pleasures. What ego fails to flutter when neighbors greet you with enthusiasm and openly show, when you leave, that they are sorry to see you go?

I have heard it said that officers' wives, as well as the officers themselves, are sometimes checked when selections are being made for certain assignments. Whether or not that is true, I do not know; but it may be a sound idea. We must remember that the face we present to civilians is the one that represents the rest of the Army to them. That face should always show itself with pride.

Many Army wives quail at the prospect of uprooting their children, just when a decent routine seems established. Yet it may be that your children will show you more clearly the advantages of Army life than you could see alone.

Changing schools proves more of a nuisance than a problem. One of my sons has received his education under auspices of the Quakers, the Catholics, the Episcopalians, and several public schools. Such experiences foster the development of a well-rounded child—tolerant, and with an open, inquiring mind. Can we ask more?

Many teachers have told me that they welcome the service child because he brings into the classroom an awareness of and a personal interest in the social sciences, due to his wider travel experiences. The temporary absence from our house of favorite curios from far-off lands, for use in school exhibits, has often made it easy for me to follow my children's classwork! Incidentally, the collecting of interesting and unusual objects, at each new station, domestic and foreign, lends distinction and interest to many Army homes.

We often forget that babies are an "open sesame" to people's hearts. I have stopped at farmhouses to warm bottles on a coal stove, and found that drugstores will cheerfully do this for me in cities. One of my happiest mornings was spent in a tourist home where we ate like kings as a blizzard raged and our hostess rocked our baby by the fire.

To make a change of station easier and safer, I have a strongbox in which I keep all essential family records—birth certificates, school records, and, most important, a separate file on each child's health record. The latter shows the child's name, birth date, and blood type, and is followed by a dated account of all illnesses and inoculations. Children seem to have a positive mania for developing fevers and broken bones just as you move into a strange neighborhood. and under such circumstances a health record is invaluable to the new doctor. I was much amused by one New England doctor who, after reading our long lists in stupefied

*Reprinted from the June 1948 *Army Information Digest*.

silence, whispered, "Ye gods! Where have you poor people been living?"

Such records also save the added strain of trying to remember when your young hopeful had that last tetanus shot. And don't forget to add your own records, too—this business of proving that you really *were* born and really *were* married can sometimes present a baffling problem.

Let's assume that you have moved into your new home. With the last curtain hung, your furniture often resembles the song, "It's either too large or too small, too much or nothing at all." That frustrated feeling is a common ailment, but at your next station Aunt Min's four-poster may come into its own. That's the comforting thought that sustains us all. You have done the best you can, so spare the apologies—and that goes for your home town, too. If you hail from the wide open spaces, why be aghast if your first callers have Boston accents? Your home state is appreciated where it is, and you are more interesting as an individual, not as a sectional rooter. If you feel sincerely that your background has been inadequate, keep your eyes and ears open. Ask questions of friends whose modes of living you admire. People are kind if you give them a chance.

Don't let yourself be intimidated by rumors of what is proper in the Army. If you bear in mind that what constitutes the best of taste and good manners in your home town applies equally well in Army circles, you can't go wrong. We have dined often à la paper plate and card table and had a wonderful time. We have also admired an exquisite table with lovely appointments, but a glance at the poor wife's harassed face has started me off with nervous indigestion.

One suggestion I might offer is the rule in our family. If you accept an invitation, the obligation to see that the party runs smoothly rests as much upon you as upon your hostess. No one craves a guest who sits down, mentally and physically, and waits for a handout of food and conversation. You would be better off at home where your dead weight won't be noticed.

I also suggest that, when in company, you avoid talking about official matters. Those subjects are best left in the office. You are not expected to know how many men form a squadron; and I don't think it's wise to be too clever about your husband's—or some other husband's—business. Such talk can be dangerous, indiscreet, and often cruel. It's a good idea to check on whom you're addressing, too. I dare say one lieutenant never forgot his careless remark on his first post. Standing by his commanding officer (my grandfather), he silently watched the dancers glide by at a post

hop until a certain lady appeared. She was a woman noted for her musical talents and graciously commanding presence, though her virtues were encompassed by an unusually ample frame. "My Lord!" he gasped. "Who is *that*?" "That, sir," roared the colonel, drawing up to his full six feet four inches, "*That* is my wife—and I love every pound of her!"

It is an oft-forgotten fact that Army wives have no rank. Because of their husbands' high rank, however, many are expected to assume a greater measure of responsibilities and consequently share in some privileges. When you are with them, do as your mother taught you. They are entitled to the same courtesy and deference normally accorded the older women in your own home town. But don't overdo your natural training. An ivory tower is a lonesome place; and no woman wants to be treated halfway between Whistler's mother and Queen Victoria. If you are friendly and cooperative, you will be repaid by the older Army wives in the same coin, and with interest. Most of your associates, however, will be in your own age bracket, with backgrounds that form a cross section of our entire country. What could be more interesting than meeting so many different personalities?

Great personal satisfaction comes to those who develop a strong obligation to the enlisted man and his family—standing by to promote their welfare and morale when needed. Such loyalty is reciprocal; and many a difficult situation has been eased because of it.

The Army has made so many changes that I find it hard to explain my own background to my children. They can scarcely remember the days when they, too, accepted the uniforms, the parade grounds, and the bugle calls as part of their daily environment. However, we are equally fortunate in that we grew up serene in the knowledge, made so clear to us in the Army, that Uncle Sam spreads his protecting mantle wherever we go.

I do not weep for the "old Army," much as I loved it. Each generation is confronted in turn by a newer generation which refers nostalgically to the "good old days" their seniors thought so revolutionary! Changes have come as our horizons have broadened, and the new way is almost always an improvement. But the fine traditions that form the intangible core of a soldier's career will never vanish.

New Army wives, meeting the challenge of increased responsibilities carried by the Army today, have been given the opportunity to contribute to the building of that tradition.



Coast Artillery Journal

Fifty-seventh Year of Publication

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The JOURNAL prints articles on subjects of professional and general interest to personnel of all the components of the Coast Artillery Corps in order to stimulate thought and provoke discussion. However, opinions expressed and conclusions drawn in articles are in no sense official. They do not reflect the opinions or conclusions of any official or branch of the War Department.

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The United States Coast Artillery Association

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The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of matériel and methods of training and by fostering mutual understanding, respect and coöperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves, and Reserve Officers' Training Corps.

News and Comment

Meet The New Associate Editor

Major H. G. Wood assumed his duties as Associate Editor of the JOURNAL on 19 July after completion of graduate work at Columbia University where he received an M.S. in Journalism.

Just prior to reporting to the JOURNAL for duty, he also completed the six-week basic Airborne course at Fort Benning, Georgia.

Major Wood graduated from the University of Washington in 1940 and went on active duty under the Thomas Act on 1 July 1940. He received his Regular Army appointment in the CAC upon completion of this tour in 1941.

During World War II, he spent two and one-half years with the Panama Canal Department, part of this time as Executive of an AW battalion.

Upon his return to the United States, he became Editor of *Army Talk and Armed Forces Talk*, which position he held till his assignment to Columbia University as a student.

Major Wood brings an outstanding journalistic background with him to the JOURNAL and there is little doubt that it will reflect favorably in the JOURNAL.

This Issue's Cover

A gun of the 449th AAA AW Battalion in front of the Opera House, Frankfurt, Germany.

More About Merger of Associations

Since publication of the last issue of the JOURNAL, progress has been made with reference to the Infantry Association's proposal for a merger of the JOURNALS and Associations of the Combat Arms.

The main points of discussion now concern the editorial policy of the proposed journal and the constituency of the Executive Council of the proposed association.

We reiterate however that no action will be taken by the Executive Council until the entire matter has been put to a vote of the membership.

F-84 Thunderjets Equipped With High-Velocity Rockets

Offensive power of the U. S. Air Force's Republic F-84 Thunderjets has been increased considerably by the addition of high-velocity aircraft rockets to the normal operational equipment of six .50 caliber machine guns.

The seven-ton Thunderjet carries eight 140-pound rockets, four under each wing. They are mounted in pairs and fired individually by the pilot. The rockets have a maximum velocity of 1,400 feet a second (more than 950 miles an hour), and during the tests at Aberdeen, were fired from an F-84 flying at speeds ranging up to 500 miles an hour. The pilot was Captain Franklin Rizer, of Air Materiel Command.

Quarters Situation at Fort Bliss

Officers and noncommissioned officers are cautioned not to take their families upon initial assignment to Fort Bliss unless they are prepared to live in hotels until they can procure permanent accommodations.

The criteria for the assignment of family quarters are: first, rank; second, within each grade, the length of time which dependents have lived in El Paso or environs. Those who have lived in El Paso and environs the longest will have top priority within their rank group. Quarters are allotted on a percentage basis to each grade from 2d Lieutenant to Colonel, inclusive.

