

COAST ARTILLERY JOURNAL



SECOND COAST ARTILLERY
(HARBOR DEFENSE)

September

1926

17th Annual Prize Essay Competition

PRIZES

First Prize	\$125.00
Second Prize	\$ 75.00

CONDITIONS

(a) Subject to be chosen by competitor, discussing some phase of policy, tactics, or technique involved in the efficient accomplishment of the mission of Coast Artillery.

(b) Competition will be open to all readers of the JOURNAL.

(c) Award will be made by a committee of award, consisting of three persons, to be nominated by the Editor. If no essay submitted seems to the committee worthy of a prize, none will be awarded. Honorable mention may be made of any essay submitted which seems to the committee worthy thereof, but to which a prize is not awarded.

(d) All essays entered in the competition will become the property of the COAST ARTILLERY JOURNAL. These will be published, if valuable and interesting to JOURNAL readers.

(e) Copy must be typewritten, with lines double spaced, on one side of the paper only, and must be submitted in triplicate. If illustrations are included, one of the three copies thereof must be in the form of drawings, tracings, or photographs (not blue-prints nor brown-prints).

(f) Copy must contain nothing to indicate its authorship, must be signed with a *nom de plume*, and must be accompanied by a sealed envelope containing this *nom de plume* and the name of the writer. This envelope will remain in the hands of the Editor of the JOURNAL and, after award has been made by the Committee, will be opened in the presence of the Executive Officer, Third Coast Artillery District.

(g) Copy must be received on, or before December 31, 1926. It must be addressed COAST ARTILLERY JOURNAL and the envelopes must bear the notation, "Essay Competition."

PUBLICATIONS OF THE
BOOKSHOP
 Coast Artillery Journal
 Fort Monroe, Virginia

GUNNERY AND POSITION FINDING FOR ANTI-AIRCRAFT ARTILLERY .....	.75
HEAVY ARTILLERY MATERIEL:	
Part III: Ammunition	\$.25
Part IV: Pointing and Fire Control Instruments and Devices .....	.50
Part V: Signal Communications .....	.25
GUNNERS INSTRUCTION:	
Fixed Mortars (complete without supplement) .....	.50
Mine, with one supplement .....	.50
Fixed Gun, with one supplement .....	.50
Expert Gunners, Fixed Guns and Mortars .....	.50
Expert Gunners, Tractor Artillery .....	.50
<i>Antiaircraft:</i>	
Machine Gun Battery .....	.50
Gun Battery .....	.50
Searchlight Battery .....	.50
Expert Gunners .....	.50
Railway, complete without supplement .....	.50
Tractor Artillery, with one supplement .....	.50
SUPPLEMENTS	
3-in. Rapid fire	
5-in. and 6-in. Barbette.	
10-in. Barbette.	
12-in. Barbette, 1892 model.	
12-in. Barbette, 1917 model.	
155-mm. G. P. F.	
6-in. Disappearing.	
8-in. Disappearing.	
10-in. Disappearing.	
12-in. Disappearing.	
14-in. Disappearing.	
8-in. Howitzer.	
Additional extra supplements for any Gunners' Instructions .....	.10
OPERATIONS OF THE 29TH DIVISION:	
Volume I, American Documents	1.25
Volume II, German Documents	1.00
MECHANICAL MANEUVERS:	
Paper covers .....	.20
MILITARY MOTOR TRANSPORTATION, 414 pages:	
Board covers	1.25
Cloth covers	2.25
Flexible leather	3.50
HEAVY (Coast) ARTILLERYMAN'S FIELD POCKETBOOK:	
(The information every Coast Artillery Officer needs, in loose-leaf form, tables, formulæ, forms, and data sheets, 206 p.)	
Sheets without cover	\$1.50
Sheets with covers	from \$2.85 to \$6.50

WHEN WRITING ADVERTISERS PLEASE MENTION THE COAST ARTILLERY JOURNAL

Newport News Furniture Co.

5-100 - 5-102 WASHINGTON AVENUE

HAPPY HOME FURNISHERS

DIETRICH'S PLACE at Newport News

Will be always the Leading Restaurant of the Peninsula

DOWN SOUTH COOKERY

A PLACE BECOMING TO PERSONS OF CULTURE

The
EBBITT
HOTEL
H STREET AT TENTH
WASHINGTON · D · C

*The Newest Hotel in the
Nation's Capital*

All rooms have private bath or shower; running ice water and electric fans; Dixie Room offers real Southern cooking; Convenient for motorists

ROOMS \$2.50 PER DAY UPWARDS

BOOKLET WITH MAP OF WASHINGTON SENT FREE

HOWARD LITCHISON - Registrar
& CAMPERS' Manager



(17)
DYANSHINE
BARTON'S DY-
ANSHINE is the
best insurance
for your shoes.
Use it and your
shoes will look
better, feel bet-
ter and last lon-
ger.