Bachelor officers and married officers, unaccompanied by dependents, will be assigned bachelor quarters immediately upon arrival if desired.

There will be no differentiation made between personnel (officers and noncommissioned officers) assigned to the staff at Bliss and those assigned to troop duty, as far as the assignment of quarters on the post is concerned.

Considerable storage space for household furniture, crated or uncrated, is available at Fort Bliss. Additional storage facilities in El Paso are available.

Although not particularly pertinent to this article, we should like to mention that most officers ordered to Bliss will be assigned initially to the 34th AAA Brigade or the 5th AAA Group which will serve as pools until permanent assignments are made.

Members Favor Name Changes

At the last meeting of the Coast Artillery Association Executive Council, it was unanimously agreed that the subject of changing the name of our Association to the "United States Antiaircraft Association" should be put to a vote of the membership.

Further, the Council decided to poll all active members of the Association in an effort to determine the most suitable name for the Branch.

Letters were mailed to all active members requesting their opinions on these two proposals, and a post card was enclosed for their reply.

Approximately 2500 letters were mailed and 1117 replies had been received as of the time we went to press.

Of all replies received, 1030 favored changing the name of the Association and Branch and 87 opposed change in name of either.

Of the 1030 who favored changing the name, 51 expressed a preference for a name other than "Antiaircraft."

The following breakdown lists the various suggestions received for the name of the Branch. The figure in front of each suggestion indicates the number of members in favor of it:

- 979—Antiaircraft.
- 20—The Artillery.
- 8—Antiaircraft Artillery.
- 3—AAA and Guided Missiles.
- 1—Artillery Corps.
- 1—Ground Air-Defense Corps.
- 1—Counter Air.
- 1—Ground to Air Artillery.
- 1—Coast Air Branch.

- 1—Ack-Ack.
- 1—Air Defense Artillery.
- 1—The AA and Coast Defense.
- 1—Heavy Artillery and AA.
- 1—Aircraft Destroyer Artillery.
- 1—Antiair or Air Defense.
- 1—Antiairattack.

Each individual suggestion including any accompanying letter will be given careful consideration by the Executive Council.

Unification and Guided Missiles

Prior to unification, the War Department activities in the field of guided missiles were conducted by the Army Ordnance Department and the Army Air Forces. In order to provide complete coordination of effort within the War Department, the Commanding General, Army Air Forces, was, in late 1946, assigned responsibility for the entire War Department Program. Under this organization, the Director of Research and Development, War Department General Staff, was the "umpire" of the War Department guided missile program.

With the advent of unification, the Research and Development Board was formally established by a directive of the Secretary of Defense to carry on the functions of the former Joint Research and Development Board and to operate as the top research and development coordinating agency of the National Military Establishment. The Board was hence charged with the responsibility of monitoring the over-all research and development efforts of the Army, Navy and Air Force.

Therefore, effective in early 1948, the responsibility for research and development pertaining to guided missiles for use by the Department of the Army was transferred from the Department of the Air Force to the Department of the Army, with the Research and Development Board assuming responsibility for coordinating the over-all interdepartmental guided missile program.

Within the Department of the Army, the Chief of Ordnance has been assigned primary cognizance of the Army's efforts in the guided missile field.

The Committee on Guided Missiles of the Research and Development Board now functions to coordinate the research and development efforts of the entire National Guided Missile Program and has established panels in all of the major fields of associated activity with membership drawn from particularly qualified military and civilian personnel, each of whom is outstanding in his own specialized field.

All in all, unification of the research and development efforts to provide guided missiles for the National Military Establishment is being achieved. In this field of endeavor there is developing a highly coordinated, cooperative effort at all levels, a wide and free exchange of technical information between the various development projects and an efficient utilization of scientific talent and engineering facilities.

Although no report of actual progress in the guided missile field is possible because of security restrictions, it is known that great advancements in the art have been made and that new achievements are occurring daily at the flight-

test ranges where these new weapons are emerging from the laboratories and entering phases where military capabilities can be foreseen.

1 1 1

Priority System For Dependents Modified

It has been determined from The Adjutant General's Office that permission has been granted the Far East Command to modify the priority system for the movement of dependents overseas that was described in the March-April 1948 issue of the JOURNAL. Modifications are now in effect for The Marianas, Okinawa, and the Philippines. In these areas personnel with eight months in their current tour cannot be displaced on the priority list by new arrivals with more points.

1 1 1

Stay At Bliss Highlights Cadet Tour

The following letter was sent to General Homer by Colonel Paul D. Harkins, Commandant of Cadets, United States Military Academy, on the occasion of the recent visit of the Class of 1949 to Fort Bliss:

Major General John L. Homer
Hqs. AA and GM Branch
The Artillery School
Fort Bliss, Texas.

Dear General Homer:

On their return from the Combined Arms Trip, Lieutenant Colonel Tucker and the members of the Class of 1949 were high in their praise of the instruction and entertainment which had been provided during their stay at Fort Bliss. It was obvious to all that the details in connection with the visit had been most carefully planned and coordinated. The consensus of opinion is that the stop at Fort Bliss was the highlight of the entire trip.

On behalf of the First Class and myself, I should like to take this opportunity to express my deep appreciation to you and the members of your staff, and General Hart and Major Maldonado in particular, for a most enjoyable and profitable visit for all concerned.

After two trips, I hope that this type of training has become sufficiently established that it will continue in the future and that we may look forward to bringing the First Class to Fort Bliss each year to be given the benefit of the extremely valuable instruction which you have to offer.

Sincerely yours,

s/Paul D. Harkins
t/PAUL D. HARKINS
Colonel, Cavalry
Commandant of Cadets.

1 1 1

AAA Officers Needed on Active Duty

With the expansion of AAA within the Regular Army there is a great demand for CAC officers of the Reserve and National Guard to come on active duty.

Age in grade restrictions have recently been raised to 47 years for all company grade and former AUS warrant officers and 57 years for field officers.

Although some field grade officers in the past have been

denied active duty because no quotas existed, they are urged to resubmit applications, as vacancies in field as well as company grades exist in view of the program listed on the inside of this issue's front cover. Officers will be ordered to active duty in the last grade held prior to processing for separation.

All officers interested in applying will be requested to accept a three-year tour of duty.

Applications should be submitted on DA AGO Form 160. These forms are available at the offices of all ORC and National Guard Instructors.

Reserve officers should submit their applications through their Senior State Instructors who will endorse and forward them to the Headquarters of the Army Area in which the applicant resides.

National Guard officers will forward their applications through their State Adjutants General.

Officers ordered to active duty will be placed, insofar as possible, in their proper listing on rosters for overseas service along with Regular Army officers or non-regular Army officers now on extended active duty.

The following general rules apply:

Officers with less than 12 months foreign service since 7 December 1941 will be eligible and available for duty abroad.

Officers with 12 months to 24 months overseas since 7 December 1941 may be assigned to the Zone of Interior or to overseas service at the discretion of the branch concerned. If, however, the officer is initially assigned for DUTY with a Zone of Interior installation, he will not be eligible for overseas service for 12 months.

Officers with more than 24 months overseas since 7 December 1941 will be assigned to the Zone of Interior for at least 12 months prior to an overseas assignment.

In the event of assignment overseas, the movement of dependents will be made in accordance with the priority system set up by the various overseas commanders. This system, as explained in the article "Accommodations Overseas For Dependents" in the March-April 1948 JOURNAL, establishes priority for movement of dependents on a credit system. Relative priority is based on the greatest number of credits earned at the rate of one point for each month of overseas service in previous tours subsequent to 7 December 1941 and two points for each month of overseas service in current tours. Months in any tour when dependents were present will not be counted in establishing credit.

The JOURNAL article quoted in the previous paragraph states that dependents may accompany military personnel upon overseas assignment to the American Occupied Zone in Europe but at all other foreign service stations, the priority system will be used.

Officers interested in returning to active duty may procure copies of the entire article regarding accommodations overseas by sending 15¢ in stamps to the Journal.

1 1 1

Score One for Our Circulation Campaign

TO THE EDITOR:

As of 4 June you again solicit my subscription to the COAST ARTILLERY JOURNAL. Your persistence causes me to capitulate and under separate cover I am sending my check

My reason for discontinuing my subscription after having been a subscriber for practically all my service was not because of any dissatisfaction with the JOURNAL itself but rather a doubt on my part that a Coast Artilleryman at the end of the trail could find in it much that would be of professional benefit in the type of duty to which the older officers are being assigned.

It is heartening that antiaircraft is to have a part in the rearmament program and that you have in mind making the JOURNAL the instrument by means of which the older officers can be kept abreast of developments and application of the new weapons which the Coast Artillery will man. May the more technical phases be left to technical manuals and the JOURNAL carry articles on the future role of the Coast Artillery that are both informative and non-technically instructive. All good wishes to you in your efforts.

Sincerely,

/s/ COLONEL, C.A.C.