BARTON'S
DYANSHINE

**BARTON'S
DYANSHINE**
TRADE MARK U.S. PAT. 1,011
DOUBLE SERVICE SHOE POLISH

MANUFACTURED BY
**BARTON MANUFACTURING
COMPANY**
ST. LOUIS, MO.

NEW YORK

CHICAGO

PARIS

Brentano's Inc.

Any Book in Print

BOOKSELLERS, ENGRAVERS AND STATIONERS

F and 12th Streets

Telephone Main 861

Washington, D. C.

WHEN WRITING ADVERTISERS PLEASE MENTION THE COAST ARTILLERY JOURNAL

THE PURITAN CONFECTIONERY

31 EAST QUEEN STREET
HAMPTON, VIRGINIA

PURE HOME MADE CANDIES AND ICE CREAM

*Home Made After-Dinner Mints, Salted Almonds, and Whipping
Cream a Specialty*

PHONE 856

I. LIPMAN & COMPANY

33rd St. and Virginia Ave.
NEWPORT NEWS, VA.

ARMY AND NAVY SURPLUS EQUIPMENT

PLUMBING AND MARINE HARDWARE AT REDUCED PRICES

DON'T BLAME IT ALL ON WINDAGE



A dirty gun minimizes your chances on the "Bull." A gun is clean only when the primer salts (potassium chloride) have been *completely* dissolved. Chloroil is the only solvent which will dissolve these salts and prevent after-corrosion. Chloroil cleans thoroughly with one application and there is no sweating out.

THE STAZON KIT

In addition to Chloroil, the Stazon Kit contains Stazon Gun Oil, Stazon Gun Grease and Stazon Rust-off. Everything necessary for the complete care and preservation of your firearms.

If not carried by the Post Exchange, send \$1.00 for the Kit, or \$.35 for Chloroil direct to

Gun Cleaning Headquarters

CONVERSION PRODUCTS CORP.

622 S. DELAWARE AVENUE

PHILADELPHIA, PA.

BROADWAY DEPARTMENT STORE

NEWPORT NEWS, VA.
3007-09 Washington Ave.

DRY GOODS, NOTIONS, MEN'S FURNISHINGS

HOUSE FURNISHINGS

EXCLUSIVE READY-TO-WEAR

AGENTS FOR McCALL'S PATTERNS

PHONE 736

BLOXOM BROTHERS

WHOLESALE FRUITS AND PRODUCE

23 MELLEEN STREET

PHOEBUS, VIRGINIA

WHEN WRITING ADVERTISERS PLEASE MENTION THE COAST ARTILLERY JOURNAL



**RADIOLAS—
RCA LOUDSPEAKERS
and RCA ACCESSORIES**

WE are glad to announce that we have been selected by the Radio Corporation of America to sell and service RADIOLAS, RCA LOUDSPEAKERS, and RCA ACCESSORIES

Radiolas \$15 to \$575
RCA Loudspeakers \$18 to \$245

*Convenient Time payment may
be arranged*

EVERYTHING IN RADIO

THE BOOKSHOP :: Fort Monroe, Virginia

Depository of the U. S. Government

**THE FIRST NATIONAL BANK
OF HAMPTON, VIRGINIA**

Capital	\$ 50,000.00
Surplus and Profits (earned) over	100,000.00
Total Resources over	1,800,000.00

**CONSERVATIVE
STRONG
ACCOMMODATING**

H. H. KIMBERLY, *President*
R. C. WINNE, *Cashier*

P. J. DRUMMOND, *Assistant Cashier*
J. C. ROBINSON, *Vice-President*

4% INTEREST ON SAVINGS ACCOUNTS

WHEN WRITING ADVERTISERS PLEASE MENTION THE COAST ARTILLERY JOURNAL

THE COAST ARTILLERY JOURNAL

Published as the Journal U. S. Artillery from 1892 to 1922

MAJOR ROBERT ARTHUR, C. A. C. *Editor and Manager*
CAPTAIN D. L. DUTTON, C. A. C. *Assistant Editor*

Volume 65

SEPTEMBER, 1926

Number 3

CONTENTS

VERDUN DURING THE WAR	<i>Frontispiece</i>
GENERAL JACKSON'S SHENANDOAH VALLEY CAMPAIGN, MAY AND JUNE, 1862	By LIEUT. CLARENCE DEEMS 215
THE FUNCTIONS OF THE COMMANDER-IN-CHIEF IN THE FIELD AS EXEMPLIFIED BY ROBERT E. LEE	By LIEUT. COL. A. J. COOPER 239
STRATEGICAL AND TACTICAL ASPECTS OF COAST DEFENSE IN THE FUTURE	By COL. J. E. S. BRIND 243
ANTI-AIRCRAFT ARTILLERY ON THE OFFENSIVE	256
	By MAJOR G. A. WILDRICK
EDITORIALS	277
	<i>Military Training in Colleges—More Officers Needed—Army Housing—Decision by War.</i>
PROFESSIONAL NOTES	283
	<i>Practice Mobilization of the 213th Coast Artillery—542d C. A. (A. A.) Completes Its First Unit Camp—Salvo by Battery B, 51st C. A. (Hv. Tractor)—A. A. Artillery Target—U. S. Veterans' Bureau—The Influence of the Noncommissioned Officer—A Patriotic Citizen.</i>
MILITARY NOTES	295
	<i>New British Imperial Defense College—The National Rifle Association Range at Bisley, England—1927 Class at the Ecole Supérieure de Guerre</i>
COAST ARTILLERY BOARD NOTES	297
BOOK REVIEWS	305
	<i>Napoleon's Campaign of 1812 and the Retreat from Moscow—The Next War—The World Court—History of Fort Leavenworth, 1827-1927—Report on Army Maneuvers, 1925—A Short History of the British Army—Taschenbuch der Tanks—Pocket Cyclopaedia of Medicine and Surgery—Talks on Leadership to Young Officers—Chats on Naval Prints—The Practical Use of Books and Libraries: an Elementary Manual—Men in War—Elements of Library Methods—Character and Happiness—The Mastery of Fear.</i>

Authors alone are responsible for statements in contributed articles

Published monthly under the supervision of the Commandant, Coast Artillery School, by direction of the Chief of Coast Artillery, for the information of the Coast Artillery personnel of the Regular Army, National Guard, and Organized Reserves.

Terms: United States, \$3.00 a year; single copies 50 cents. Canada, \$3.25 a year; single copies, 55 cents. Foreign, \$3.50 a year; single copies, 60 cents.

Entered as second class matter at the Post Office at Fortress Monroe, Va. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized 3, 1920.

Copyright, 1926, by the COAST ARTILLERY JOURNAL.

Address: The COAST ARTILLERY JOURNAL, Fort Monroe, Va.

Printed by HOUSTON PRINTING AND PUBLISHING HOUSE, Hampton, Va.



VERDUN DURING THE WAR

THE COAST ARTILLERY JOURNAL

Volume 65

SEPTEMBER, 1926

Number 3

General Jackson's Shenandoah Valley Campaign, May and June, 1862

By LIEUTENANT CLARENCE DEEMS
4th Artillery

EDITOR'S NOTE.—The following interesting account of the Valley Campaign of General Thomas J. Jackson was written as a school thesis while the author was a student at the Artillery School at Fort Monroe in the class of 1892.

THE valley of the Shenandoah extends in a southwesterly direction from the Potomac River a distance of one hundred and forty miles to the headwaters of the Shenandoah. Its eastern boundary is the Blue Ridge Mountains; its western boundary, the North Mountains. The width varies from twelve to twenty-four miles. In the vicinity of Front Royal and to the west, the ground rises, developing abruptly into the Massanutton Mountains. These mountains divide the beautiful Luray from the main valley. They extend for fifty miles and then as suddenly fall in the vicinity of Harrisonburg. This chain, being much nearer to the Blue Ridge than to the North Mountains, divides the valley into two very unequal portions, the Luray being the narrower.

The Shenandoah Valley, rich in its soil, is well watered by the beautiful river of that name. Many streams, flowing from the mountains on either side, plainly indicate where the mountain passes are to be found. The Shenandoah River is formed by the two forks: the North and the South. The former, which is the smaller, rises in the North Mountains west of Harrisonburg and drains the main valley between the North and Massanutton ranges. It runs for some distance on the northwestern side, but at Mt. Jackson it crosses to the base of the Massanutton Mountains which it follows with a tortuous course to Strasburg and then easterly to its confluence with the South Fork. The latter drains the Luray Valley. Its headwaters are formed by three rivers: the North, the Middle, and the South rivers. They spread from the Blue Ridge to the North Mountains. The North and Middle rivers unite four miles southwest of Port Republic, and the South River, following the base of the Blue Ridge, joins the other at that town. From the

vicinity of Front Royal the Shenandoah inclines towards the western base of the Blue Ridge, which it closely hugs until it runs into the Potomac at Harper's Ferry. It is everywhere difficult to ford, and after rains is unfordable.

The principal road, a good macadamized turnpike, runs from Williamsport, on the Potomac, through Martinsburg, Winchester, Strasburg, Mt. Jackson, New Market, Harrisonburg, and Staunton, through to Tennessee. Going north on leaving Staunton it crosses by wooden bridges the Middle and North rivers before reaching Harrisonburg, and the north fork of the Shenandoah at Mt. Jackson. Common ungraded dirt roads run through parallel to it in most places. A turnpike runs from Harper's Ferry to Winchester. At New Market a road leads over the Massanutton Mountains to Luray thence through Thornton's Gap to Warrenton. A graded dirt road runs down the Luray Valley from Port Republic to Front Royal, and from the latter point a good turnpike leads to Winchester, and ungraded country roads to Strasburg and Middletown. The Rockingham Turnpike, leaving Harrisonburg, passes south of the Massanutton Mountains, crosses the South Fork at Conrad's Store, and passes through Swift Run Gap to Gordonsville. The South Fork, for a distance of fifty miles, was crossed by but three bridges; the most southerly at Conrad's Store; the others at Columbia and White House, near Luray.