Army Offers Enlistment Inducements for Antiaircraft Artillery Veterans

A special opportunity for World War II veterans with Antiaircraft Artillery training to enlist in the Army in advanced grades ranging up to technical sergeant has been announced by Lieutenant General Willard S. Paul, Director of Personnel and Administration, Department of the Army General Staff.

Open to Navy, Marine and Coast Guard veterans as well as to former Army and Air Force men, this special inducement has been provided to attract qualified personnel for new antiaircraft units organized under the recently authorized expansion of the Army, General Paul explain.

Men trained in one or more of 21 different Antiaircraft Artillery technical specialties may qualify for this opportunity if they have been honorably discharged from one of the Armed Forces since May 12, 1945, General Paul said. They may enlist for three, four, five or six years with assurance of being assigned to the Antiaircraft Artillery duties.

Of the 21 job specialties covered in this announcement, nine have openings available in the second enlisted pay grade, which embraces technical sergeants; five have openings in the third pay grade (staff sergeants and technicians, 3rd grade); two have openings in the fourth pay grade (sergeants and technicians, 4th grade); and five have openings in the fifth pay grade (corporals and technicians, 5th grade). No man will be accepted in a grade higher than he held at the time of his discharge, however.

Many of the noncommissioned officers and technicians who take advantage of this enlistment opportunity will be sent to the Antiaircraft Artillery and Guided Missiles Branch of the Artillery School at Fort Bliss, Texas, General Paul said. They will be given refresher training at Fort Bliss before receiving more permanent assignments.

General Paul listed the 21 Antiaircraft Artillery specialties in which these opportunities are open, with their identifying Specification Serial Number (SSN) and the numerical designation of the top pay grade in which veterans will be enlisted, as follows:

Second Pay Grade: Ground Observer, Aircraft Warn-

ing (518); Communications Chief (542); Antiaircraft Artillery NCO, Self-Propelled Weapons (598); Antiaircraft Artillery Automatic Weapons Crewman (601); Intelligence NCO (631); Operations NCO (814); Artillery Mechanic, Antiaircraft (Automatic Weapons) (833); Radar Repairman, Gun-Laying Equipment (952) and Antiaircraft Gun Crewman (2601).

Third pay grade: Antiaircraft Range Section NCO (527); Fire Control Electrician, Antiaircraft (Automatic Weapons) (633); Fire Control Electrician, Gun (634); Master Gunner, Antiaircraft (Gun) (671) and Master Gunner, Antiaircraft (832).

Fourth pay grade: Information Center Operator (510) and Radar Crewman (514).

Fifth pay grade: Height Finder Observer (692); Artillery Mechanic, Antiaircraft (Gun) (834); Artillery Mechanic, Antiaircraft (Self-Propelled) (841); Portable Power Generator Operator (846) and Antiaircraft Range Section Operator (1645).

Journal Name To Be Changed

As a result of the returns received on the ballot published in the May-June issue, the name of the COAST ARTILLERY JOURNAL will be changed to the Antiaircraft Journal effective with the September-October issue.

Of all votes submitted, 90% favored changing the name of the JOURNAL, so after this issue, we shall cease using the name which our publication has carried since 1922.

Although it is with a feeling of nostalgia that we witness this change, there is little question that it is made in the best interests of all concerned.

It is not a matter of lack of pride in the old name nor lack of appreciation of the fact that the Coast Artillery fostered the Antiaircraft. It is simply a progressive step and an effort to align ourselves with modern warfare and the important place which Antiaircraft occupies.

There is no question that the general public and for that matter other services within the Army, do not normally associate Antiaircraft with the Coast Artillery. This situation has worked to the detriment of the Corps as a whole.

During the first war and for the next few years subsequent to it, seacoast artillery was the primary mission of the CAC and antiaircraft but a secondary mission. Since the middle thirties however the vast expansion of antiaircraft has elevated it to the position of being our primary function and it is only fitting that this be recognized in our Association's official publication. (See article on page 51 regarding changing the name of the Coast Artillery Association.)

This change in name will in no way adversely affect our policy of publishing interesting material on seacoast artillery. Whenever we can procure such articles, they will be published as before.

Efficiency Reports To Be Made On Army Enlisted Personnel

Detailed efficiency reports for enlisted men, instituted for the first time in history, have been announced by the Department of the Army as another step in effecting the

Career Guidance Program for enlisted personnel.

Substituted for the old adjectival notations, such as "excellent" or "good," on the service record at time of transfer, the efficiency rating will be a comprehensive report of the soldier's performance. It will be rendered by his immediate superior, in most cases a noncommissioned officer, and checked and again rated on certain items by the officer or warrant officer immediately superior to the rating person. The use of enlisted personnel as rating officials for other enlisted men is also a new departure.

The new efficiency reports will be used for the first time when the Food Service Career field is officially instituted in the near future. As other career fields are opened, they will be included in the rating system.

Efficiency reports will be used for enlisted men of all grades excepting the seventh, or lowest, pay bracket. Men in this pay grade are not considered specialists and therefore cannot be rated on a specialty.

It is expected that the report will aid Army Personnel Management Units in selecting men for specialized schooling, promotion, assignment to responsible jobs, reclassification and separation. The standard form for efficiency

Navy Guided Missile Study

Guided missile research being conducted by the Navy Department has recently delved into the possibilities of "automatic celestial navigation."

Addressing a recent meeting of the Institute of Navigation, a national organization of engineers and scientists, Charles A. McPheeters, Director of Automatic Self-Navigation for the Navy Bureau of Aeronautics, stated that the Navy is conducting research to determine the use of stars in aiming guided missiles.

Automatic celestial navigation is based on a system of incorporating in guided missiles, machinery which, like human navigators on ships, will take constant bearings on stars or other heavenly bodies. The ultimate purpose of such a system would be to avoid disruption of direction signals by the enemy.

Mr. McPheeters stated that two methods under study have proved "to a certain degree successful." One method is the "automatic star seeker," where a missile mechanically seeks out a selected heavenly body and "tracks" it throughout the main part of its flight. The other method is by mechanical computations based on two or more stars, determining a missile's position in relation to the center of the earth. He stated that certain systems, "still in a development stage, hold promise of accomplishing this difficult task."

Army's New System of Military Justice Goes Into Effect February 1.

The Army's new system of military justice will go into effect early next year—and, almost simultaneously, Congress will be preparing to study the Navy's courts-martial system.

Attached to the draft bill as an amendment, the House-sponsored new military justice system for the Army will go into effect February 1—the first day of the eighth calendar month after President Truman signed the bill into law.

Its main features are:

1. Enlisted men have been authorized to sit as members of a court-martial.
2. Officers are subjected to trial by special courts, as well as by general courts.
3. Warrant officers are authorized to sit as members of a court.
4. Unlawful influence of courts-martial or courts-martial members is prohibited.
5. An accused, if he so desires, may have counsel at the pre-trial investigation.
6. Authority to grant a bad-conduct discharge has been granted to general and special courts.
7. The review and appellate provisions have been strengthened.
8. A lesser punishment than death or life imprisonment for murder or rape has been provided.
9. A lesser punishment than dismissal from service for officers drunk during time of war has been provided.
10. The authority of commanding officers under the 104th article of war has been increased insofar as it pertains to officers, but not to enlisted men.
11. A separate judge advocate general's corps has been established.

Additional National Guard Units

The following National Guard Coast Artillery Corps units have been Federally recognized since the last issue of the JOURNAL:

California:

Battery "B," 681st AAA AW Battalion, San Bruno.

Battery "B," 719th AAA Gun Battalion, Clemeta.

Battery "C," 720th AAA Gun Battalion, Gardena.

Connecticut:

Battery "A," 238th AAA Gun Battalion, Mystic.

Battery "B," 238th AAA Gun Battalion, Groton.

Battery "C," 238th AAA Gun Battalion, West Brook.

Battery "D," 238th AAA Gun Battalion, Niantic.

Medical Detachment, 238th AAA Gun Battalion, New London.

Georgia:

Battery "C," 950th AAA AW Battalion, Thomson.

Illinois:

Battery "C," 396th AAA AW Battalion, Leroy.

Louisiana:

Battery "D," 769th AAA Gun Battalion, Donaldsonville.

New Jersey:

Headquarters & Headquarters Battery, 122d AAA Gun Battalion, Atlantic City.

New York:

Battery "A," 715th AAA Gun Battalion, Brooklyn.

Battery "B," 715th AAA Gun Battalion, Brooklyn.

Battery "C," 715th AAA Gun Battalion, Brooklyn.

North Carolina:

Battery "C," 677th AAA AW Battalion, Sanford.

Oregon:

Headquarters & Headquarters Battery, 237th AAA Group, Portland.

Virginia:

Headquarters & Headquarters Battery, 224th AAA Group, Glen Allen.