The mountain gaps of importance on the Blue Ridge side are: Snicker's, leading to Leesburg and Fairfax Court House; Ashby's to Aldie; Chester to Gaine's Cross Roads; Manassas to Manassas Junction; Thornton's to Warrenton; Swift Run to Gordonsville; Brown's to Mechum's River; Rockfish to Charlottesville. There are other less important gaps over these mountains.

Winchester is connected by mountain roads with Romney and Franklin, on the west and southwest; and from Staunton a road runs via Buffalo Gap to Monterey and Franklin.

The only railroads were a short branch extending from the B. and O. R. R. at Harper's Ferry to Winchester, and the Manassas Gap R. R. from the Junction on the Orange and Alexandria R. R., through Manassas Gap via Strasburg up the valley to Mt. Jackson, its terminus.

The point of greatest strategic value in the valley is Winchester. Important roads radiate from this center in all directions. An army based on the Potomac, with the B. & O. R. R. or, if the latter were destroyed, the excellent turnpike, running through Martinsburg up through Maryland into Pennsylvania, would have lines of communication affording every means for supplying itself. This position would not be easily turned. Snicker's Gap, the most northerly practicable gap in the Blue Ridge, if properly observed, would not readily lend

itself to such a turning movement from the southeast. Besides, a force attempting to pass from the south between Winchester and the Blue Ridge with the object of intercepting communications with Harper's Ferry would run the risk of being thrown back on the Shenandoah River and the mountains; while, if the movement was successful, an army at Winchester would still have the line Martinsburg-Williamsport upon which to retreat. In the extremely improbable attempt to turn this position by the Franklin-Moorefield road the offensive would have a poor road upon which to operate, one that would offer great advantages to the defensive, and, if finally successful in driving the latter back, the defense would have a good road upon which to retire to Harper's Ferry, one perpendicular to its own front and running direct to its base.

To an invading army from the north, next to Winchester the most important objective is Staunton. Situated at the head of a most productive valley it received the rich crops of grain and forage which were forwarded via Gordonsville to the Southern Army at Richmond. The railroad from West Virginia, passing through Staunton to Charlottesville and Gordonsville, was the most direct line of communication between Central Virginia and the Confederate Army in the valley of the Kanawha.

The direct line of operations from Winchester to Staunton is by the Valley Turnpike through Harrisonburg. This would require that Strasburg and Front Royal be held by a force sufficient to protect the communications, and the road over the Massanutton Mountains obstructed and watched by a small force. Approach to Staunton by the Luray Valley would be more indirect. The road is also inferior.

On October 7, 1861, General T. J. Jackson was assigned to the command of the district of the Shenandoah Valley. He assumed command in November. At that time the Federals had possession of all the state of Virginia north of the great Kanawha and west of the Alleghanies. Their outposts extended into the Alleghanies, and in some instances east of the main range. General Kelly occupied Romney with five thousand men. Another force occupied Bath, while the B. & O. R. R. was guarded by Federal troops, except about forty miles from Harper's Ferry to Hancock which had been destroyed by the Confederates. This gap was supplied by the Chesapeake and Ohio Canal which was open from Cumberland, Md., to Georgetown, D. C.

Jackson proposed a plan for dispossessing the Federals of West Virginia. He realized the difficulty of operating from Staunton as a base on account of the wretched roads over the mountains. He desired to move along the B. & O. R. R. and the parallel turnpikes and enter western Virginia from the northeast. If successful it would turn

the Federal left, and afford good roads upon which to operate; but it would expose him to a flank attack with the possibility of being thrown back on the mountains if unsuccessful. To carry out his plans he asked that his force be increased to 17,000 men. This was not granted. By the last of December he was reinforced to 11,000 men. January 10 his morning report showed 10,178 infantry, 648 cavalry, besides officers, and 26 guns.

Opposed to Jackson were 16,000 men under Banks with headquarters at Frederick, Md., where the greater number were in winter quarters. The remainder guarded the Potomac from Harper's Ferry to Williamsport.

General Rosecrans had 22,000 men in Western Virginia. He was concentrating them on the B. & O. R. R. and proposed an advance on Winchester. Before he obtained permission to carry into effect this enterprise General Jackson took the initiative and, as usual in such cases, the opponent's movements were dependent on those of the army assuming the initiative. Early in January General Lander was given command of the Federal troops at Bath, Hancock, Cumberland, and Romney.

January 1, 1862, General Jackson set out from Winchester with 9000 men for Bath. By this movement he hoped to destroy communication between Banks at Frederick and Kelly at Romney, and threaten the latter's rear and force him to evacuate Romney or fight superior forces. He possessed interior lines and designed striking his objective with overwhelming numbers. It took three days for his small and inexperienced army to cover thirty-one miles over mountain roads covered with sleet. Horses fell, wagons were overturned, and the men suffered terribly. January 4 the Federal force at Bath, numbering less than two thousand, was attacked and driven off with loss of stores and camp equipage. Jackson pushed on to Hancock and attempted to cross the river, but was prevented by reinforcements forwarded by General Lander. The railroad bridge, station, and telegraph were destroyed. He then started for Romney and at Unger's Store, some twenty miles from the Potomac, was obliged to lose several days while his horses were being rough-shod. On the thirteenth he again started for Romney, having previously sent a small force again in the direction of Bath, and another towards Moorefield to distract the attention of the Federals while Ashby observed Romney, which was evacuated on the tenth. Jackson pushed forward and destroyed the B. & O. bridge at New Creek. He desired to advance on Cumberland and destroy the valuable bridges at that point, but such was the discontent of his small army from the severe hardships endured that he was obliged to relinquish with deep mortification any further forward movements. He had not yet obtained

that wonderful control over his men so frequently exhibited later. He then proceeded to place his troops in winter quarters—General Loring's brigades and thirteen guns at Romney, Bogg's militia brigade along the South Branch of the Potomac as far as Moorefield, Carson at Bath, Meems at Martinsburg, Ashby with the cavalry on the Potomac, Garrett at Winchester to watch and oppose Banks, Headquarters at Winchester. He thus left the larger force at Romney where they could subsist on the rich valley of the South Branch and also oppose an enemy from the northwest. A telegraph from Winchester put Jackson in communication with Romney. Garrett at the former place could observe Banks or reinforce Loring.

Such was the general discontent at the suffering endured in Loring's command that upon complaints made to the Secretary of War he ordered Loring to abandon his position and retire to Winchester. This order was given without consulting either General J. E. Johnston, in chief command of Virginia, or General Jackson, in command of that district. The latter promptly resigned his commission. On the earnest request of General Johnston and Governor Letcher of Virginia, General Jackson agreed to remain in the Confederate service.

The withdrawal of Confederate troops from Romney was a surrender of all that had been gained by so much suffering, and Jackson was compelled to remain on the defensive by the depletion of his command to reinforce Johnston in central Virginia.

In the meantime the Federal administration was pushing its preparations for the capture of Richmond, and General Johnston was making his dispositions to meet them. President Lincoln was anxious to attack Johnston at Manassas. He directed McClellan to advance "with all disposable force after providing for the defense of Washington" and seize the Orange and Alexandria R. R. in Johnston's rear. This plan he abandoned on the urgent representations of McClellan and reluctantly adopted that general's plan of operations by the lower Chesapeake, York, and James rivers. Before this was carried out Banks and Lander were ordered to cover the rebuilding of the B. & O. R. R. from Harper's Ferry to Hancock and to capture and hold Strasburg and Winchester. Banks moved slowly while the bridge at Harper's Ferry was being built. Jackson remained at Winchester until March 11. His force at this time numbered 4600 men. On April 1 Banks' strength, as given by General McClellan, was 23,339, not including 2100 men protecting the railroad or Sedgwick's division which was with him in his advance on Winchester. Jackson fell back to Mt. Jackson, twenty-four miles southwest of Strasburg.

General Banks was directed, March 16, 1862, to move the greater part of his command to Manassas, place a brigade at Strasburg, and

occupy Warrenton Junction and Warrenton, with the general object of covering the line of the Potomac and Washington City while McClellan moved to the James River. Shield's division was recalled from Strasburg, and Williams' division began its movement towards Manassas on March 20. The Confederate force in front was known to be so small that no difficulty was anticipated in carrying out these movements. General Jackson moved his command to Strasburg on the twenty-second. Learning that a large body of Federals had left Winchester and believing the force remaining there was smaller than it was, he determined to attack in order to produce a recall of the troops sent off.

March 23 Shield's division of about nine thousand men, including five batteries, was posted near Kernstown, about four miles south of Winchester. Jackson's force consisted of 3087 infantry, 290 cavalry, and 27 guns. The latter attacked impetuously. After a desperate struggle he was repulsed with the loss of two guns, 482 killed and wounded, and 269 missing. The Federals lost 544 killed and wounded and 24 missing. Jackson's forces retired six miles that evening and the next day commenced to move slowly back to its position at Mt. Jackson.

This, Jackson's only defeat, deserves more than passing notice. His bold attack realized more than the greatest results his most sanguine hopes could have anticipated. Its first effect was to accomplish the recall of the Federal troops marching from the valley towards Manassas. General Banks ordered back Williams' division, the rear brigade of which was ordered to march all night to retrace the twenty miles it had already covered on its way to Manassas. Blenker's division of ten thousand men was detached from McClellan and transferred to Fremont, recently placed in command of the Mountain Department—now West Virginia. Of far greater importance was the fact that a few days later McDowell's corps was detached from McClellan's and retained in front of Washington City in place of Banks.

When McClellan left on April 1 for Fortress Monroe to take command of his army on its advance up the Peninsula towards Richmond, he left for the defense of Washington and its approaches 73,456 men, with 109 field guns, distributed as follows:

At Warrenton	7,780
At Manassas	10,859
In the Shenandoah Valley (including Blenker)	35,467
In Washington	18,000
On the lower Potomac	1,350

Yet Mr. Lincoln, after Kernstown, did not consider Washington safe, and on April 3 countermanded the order for the embarkation of McDowell's Corps and detained it in front of Washington.