Coast Artillery Newsletters

197th ANTIAIRCRAFT ARTILLERY GROUP

NATIONAL GUARD OF NEW HAMPSHIRE

COLONEL ALBERT S. BAKER, *Commanding*

Excepting only participation in maneuvers in the areas of Plattsburg and Pine Camp, New York just before World War II, antiaircraft artillery units of the National Guard of New Hampshire, attached to the 197th AAA Group, are participating in field training this year outside the state for the first time since 1922. The Group, with the 210th AAA AW and the 744th AAA Gun Battalions attached, is training with other antiaircraft artillery units of the First Army area at Fort Edwards, Massachusetts, on colorful Cape Cod, 31 July to 14 August inclusive.

An advance detachment, consisting of one officer and three enlisted men from each unit, preceded the Group to the Fort Edwards reservation three days ahead of the movement of the main body which left at midnight on 31 July. All equipment and all personnel moved into the camp area by motor convoy.

Because lack of armory facilities has prevented the organization of two firing batteries in each of the attached battalions, and due to the effect of the freezing of strength with enactment of the Selective Service law, total New Hampshire AAA personnel participating in field training this year does not exceed 300. This represents, however, one-quarter of all ground forces in the National Guard of New Hampshire. Units of the 195th Regimental Combat Team, are occupying Fort Edwards at the same time and to some extent, training is being conducted jointly in common subjects under the coordinating direction of state headquarters.

Full advantage is being taken of the presence of antiaircraft artillery training teams from Fort Bliss and training includes a large number of demonstrations conducted along lines which proved so successful in the training of troops during the period of World War II. Four full days will be devoted to artillery training at the Wellfleet firing range some fifty-five miles from Fort Edwards during the last week of the training period. For this part of the work a bivouac camp will be established at the firing point. In preparation for this phase of field training, week-end schools in radar operation were conducted during the months of June and July.

Composite batteries will be organized within the two battalions in order to equalize the officer instruction load and take advantage of special skills.

Motor movements to and from Fort Edwards offer opportunity for exceptional training in the movement of mobile AAA units as the route covers a maximum distance of more than 200 miles, over roads which, in New England, are highly congested with week-end motor traffic during the summer season.

The training program does not call for record artillery fire this year but it is expected that qualifying fire with small arms will be conducted. Special schools are organized for training in telephone and radio communications to include installation of systems, operation of message centers, and organization and operation of radio networks.

Demonstrations cover camouflage, field sanitation, close combat, use of gas and chemicals, control of domestic disturbances, grenades, and rockets.

Governor Charles M. Dale will visit the camp, and, if feasible, review the participating troops, on one day of the training period.



315th COAST ARTILLERY (HD) (ORCI)

BROOKLYN, N. Y.

LIEUTENANT COLONEL LEONARD S. ALLEN, *Commanding*

The Officers and men of the 315th C. A. (HD) were extremely fortunate in the past two months to obtain excellent speakers in the persons of Mr. James A. Farley, former National Chairman of the Democratic Party and former United States Postmaster General, and Lieutenant Colonel Abraham Littman, CA-Res., Science Instructor at Brooklyn College and the High School System of New York.

Mr. Farley, who recently made a trip around the world during which he contacted the heads of many governments,

conducted a question and answer period on International and National Problems, which did much to stimulate the thinking of those present.

Lieutenant Colonel Littman delivered a lecture on "Atomic Energy" which proved to be one of the finest and most easily understood discourses on a most complex and important subject.

The 315th C.A. (HD) has completed its plans for Summer Camp during the first two weeks in August at Fort Hancock, New Jersey.

The training program is such that Technical and Tactical subjects are co-ordinated to afford the maximum benefit to the organization.

COAST ARTILLERY ORDERS

WD and AFF Special Orders covering the period 30 April 1948 through 5 July 1948.

COLONELS

Adams, Carl R., to Far East Comd, Korea. Mailing address Casual Pers Sec 14th BPO, APO 815 c/o PM, San Francisco, Calif.
Argo, Reamer W., OC of S, Washington, D. C. for dy w/Office of the Army Comptroller.
Boudreau, Napoleon, Retired.
Chester, George A., Reld fr detail as a member of GSC & fr asgmt to GSUSA DIV GSUSA OC of S, Washington, D. C.
Cocroft, Reginald B., Jr., AGO Casuals, Washington, D. C. for dy w/Army Pers Records Board.
Davis, Henry C., Retired.
Gallagher, Ferdinand F., American Battle Monuments Commission, Washington, D. C.
Gibbs, Gerald G., Alaskan Comd, Ft Richardson, Alaska. Mailing address Alaskan Comd, APO 942, c/o PM, Seattle, Wash.
Hendon, Robert R., Munitions Board, National Military Establishment, Washington, D. C.
Herron, Donald B., Far East Comd, Yokohama, Japan. Mailing address Casual Pers Sec Central Directory APO 503, c/o PM, San Francisco, Calif.
McCatty, Kenneth, retired.
McFadden, William C., AA & GM Br Arty Sch, Ft Bliss, Texas. for dy w/Staff & faculty.
Martin, Darwin D., Far East Comd, Yokohama, Japan. Mailing address Casual Pers Sec, APO 503 c/o PM San Francisco, Calif.
Morrow, Samuel H., Hq Fourth Army, Ft Sam Houston, Texas.
Munford, Thomas W., 2484th ASU ROTC, Virginia Polytechnic Institute, Blacksburg, Va.
Murphy, John G., Special Joint Planning Gp, Washington, D. C.
Pitzer, John H., retired.
Ruddell, James C., detailed in TC Hq, Ft Hamilton, N. Y.
Shunk Peter W., relvd from detail in Sig C.
Sullivan, Andrew P., retired.
Young, Courtney P., retired.

LIEUTENANT COLONELS

Adams, Gilbert N., US Army Pacific, Ft Shafter, TH. Mailing address Casual Officers Co, Cp Stoneman Pers Center, Pittsburg, Calif.
Armstrong, Chalmers H., Jr., US Army Forces Antilles, San Juan, PR. Mailing address Casual Officers Co, New Orleans Pers Center NOPE, New Orleans, La.
Barros, Russell D., detailed in CAC.
Bowers, Alvin T., Hq Second Army, Ft Geo. G. Meade, Md.
Boyer, Roswell R., Hq Second Army, Ft Geo. G. Meade, Md. detailed in CAC.
Chapman, Ethan A., detailed as a member of GSC & asgd to Gen Staff US Army, Washington, D. C.
Cibotti, Philip R., 109th CIC Det Second Army, Ft Geo G. Meade, Md.
DeRita, Joseph, US Army Alaska. Mailing address Casual Officers Co, Ft Lawton Pers Center, Seattle, Wash.
Durgin, Chesley F., Stu Det Hq First Army, Governors Island, N. Y. w/sta at Harvard Univ, Boston, Mass.
Eason, James F., European Comd, Bremerhaven, Germany. Mailing address Casual Officers Co, Cp Kilmer Pers Center, New Brunswick, N. J.
Farren, James H., 503d Abn Bn, Ft Bragg, N. C.
Fisk, Samuel W., detailed as a member of

GSC & asgd to Gen Staff USA.
Glines, V. L., Hq Fourth Army, Ft Sam Houston, Texas.
Greenlee, Halford R., Jr., OC of S, Washington, D. C. for dy w/Office of the Army Comptroller.
Harding, Stanley L., US Army Pacific, Ft Shafter, TH. Mailing address Casual Officers Co, Cp Stoneman Pers Center, Pittsburg, Calif.
Hill, Charles W., Stu Det Third Army Ft McPherson, Ga. w/sta at Vanderbilt Univ, Nashville, Tenn.
Holmberg, Donald W., Far East Comd, Yokohama, Japan. Mailing address Casual Officers Co, Cp Stoneman Pers Center, Pittsburg, Calif.
Holt, Roger H., detailed as a member of GSC & asgd to Gen Staff US Army.
Hood, Ralph E., detailed as a member GSC & asgd to Gen Staff US Army.
Horton, Roy W., Far East Comd, Yokohama, Japan. Mailing address Casual Officers Co, Cp Stoneman Pers Center, Pittsburg, Calif.
Howell, John N., detailed in CMP.
Huddins, Seth F., 384th AAA Gun Bn, Ft Bliss, Texas.
Jordan, Ralph E., Stu Det Hq Third Army, Ft McPherson, Ga. w/sta at Vanderbilt Univ, Nashville, Tenn.
Kopcsak, Arpad A., Stu Det Hq Sixth Army, Presidio of San Francisco, Calif. w/sta at Univ of Southern California, Los Angeles, Calif.
Larner, Thomas M., US Army Caribbean, Quarry Heights, CZ. Mailing address Casual Officers Co, New Orleans Pers Center NOPE, New Orleans, La.
MacGrain, Donald, Stu Det Comd & Staff College, Ft Leavenworth, Kans.
Moore, Roger W., Trsf'd to USAF.
Newcomer, Francis K., Jr., Stu Det Hq Sixth Army, Presidio of San Francisco, Calif. w/sta at Leland Stanford, Jr. Univ, Stanford University, Calif.
Nygaard, John R., OC of S, Washington, D. C. for dy w/Legislative & Liaison Div SSUSA.
Owen, Richard W., 1123d ASU Office of the Sr State Instr ORC Instr for Conn., Hartford, Conn. w/sta at Bridgeport, Conn. detailed as Instr.
Pantuhoff, Oleg L., Jr., 1272d ASU Office Sr NG Instr for N. Y., 270 Broadway, N. Y. & detailed as CAC Advisor to Sr Army Instr.
Patterson, Charles G., Research & Development Board, Washington, D. C.
Peterson, Iver A., Stu Det Second Army, Ft Geo G. Meade, Md. w/sta at Johns Hopkins University, Baltimore, Md.
Piram, J. S., Armed Forces Staff College, Norfolk, Va.
Powell, Charner W., Office of Chief Army Field Forces, Ft Monroe, Va.
Pratt, Ford E., US Army Alaska. Mailing address Casual Officers Co, Ft Lawton Pers Center, Seattle, Wash.
Raymond, M. B., 1802d Special Regt., USMA, West Point, N. Y.
Robbins, Alvin D., Stu Det Hq Sixth Army Presidio of San Francisco, Calif. w/sta at Leland Stanford, Jr. Univ., Stanford University, Calif.
Roth, Arthur L., European Comd, Bremerhaven, Germany. Mailing address Casual Officers Co, Cp Kilmer Pers Center, New Brunswick, N. J.
Sills, Tom W., US Army Pacific, Ft Shafter, TH. Mailing address Casual Officers Co, Cp Stoneman Pers Center, Pittsburg, Calif.