Still further were the Federal authorities preparing for defeat and disappointment in placing Fremont in the Mountain Department, Banks in the valley, and McDowell on the Rappahannock—all independent of McClellan and, worse still, independent of each other.

Early April was cold and raw, with snow-storms, rain and heavy roads. On the seventeenth the Federal forces advanced and captured Ashby's outpost between Mt. Jackson and Columbia Furnace. Carrol's brigade (Federal) turned the Confederate left. Ashby destroyed the greater part of the railroad property and bridges as he retired but failed in his attempt to burn the turnpike bridges over the North Fork of the Shenandoah, being pressed so closely by the Federal troops. On the same day Jackson fell back twenty miles to Harrisonburg which he reached the next morning. Instead of going on toward Staunton he encamped at Peale's Cross Roads, six miles from Harrisonburg, near the southern extremity of the Massanutton Mountains. Next day he crossed the South Fork at Conrad's Store, and went into camp in Elk Run Valley between the Shenandoah and Swift Run Gap. Meantime the transfer of McClellan's army to the Peninsula had caused the withdrawal of nearly all of the Confederate forces from central Virginia to oppose McClellan. Jackson, whose force was raised to six thousand men, remained in the valley. Ewell, with his division of eight thousand men and a regiment of cavalry, held defensively the line of the Rappahannock. General Edward Johnson, with three thousand men held the approaches to Staunton from the northwest. Generals Ewell and Johnson were ordered to comply with orders from Jackson if he needed their assistance. We will see further on what use was made by General Jackson of the authority to call for assistance from these officers, while his opponents, Fremont, Banks, and McDowell, were each directed in his operations independently from Washington: Unity of Command, against division and independence in command.

Jackson, conscious of his inability with 6000 men to resist in the open country the advance of Banks with 19,000 men, took a strong position at the foot of the Blue Ridge. The Shenandoah was in his front, now much swollen by rains. His flanks were well protected by mountain spurs. A good road was in his rear upon which to retreat and join Ewell. He held the bridge in his front at Conrad's Store, and in case of an advance of Banks towards Staunton would threaten his rear and communications, which already were stretched out one hundred miles and could be maintained only by wagon. Banks hoped to cooperate with a force of 15,000 men under General Fremont, advancing on Staunton from West Virginia, and remained for the present at Harrisonburg. Ewell fell back to Stannardsville, where he could more effectually cooperate with Jackson. There was no Federal force in his

front, McDowell having drawn his forces to Fredericksburg. The retreat of Jackson had uncovered the roads leading to Edward Johnson's force, which fell back to the vicinity of Staunton. Schenck was at Franklin, and Milroy at McDowell. Their two commands numbered six thousand men, and Fremont was preparing to join them with nine thousand more. Milroy, after Johnson's retreat, pushed his advance near the Harrisonburg and Warren Springs Turnpike where communication with Banks might be made; and Jackson feared a union of the two armies. He promptly took measures to try to prevent it. A prompt junction with Edward Johnson's force might enable Jackson to fall upon and defeat Fremont's advance before the main body could join it.

Jackson might have called in Edward Johnson's and Ewell's commands, and with an army of 17,000 attacked Bank's 19,000 at Harrisonburg; but if successful, he would only have driven him back on Fremont and compelled a concentration of his enemy. Again he could have joined Ewell and attacked a small force left by Banks at Middletown and marched via Luray on Winchester, which undoubtedly would have recalled Banks to the lower part of the valley in order to protect his communications. This would have promised brilliant results, but Fremont would have been free to join Banks. Communications between their two armies were open and Jackson could not hope to defeat their combined armies. The plan upon which he determined was still better.