Skidmore, Wilbur M., detailed as a member of GSC & asgd to Gen Staff US Army.
Spangler, Richard S., Faculty, AFSC, Norfolk, Va.
Stayton, T. V., OC of S, Washington, D. C.
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By Charles B. MacDonald

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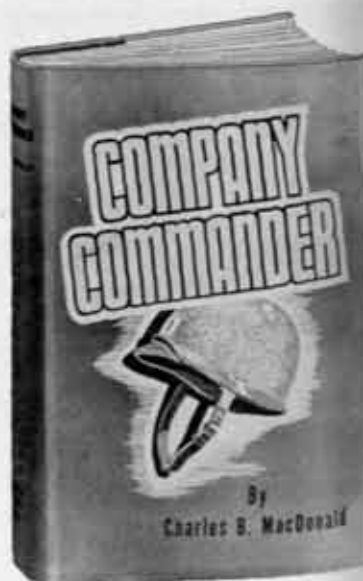
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Addresses of all Regular Army CAC Officers

The following addresses of all Regular Army CAC officers were made available to us by the Chief, Coast Artillery Section, CMG, P&A Division, and is published here for the information of our readers.

The addresses were given us on 15 June and have been brought up to date to the best of our ability. We have

also tried to correct the ranks of the various officers.

We realize that this list may contain errors both in rank and addresses. We should like very much to be informed of these errors prior to 10 September so that the corrections may be included in our address supplement to the September-October issue.

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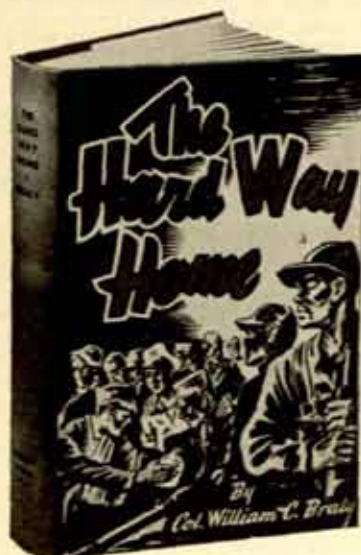
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BOOK REVIEWS

The Road to War 1941

THE MEMOIRS OF CORDELL HULL.
Two Volumes. The Macmillan Company. 1804 Pages; Index.

Cordell Hull's massive memoirs cover the period from his birth in a rented log cabin in Overton County, Tennessee, in 1871 to his resignation from the cabinet on November 30, 1944. After a distinguished career as a Democratic Party leader, judge, congressman, and senator, Hull was chosen as Secretary of State in the first cabinet of Franklin D. Roosevelt. He held that office for nearly twelve years, almost twice as long as any other man in American history.

Hull came from a stalwart and forthright family. During the Civil War his father was shot through the head and left for dead by a "Yankee guerrilla" named Stepp. After a recovery which seems miraculous, his father tracked down Stepp after the war and shot him down without a word. Cordell Hull was something of a fighter himself; he led an infantry company in the 4th Tennessee Volunteers during the Spanish American War.

Although the Constitution provides that the foreign policy of the United States is formulated by the President and the Senate, Hull made his views on the function of the Secretary of State clear to Mr. Roosevelt before accepting office. He said: "If I accept the Secretaryship of State, I do not have in mind merely carrying on correspondence with foreign governments. What I have in mind was that it would be my duty to aid the President in every possible way in the conduct of foreign policy. . . . I would foresee and appraise to the fullest possible extent questions and problems arising . . . and would formulate my own ideas of policy. . . . I would then recommend such policy to the President for his approval or disapproval and suggest necessary action. The President himself would, of course, suggest a policy

on a given situation at any time . . . and I would develop all facts in relation to it and then, if he approved, carry it out through the State Department." These suggestions were accepted by the President, and in twelve years there was no serious misunderstanding between the two men.

Like Stimson, Hull thought that Roosevelt was a great commander in chief and war President. Like Stimson, he also had difficulty in adjusting himself to the President's domestic and economic policies. He probably agreed with Stimson that Roosevelt was not a good administrator. His experience with Raymond Moley at the London Economic Conference in 1933 made this clear. Hull did not favor the President's practice of sending a number of distinguished Americans abroad as his personal representatives because it undermined the prestige of our ambassadors. Not only that, Hull thought it was a waste of time and energy. Once in a while the President listened to outsiders like Morgenthau on foreign policy matters, but Hull observed that these diversions were rare and generally came to nothing. Hull's place in history will be the more secure because Roosevelt did not seek out or act upon his advice on foreign policy matters connected with the Teheran and Yalta Conferences. The President considered these conferences as being primarily "military" in character.

There was a tide of aggression running in the world when Hull took office in 1933. The Nazis won an election that consolidated their hold on Germany and the Japanese occupied the capital of Jehol on the day he was sworn in. Hull admits that when he took office he had a strong conviction that Germany and Italy would plunge Europe into war and that "Japan had no intentions whatever of abiding by treaties." Since the European dictators were not ready, Hull was first concerned with the Japanese conquest of Northern China. He saw through the ab-

surd plea that the United States should appease Japan and thus strengthen the liberals in order to prevent the military group from gaining complete control of the Japanese government. This plea was raised at each new Japanese aggression and it has recently been revived by a school of writers who are trying to convince the American people that the war was unnecessary and brought about solely by our own action!

Hull never favored neutrality as between right and wrong. He believed that a breach of the peace by an aggressor anywhere in the world affected American security. We should therefore impede the aggressors to safeguard our own peace. Under existing neutrality laws and the arms embargo, American neutrality was a boon to the aggressors. He tried hard in 1939 to convince certain isolationists that war was coming in Europe, but one of them, the venerable Senator Borah, declared that he had information superior to that of the State Department. When Hull invited Borah to visit the State Department and read the documents bearing on the European situation, the Senator declined. To Hull's way of thinking the world was not faced with a threat of regional war or an isolated conflict but "with an organized, ruthless, and implacable movement of steadily expanding conquest." We could have peace and isolation for a time but only at the cost of total surrender.

We find some interesting footnotes to history in these volumes. Apparently Hull was the real author of the 50,000-planes-a-year program announced by President Roosevelt on May 16, 1940, for in May 1940 he urged the President to announce such a program. Like Hull's associates with whom he had previously discussed this program, Roosevelt was "speechless" at the size of the effort but immediately made the project his own. Hull said that throughout the period of crisis and war he was more confident about our productive capacity

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and military power than some of his associates.

Hitler's spectacular conquests in 1940 presented acute problems. We were deeply concerned with preventing the French fleet from falling into Axis hands and in maintaining French control over North Africa. This involved us in tortuous relations with Vichy France. Perhaps no other phase of our diplomacy has been more severely criticized, yet Hull thinks that our policy saved many American lives, provided valuable information, and made the successful invasion of North Africa possible.

Hull devotes many chapters to our relations with Japanese from the fall of France to the attack on Pearl Harbor. Our basic policy as outlined by the President and Hull in October 1940 aimed at avoiding a war in the Far East in order to aid Britain. We were determined to continue limited aid to China and maintain all our rights and principles as related to Japan but not to quarrel with her. And we would leave the door open for discussion. We had to convey to Japan the impression that we would use our strength if necessary. Dealing with Japan on any other basis reminded Hull of the man in Tennessee whose chivalrous nature prompted him to unstrap his revolver and leave it on a stump seventy-five feet away before engaging in a conference with a highwayman. When the Japanese ambassador protested our program of licensing exports of scrap iron and steel in October 1940, Hull told him abruptly that it was unheard of "for one country engaged in seizing another country to insist that a third nation is unfriendly if it does not cheerfully provide the necessary implements of war to aid the aggressor nation in carrying out its invasion."

Hull was not present at the Atlantic Charter meeting in August 1941 when the British and American policy of resisting further Japanese aggression in the Pacific was agreed upon. His protracted conversations with Ambassador Nomura began in March and lasted until 7 December 1941. While these conversations were going on, a private group including two officials of the Maryknoll Mission in Japan and Postmaster Frank C. Walker, raised the old question of appeasing the liberal elements in Japan in order to prevent the military from going berserk. Hull was informed of these efforts but confined himself to official channels in dealing with Japan. The Maryknoll episode is another illustration of the futility of well meaning efforts by naive citizens to influence the course of action of their own government when they had no real knowledge of Japanese intentions or any sound basis for belief that the Japanese government would live up to its agreements.

Japan's formal proposals to the United States showed how far apart our positions were. According to Hull these called for a joint overlordship of the Pacific by Japan and the United States, giving Japan con-

trol of about 90 per cent of the population and wealth of that area. Japan even suggested that the government of the United States refrain from giving aid to any nation engaged in the European war. This meant an end to the British aid program. Japan and the United States would act jointly to assist in the speedy restoration of peace in Europe. This meant a peace on Hitler's terms. The United States was to request China to negotiate peace with Japan on terms involving the recognition of Japan's possession of Manchuria. This was something we had refused to recognize ourselves. The United States was to suspend aid to China in case Chiang Kai-shek refused to negotiate with Japan. Normal trade relations would be restored between Japan and the United States. Both powers would jointly guarantee the independence of the Philippines—as if any such action on the part of the United States was necessary. A conference between Roosevelt and Konoye would follow the basic agreement.

The differences could not be bridged. Hull, informed through "magic" of Japanese intentions to submit a deadline date for our acceptance or refusal of the Japanese terms, did not expect that Japan would be deterred from warlike acts by anything short of complete acceptance of her demands. He looked upon the time gained in negotiations as time won for our military preparations. He warned our military chiefs as early as November 25, 1941 that there was no hope of reaching an agreement through diplomatic channels and that war must be expected at any time. He was painfully surprised at the lack of alertness shown by our Pearl Harbor commanders.

A great debate, already begun, is certain to rage over the question of whether or not the United States could have reached a *modus vivendi* with Japan and prevented the outbreak of war in December 1941. Minimizing the importance of Japan's earlier demands, some writers now seem to think that Hull's memorandum of November 26, 1941 was the "ultimatum" that touched off the war. Apparently the Japanese negotiators in Washington had no such views, because on the day Hull handed them his memorandum, they radioed to the Foreign Office in Tokyo the following intercepted message: "Should we [Japan] during the course of these conversations, deliberately enter into our scheduled operation [the Pearl Harbor attack], there is great danger that the responsibility for the rupture of the negotiations will be cast on us. There have been times in the past when she [the United States] could have considered discontinuing conversations because of our invasion of French Indo-China. Now, should we, without clarifying our intentions, force a rupture . . . she may use such a thing as that as counter propaganda against us." On the day Hull handed his so-called ultimatum to the Japanese envoys in Washington, a Japanese naval task force of six

aircraft carriers was leaving its base in the Kurile Islands with sealed orders to attack Pearl Harbor. This plan of attack that they were to carry out was drawn up in January 1941, nearly a year before. In view of these facts it is silly to talk about Hull's memorandum of November 26 as having "touched off the war."

Hull's memoirs do not answer all questions as to how the war came, but they make an extremely important contribution toward that end. They make it clear that we could only have avoided war in 1941 by sacrificing basic American principles and long-established policies. Above all they show the relationship between the progressive Axis menace to our security and the steps which the Roosevelt administration took. That is the only honest and realistic approach to the problem.—
LIEUT. COL. H. A. DEWEED.

Gouzenko's Dramatic Story

THE IRON CURTAIN. By Igor Gouzenko. E. P. Dutton & Company. 280 Pages; \$3.00.

Igor Gouzenko, one-time cipher clerk in the Soviet Embassy at Ottawa, has come forth with his own story of how he delivered to the Canadian authorities the documentary proof of a widespread espionage plot against the United States, Canada and Great Britain. Simply and dramatically, he sketches his early experiences as a young Pioneer, Komsomol and Red Army lieutenant. The result is an absorbing story of escape into freedom.

From his special vantage point of cipher clerk, Gouzenko had access to classified Embassy cables which set forth in detail the day-to-day functioning of the Soviet military espionage network in Canada, aided and abetted by disloyal Canadian citizens. These documents, one hundred in all, were published in the full Report of the Royal Commission, and were later condensed in my own book *The Soviet Spies*. Gouzenko has made a further abridgment of them and offers only those which bear upon eight conspirators of the original eighteen arrested. Since there is no index, their utility as source material is accordingly diminished. But he has skillfully woven them into his narrative so that they contribute to the climax of the book.

In the main the Gouzenko story is devoted to sketches of the police terror of the USSR and the destructive effect of the ever-present NKVD (now MVD) on normal human relationships. He has no word of praise for life in the "workers paradise" and points out that only in the Soviet Union has food shortage been created as a deliberate weapon of control over the toiling masses.

Military readers will be interested in his descriptions of the Red Army Intelligence Center and his eyewitness account of the panic in Moscow when the Nazi armies approached the city's outskirts. Gouzenko also reveals the text of Stalin's order of the day containing the phrase: "The Russian people curse the Red Army."

There is humor—of a grim sort—in his description of the alterations made to one of Moscow's "immortal" paintings which formerly hung in the Hall of the Red Army. Originally this masterpiece showed Stalin seated at a table surrounded by a roomful of generals. First one of the lesser dignitaries disappeared from the painting, then another. Their places were taken by painted-over draperies. Still later three more generals vanished from view and draperies fell into the vacant spots. The mystery was solved when the great purge of 1937 was announced, and the picture was finally taken down. The whispered joke that went the rounds was that Stalin's expression of triumph had changed to one of loneliness as he was left occupying the whole long wall with but three of his field marshals.

As an individual Gouzenko has made an outstanding contribution to international awareness of Soviet fifth column tactics in the postwar world. When the carefully detailed evidence was finally accepted by Prime Minister Mackenzie King in September 1945, it was at once personally communicated to the White House and No. 10 Downing Street. Perhaps it is no accident that a gradual stiffening in the Anglo-American position towards political and economic concessions to the Soviet Union stems from that date. As a first-hand account of existence in the USSR, and as an expose of Communist subversion abroad, *The Iron Curtain* adds an important title to the expanding literature of Soviet exiles. Based on an original manuscript that was part Russian, part English, the rewriting has been accomplished by a Montreal editor, A. W. O'Brien, to whom credit is due for having achieved a skillfully literate product.—RICHARD HIRSCH.

Names Are Better than Numbers

MILITARY CUSTOMS. By Major T. J. Edwards. Gale & Polden. 120 Pages; Illustrated; \$2.00.

Probably the two most famous units in World War I were the Rainbow Division and the Marine Brigade. In World War II few civilians remember the 3d Division or the 37th Division, to take two very good divisions at random, but if you mention Merrill's Marauders, or Carlson's Raiders, or the Rangers, recognition is instant. How many remember the numerical designation of Custer's regiment? Contrast that outfit with Teddy Roosevelt's Rough Riders. The human mind, tricky mechanism that it is, finds it hard to associate glamor and fame with a number. Would Ingrid Bergman command her loyal following if her name were X343456? Hardly.

Recently the Army tried a new tactic in recruiting: it permitted men to enlist for service in specific units—but the units are still numbers. The young man who has been out of high school for a year, and after a whirl at civilian employment feels that the Army offers opportunity, can't see much attraction in being per-

SOVIET LAND

By G. D. B. GRAY

SOVIET LAND is one of the most useful books on Russia ever published. It combines a geographical study of the various areas which make up the territories of the U.S.S.R. from Siberia to the Black Sea, notes on the language, habits, customs of the scores of different racial groups within the U.S.S.R., and a discussion of the industrial and agricultural potentials and achievements of the Soviets.

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TO THE ARCTIC!

By JEANNETTE MIRSKY

First published as *TO THE NORTH* in 1934, *TO THE ARCTIC!* was withdrawn from print because of legal difficulties. The current edition has been revised and expanded. It worked out as an invaluable study of the Arctic based on the accounts of explorers ranging from the time of Cabot and Frobisher to the men who flew over the pole.