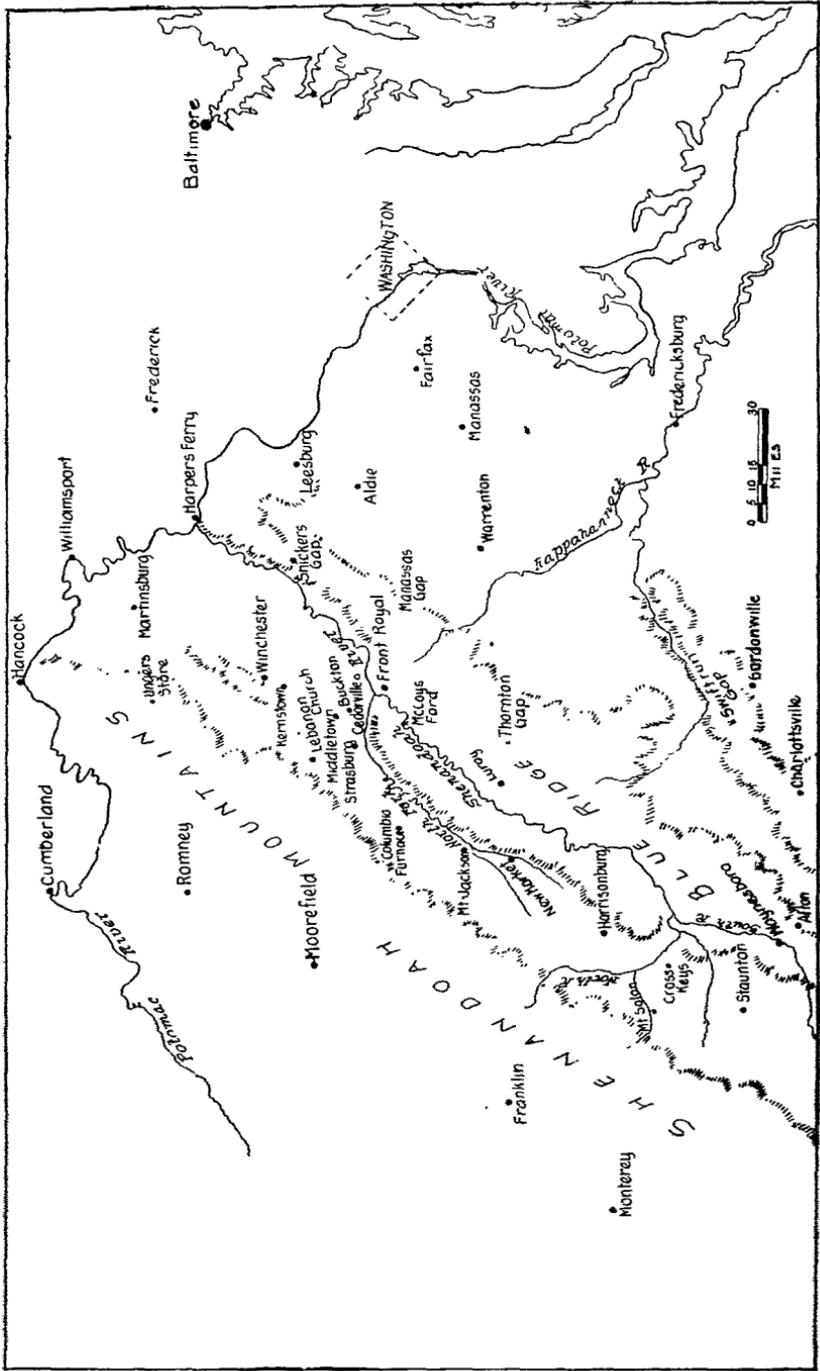
To mislead the enemy Jackson sent Ashby on the twenty-ninth and thirtieth of April to make demonstrations on Harrisonburg. A small reconnoitering party was sent to the peak at the southwest extremity of the Massanutton Mountains and discovered the Federal forces remaining quietly in camp. Jackson determined to march up to Port Republic protected by the Shenandoah, and then through Brown's Gap to Mechurn's on the Virginia Central R. R., producing the impression on friend and foe that he was en route for Richmond. From Mechurn's he went to Staunton. Jackson left camp the thirtieth leaving Ewell's command in possession. Such was the horrible condition of the muddy road that this indefatigable marcher made but twenty-one miles in two and a half days. On May 4, the artillery and trains taking the railroad at Mechurn's, the troops marched, reaching Staunton the evening of the fifth. Joined by Edward Johnson, their united commands marched via Buffalo Gap towards Monterey. Milroy fell back leaving his camp equipage in the Confederates' hands. Milroy concentrated at McDowell and was reinforced by Schenck to six thousand men, against Jackson's nine thousand. The country in this section is so rugged that both combatants experienced difficulty in keeping their troops well in hand. Columns were stretched out to an unusual degree.

May 8, while Jackson, protected by a small escort, was reconnoitering the Federal position at McDowell and had determined to turn this position by a flanking column which would intercept the Federal retreat on Franklin, the latter sent forward a line of skirmishers to drive off the reconnoitering party from its position which commanded the Federal camp. Jackson in the meantime, hurried forward his command, or as much of it as could arrive in time, and occupied this commanding position known as Sittlington's Hill. While the position was held by infantry, Jackson did not succeed in bringing up any of his guns. Schenck attacked him boldly and a sanguinary contest, lasting four hours and a half, resulted in the former being repulsed. He retreated under cover of the night, having inflicted on Jackson a greater loss in killed and wounded than his own force sustained, although the attacking party. The Confederate loss in killed and wounded amounted to 461; the Federals 256. These results obtained from the fact that the Confederates located on the crest of a steep hill stood out in sharper outline against the background of the sky, affording better targets than the Federals moving up to the attack; besides, it is claimed that troops firing down a very steep incline invariably shoot high. This would indicate the weakness of such a position as the "Spur" at Spickeren.