TO THE ARCTIC! ranks with Stephenson's *THE FRIENDLY ARCTIC* as a basic book for every soldier's Arctic library.

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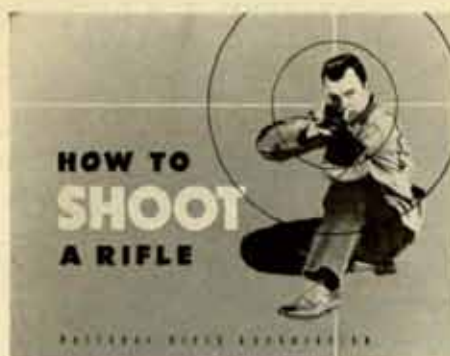
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mitted to join, say, the 9th Infantry Division—but how about Merrill's Marauders?

Our British friends, who in spite of the criticism of certain American die-hards manage to fight a pretty good war with their manpower and economic resources, long ago realized that 2d Battalion, The Highland Light Infantry, had something that the 74th Foot didn't; and a man might well fight harder for the 2d Battalion, The Seaforth Highlanders, than he would for the 78th Foot.

The United States Army—yes, and the Army of the United States, have a world of tradition behind them but it rarely comes out. From Concord to Naha, American units have fought valiantly and effectively, yet the recruit assigned to the Umptey-umth Infantry wears exactly the same uniform as the recruit in the next regiment, and knows about as little of his regiment's traditions. The very name Coldstream Guards connotes a fighting force—but what does 120th Infantry connote? Those in the know are aware that the 120th in World War II was a top-notch outfit, but who except military students and its own veterans will remember it ten years from now?

Major Edwards gives us many a hint in this slim but beautifully done volume, of the traditions of the British army and the way those traditions are kept alive. He overlooks little. A regiment earns the word "Royal" in its designation only by an act of collective gallantry. The South Wales Borderers carry a "Wreath of Colors" in memory of an engagement against the Zulus during which a small remnant of the unit made a heroic stand against great odds, and two officers died saving the colors of the regiment. On Minden Day, August 1, five famous regiments celebrate the victory of 1759 by wearing roses in their hats, and bedeck their colors and their drums with roses.

The Duke of Cornwall's Light Infantry wear two red feathers in the foreign service helmet and the Royal Berkshire Regiment wear a piece of red cloth behind their badges in memory of an engagement against our own General Anthony Wayne. The British handled Wayne's force roughly; the Americans vowed vengeance the next day. The British placed red feathers in their headgear so the Americans could find them easier—a gesture of defiance; the two forces never met again but the King's men still carry on the tradition. Ask the average American private what war General Anthony Wayne fought in.

The Guards regiments space their buttons for identification, in order of their activation. The Grenadier Guards space their buttons singly, the Coldstream Guards in twos, the Scots Guards in threes, the Irish Guards in fours, the Welsh Guards in fives. Our own equivalent regiments, for instance, the "Double-Deuce" and the "Can Do" 9th, have nothing to distinguish themselves but a regimental insignia, half the time not worn.

Enough for distinctions in dress, al-

though Major Edwards describes many more. Let's look into some musical customs. The Royal Lancashire Regiment (old 10th Foot) and the Worcestershire (old 29th Foot) fought together in India during the 1840s, and developed a mutual respect. As a custom of many years' standing, each regiment plays the other's march before it plays its own, on ceremonial and certain other occasions. In addition, official correspondence between the units is addressed "My Dear Cousin" instead of the usual formal "Sir." Sentimental? Perhaps so—but it's a good bet this particular tradition will pay off in battle if the two units ever fight again in the same vicinity. Contrast this one with a bit of World War I history. The U. S. Marine Brigade had the highest respect for the 2d Division engineer regiment, the 2d Engineers, a respect that was not the outgrowth of anything official but a spontaneous tribute from the ranks. How many men in the Marine Corps today, or in whatever numbered unit is the lineal descendant of the 2d Engineers, know of this bond between them?

In World War II the Marines, rather sparing in their praise for anybody but themselves, called the 77th Infantry Division the "77th Marines." Who will remember that fifty years from now?

The Cameronians to this day, in memory of the persecutions of the seventeenth century, send out pickets to scout the countryside for the King's troops before they hold Divine Services in the open or in camp. The fact that they are now King's men themselves has not broken up the tradition. As a somewhat parallel case, what have we today to commemorate Pickett at Gettysburg? A U.S. unit descended from Pickett's brigade would have a solid base of tradition.

Despite the American reputation for a distaste for sentimentality, the dirty business of war lends itself to glamor, tradition, and history. Our army overlooks a sure bet, both in recruiting and in battle, in failing so miserably and completely to capitalize on the very real traditions of our armed forces. The very idea of regimentation, in the sense that every soldier looks like every other soldier, hinders our recruiting. It isn't enough to give a regiment such a nickname as "The Rock of Chickamauga." Let its men have a dress distinction and a custom that will recall it.—A. S.

The Struggle For Spain

THE SPANISH STORY. By Hubert Feis. Alfred A. Knopf, Inc. 282 Pages: \$3.50.

Although it brings few sensational revelations, this account of the struggle, waged during World War II for Spain between the Anglo-Saxon democracies on the one hand and the Axis on the other, is a most important contribution to our understanding of that conflict. For the first time an author presents both sides of the story

with almost equal thoroughness. True, the Spanish archives were not opened to him, and Suner's own *apologia* has appeared too recently to have been included. But on the Axis side he has been permitted to use, though apparently not to quote, the entire mass of material that has come into our hands from German and Italian archives, while the American angle is known to him at first hand through his position in the Iberian Peninsula Operating Committee (IPOC) set up in March 1942 to manage the economic relations that played a decisive role in both British and American strategic diplomacy in Madrid.

His account does not materially change the general picture we have been able to piece together from the testimonies of Hoare and Hayes and the fragmentary collections of documents published by the State Department and the Russians. But the wealth of information which he has been able to use clothes that skeleton with such an abundance of flesh that these well known issues and personalities assume a wholly fresh outlook. Thus we learn for the first time the full story of Franco's early aspirations toward French Morocco of June-July 1940; his offers of cooperation to Hitler; the background and the details of Serrano Suner's visit to Berlin and Rome in September and the bitterness of the contrasts which had begun to emerge. Seen against this background the failure of Hitler's and Franco's famous meeting at Hendaye becomes far more understandable. The gist of what had happened there had already been revealed by Professor Langer in *Vichy Gamble*. But Mr. Feis rounds out the picture while his discussion of the failure to uncover the authentic text of the protocol then signed and his outline of its probable contents clears up a puzzling problem.

Equally enlightening are his revelations as to Suner's subsequent visit to Hitler, the signing of the Tripartite Protocol—and on the other hand the ingenious evasions by which both Franco and Suner succeeded in concealing these definite obligations from the American and British governments and inducing them to grant a measure of economic relief—which even so Mr. Feis considers justified. The differences between American reluctance and British insistence are among the most interesting insights into the Inter-Allied tensions that have come to light. They form an amusing contrast with the parallel situation in Vichy, where the roles were exactly the opposite.

From the spring of 1941 onward the interest shifts to the Allied side of the story and then to the hitherto largely unknown Washington end. What Mr. Feis has to tell of the struggle between different groups in Washington, notably Hull and Morgenthau, and about the setting up of his own committee, and the expansion in the use of economic means it supplied is absorbing. So are the sidelights (not without malice) which he throws upon Sir Samuel Hoare and Ambassador Hayes. But his zeal in cleaning up the

complex rumble of the wolfram crisis definitely outruns the interest of the average reader. The only new impression gained from it is that of the amazing duplicity of the Franco Government even at this stage of the game, where even the most solid promises to the Allies of an embargo were circumvented by one of the highest government officials of Spain, who arranged fraudulent shipments across the French border.—HERBERT ROSINSKI.

No Contribution

A RUSSIAN JOURNAL. By John Steinbeck; with pictures by Robert Capa. The Viking Press. 220 Pages; Illustrated; \$3.75.

A Russian Journal is precisely that. It is an account of a junket around such parts of the USSR as they were able to hit by one of America's foremost writers and one of her best photographers. The result is somewhat disappointing.

Mr. Steinbeck has done an excellent job of writing and reporting. He has set down fairly and honestly what he saw, what he heard, what his impressions of places and people were, and he has done it with a great deal of wit and charm. Through his eyes one sees a courageous people who desperately want to rebuild their country, live out their lives in peace. One sees Russia as a country more vast and more complex than our own, a country mellow with age and at the same time raw and new.

Why then, in spite of its charm, is the book disappointing? It is superficial, though you understand that it is going to be so before you are halfway through page 1. It contributes so pitifully little to our understanding of the problems of making peace with Russia and our solution of them. Russians are nice people, and Americans are nice people; we knew all that before and Mr. Steinbeck confirms our knowledge. But neither the knowledge nor the confirmation brings us any nearer to the understanding we so desperately want. One puts down the book with the feeling that Mr. Steinbeck and Mr. Capa might as well have stayed home.—O. C. S.

Facts, Figures and No Criticism

THE AAF AGAINST JAPAN. By Vern Haugland. Harper & Brothers. 515 Pages; Illustrated; Index; \$5.00.

This book is published under the auspices of The National Air Council, a successor to the Air Power League and other associations, which is sponsoring a series of books dealing with World War II aviation. (De Chant's *Devilbirds* on Marine aviation is one of the series.) According to the author most of his material comes from the files of the AAF or from interviews with principal officers. This sponsorship and assistance is evident in the text. Obviously, this is the AAF's conception of the war—yet this same feature gives an authentic ring to the book's facts and figures.



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The purpose seems to have been to tell as much about all the events in the Pacific aerial campaigns as one book could hold. The author has succeeded in doing this and if due allowance is made for the scope and limitations of such an informal, popular, narrative history, this seems to be better than any yet published in its field.

The flood of names, dates, places, missions and statistics will bog down the reader in spite of the fact that the text is seasoned with interesting tidbits selected with the expert eye of a capable newspaper correspondent. Moreover, it is not a critical study and the author makes only a passing reference to criticisms or failures of the AAF. The photographs used as illustrations are with few exceptions poorly selected and might well have been replaced by a few good maps.—JOHN R. CUNEO.

Dull Excitement

REBEL RAIDER. Edited by Lt. Commander Harpur Allen Gosnell, USNR. University of North Carolina Press. 218 Pages; Appendices; Index; \$3.75.

On June 30, 1861, a Confederate ship slipped out of Pass à l'Ouvre at the mouth of the Mississippi, past the blockading Brooklyn of the Yankees, and on to a series of naval adventures as exciting as any you'll find in a top-notch fiction story. This ship was the CSS *Sumter* commanded by Captain Raphael Semmes. She was a small, converted packet capable of carrying only eight days' fuel, but the havoc she wrought among Northern shipping made her one of the most feared of Confederate vessels and made a Southern hero out of her skipper.

The material for *Rebel Raider* was culled directly from Semmes' *Memoirs of Service Afloat*, and it was regrettable, indeed, that the narration of this exciting Civil War episode was so inadequately recounted. Provided with all the ingredients for an appetizing feast, Semmes succeeded only in making hash of it. Instead of brightening up the numerous and exciting chases, captures and fighting, he lets the text bog down with monotonous notes attempting to establish the legality of his actions under international law.

Thus far, we have held only Semmes responsible for this unfortunate presentation. Editor Gosnell tells us in the preface to *Rebel Raider*, "The narrative alone is reprinted here; all of the extraneous material with which it is so profusely interspersed and surrounded has been eliminated." Readers will take exception to this. Far too much extraneous material is still left and Gosnell has muffed a beautiful chance for an outstanding work by not doing a thorough rewrite of his material.

Students of the Civil War might just as well fortify their libraries with the original Semmes memoirs. And for entertainment, I say, "Wait awhile"; for some enterprising biographer or historical novelist is sure to make use of this fine, exciting framework.—LIEUT. COL. ROBERT F. COCKLIN.

Tough Going

DUNKIRK. By A. D. Devine, DSM. E. P. Dutton & Company. 311 Pages; Index; \$4.50.

Withdrawal from the Continent when the going got too tough was nothing new for a British Army. For a thousand years the British had been invading Europe from across the English Channel. Always war plans provided, in case of necessity, for an orderly retreat to the sea with evasive action which would make possible evacuation of land forces by Britain's sea arm. Nineteen times during the Napoleonic wars alone, British forces were withdrawn without serious losses across the moat to Britain's island fortress. Dunkirk should have been one more retreat to the sanctuary of the sea in this long succession of British Continental wars.

But the plans went wrong. The armies of Britain's allies crumbled suddenly and completely before the German onslaught. British forces were driven rapidly from the interior and along the coast until there remained only the open beaches of Dunkirk. The town was broken and battered and the harbor was shattered and useless. Ten miles of beach were alive with tens of thousands of British soldiers under fire from German planes and artillery.

A hastily organized fleet of warships, merchant vessels and small craft was assembled to evacuate this trapped British Expeditionary Force and the French First Army. For nine days and nights the evacuation continued. Ships were sunk and men were drowned but the boats continued to shuttle back and forth while a rear guard was fighting a desperate battle in the streets of Dunkirk against overwhelming German forces.

Three hundred and thirty-nine thousand men came safely across the Channel to England's shores. All the armament of the Expeditionary Force was lost, but from Dunkirk there came a resurgence of British national spirit that carried Britain through months and years of bitter warfare to another decisive victory against a Continental enemy.

The author, one of England's foremost military analysts and a well known war correspondent, was himself wounded at Dunkirk and won a DSM for his operation of a small vessel. His story is documented from war office reports and logs of the vessels engaged in the nine days' operation.—LT. COL. PRESLEY W. MELTON.

ANZIO BEACHHEAD. American Forces in Action Series. Historical Division, Department of the Army. 122 Pages; Maps; Photographs. For sale by the Superintendent of Documents, Government Printing Office or the Infantry Journal Book Service. \$1.50.

In the more than four years that have passed since that grim and bloody and long darkness that was Anzio Beachhead, nothing has come to light that makes the episode more militarily justifiable. The

heroisms and sufferings of American and British soldiers on Anzio were the rock of Allied stubbornness and determination. The bright promises of the original plan died stillborn but the labor pains continued for four full months. Whether the suffering was essential to making the Nazis understand that the Allies had no intention of retreating a single step on the road to Berlin, we can leave to the historians and the psychologists. But they ought to be reminded that the Nazis always imperfectly understood the degree of Allied determination and if their incomprehension was to be penetrated, certainly it took something like Anzio to do it.

It is difficult to give any other reason for the four month's campaign after the original plans for a link-up with the main Allied forces failed to materialize. The book under review has only a few things to say about the meaning of Anzio, and it is just as well. The story of the combat men and the communications zone men and women hemmed in on the narrow beachhead ought to be told as it is told here—as a story in itself, of attack and counterattack, of desperate defensive fighting.

The great successes of the war ought not to be allowed to overshadow the actions that were less than great successes. The men on Bataan, at Kasserine Pass, on Anzio, and in the Bulge fought no less bravely than did the men who broke out at St. Lô, who crossed the Rhine, and who swept clear the small and large Pacific islands from Tarawa to Okinawa without a failure.

The clear, straightforward reporting in *Anzio Beachhead* is a finer tribute to the men and women who fought there than any possible eulogy could be. It ought to be read by every soldier; indeed it wouldn't hurt the American public to read it and learn something about warfare that the newspapers did not tell them during the war.—J. B. S.

A SOLDIER'S SAGA. By General Sir Aylmer Haldane. William Blackwood and Sons, Edinburgh. 408 Pages; Index; \$5.50.

There seems to be an unwritten law in England that retired generals and big game hunters must write their reminiscences—and a good thing, too, for in them lies many an exciting yarn and weird adventure. General Haldane, for example, started delving into family history and came up with evidence that deprived his family of an estate they had held since 1473. Then again, his escape from the South Africans during the Boer War is one of the more sensational escapes on record. In between extremes of this kind, General Haldane writes discursively of his eight major campaigns stretching over 80 years, and of his life and the times and people during peace. By no means an important book, this is a pleasant one. It is our loss that American soldiers and sportsmen rarely wax autobiographical.—R. G. McC.

THE CASE FOR DEGAULLE. A dialogue between André Malraux and James Burnham. Random House. 87 Pages; \$1.50.

This is a dialogue discussion of DeGaulle's program for France, by a well-known American writer in the field of political economics and André Malraux, a French writer and supporter of DeGaulle. The dialogue is directed principally toward a plan for building a strong European federation around France which will be dependent on neither Soviet Russia nor the United States.—P. W. M.

FIRE. By George R. Stewart. Random House. 336 Pages; \$3.00.

A fascinating adventure story based on authentic fire-fighting procedures of the United States Forest Service. Stewart, Professor of English at the University of California, and well-known as the author of *Storm*, spent two summers with Forest Service supervisors, rangers, guards, and lookouts in meticulous preparation for writing this book—the same painstaking preparation which was responsible for the success of his earlier novel, *Storm*.

Flying with fire-fighting parachutists, working on the fire lines in a half dozen national forests of the Rocky Mountain states, he acquired an intimate knowledge of the work of American foresters. His mastery of writing techniques has translated his experiences into a first-class thriller guaranteed to keep the reader engrossed.—P. W. M.

A HISTORY OF THE UNITED STATES NAVY. By Commodore Dudley W. Knox. G. P. Putnam's Sons. 704 Pages; Index; Illustrated; \$7.50. A standard book now in an enlarged edition to include World War II.

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