Schenck retreated to Franklin, keeping his pursuers in check; burning the forest, the smoke impeded pursuit. In order to prevent a junction of Banks and Fremont, Jackson sent a body of cavalry under topographical engineers to obstruct North River, Dry River, and Brock's Gaps, to the west and southwest of Harrisonburg. (The blocking of these roads was so effectual as subsequently to cause Fremont to march all the way around by Strasburg when ordered to the relief of Banks.) Jackson succeeded in making only eighteen miles in three days against the obstacles of the country and Schenck's retarding force. The latter, within reach of Fremont's assistance, held a strong position at Franklin. Time passed. Ewell might be called to Johnston's assistance at any time. An attack at Franklin, if successful, could not produce decisive results. Jackson concluded to join Ewell and attack Banks before Fremont had recovered from the disarrangement of his plans. He sent a courier to notify Ewell of his intentions.

Returning, Jackson reached McDowell the fourteenth of May. The same day Fremont arrived at Franklin with his reinforcements. He remained ten days at this town repairing losses and endeavoring to bring up supplies. Jackson moved via Lebanon Springs to Harrisonburg.

General Banks, about the first of May, learning that Ewell's division was in the valley and Jackson moving, and being under order to detach Shields to General McDowell's command at Fredericksburg, gradually withdrew to Strasburg sending Shields via Luray and Front Royal to



Fredericksburg. Banks' force was reduced to about eight thousand men with eighteen guns. He intrenched his position at Strasburg where the valley contracts most, and sent Colonel Kenly to Front Royal, twelve miles distant, with about nine hundred men and two guns to protect the railroad and bridges over the Shenandoah. The disposition of General Banks' forces was faulty. His army was not large enough to hold a front of sixteen miles, from Strasburg to Lebanon. However, he was hampered by orders from the Secretary of War, who, despite the onerous duties incident to his position, when a great nation was involved in a life and death struggle for existence, considered it incumbent on himself to direct the commander of a small army to place two of his regiments along the railroad as far as Front Royal. General Banks, on reporting his compliance with the order, stated, "This will reduce my force greatly, which is already too small to defend Strasburg if attacked."

His command was disposed as follows: At Strasburg, 6856, including 1800 cavalry and 16 guns; on Manassas R. R., 160, extending to Buckton, five and a half miles east; at Front Royal, 900 and 2 guns, but no cavalry; at Manassas Gap, 80, twenty miles from Strasburg; total, 7996, including 1800 cavalry and 18 guns. At Winchester under Colonel Miles there were 1456 men, including 600 cavalry. Total Federal troops to hold the lower valley were 9452 (of whom 2400 were cavalry), 18 guns. We see the Federal troops were amply supplied with cavalry, one-fourth being of that arm.

It was necessary, if possible, to hold Winchester. Besides its strategic importance a large quantity of stores had been accumulated there. Strasburg, where the mass of General Banks' troops were stationed, was an important position. Located on the Valley Turnpike and M. G. R. R., it commanded the most direct approaches to Winchester from the main valley. However, the Cedar Creek Turnpike, several miles west, permitted the position to be turned on the right and a force striking Front Royal would turn his left. At Front Royal there were three hundred thousand dollars worth of military stores collected. We have the novelty of a magazine, not only at the front, but the weakest part of the front—an unprotected flank. The town of Front Royal is south of the South Fork of the Shenandoah, over which near this point are two bridges—the Luray Turnpike Bridge and the railroad bridge. A mile further north towards Winchester the turnpike crosses the North Fork by a bridge. Within a few miles of Front Royal and to the west several fords give passage across the two forks of the river. An enemy defeating the force at Front Royal and pushing on to Cedarsville would be about as near Middletown, Newtown, or Winchester (all on the Valley

Turnpike) as a force at Strasburg, and would seriously threaten the retreat of the latter.

Colonel Kenly's command was sent to Front Royal May 16. Five days after this General Banks informed the Secretary of War that Ashby's cavalry was encountered at Woodstock, some twelve miles from Strasburg, and that General Jackson had returned to the valley. Next day, the twenty-second, he telegraphed the Secretary of War that Jackson, with Ewell and Edward Johnson, had sixteen thousand men, and again drew attention to the fact that his force was insufficient to hold both Strasburg and Front Royal.

General Jackson moved from Mt. Solon, eight miles southwest of Harrisonburg on the nineteenth. He reached New Market the next day, having been joined en route by Ewell's strongest brigade, which was sent around by the south and west of Massanutton Mountain. Ewell with the rest of his command proceeded down the Luray Valley. Ashby had pushed forward beyond New Market to cover the movement while Jackson's force, on the twenty-first, turned to the right, and, crossing the mountains, joined Ewell, Ashby following but leaving a force to the west of the mountains to prevent information being carried through the Confederate lines. The combined forces of Jackson and Ewell, amounting to seventeen thousand men and forty-eight guns, on the twenty-second moved quietly down the Luray Valley towards Front Royal, bivouacking ten miles from this town. Next morning Jackson moved his main column from the principal road over to one further east so as to threaten communication with Manassas Gap, at the same time sending a cavalry force to cross the South Fork at McCoy's Ford, some seven miles southwest of Front Royal, to turn the Federal right and seize the bridges in rear if possible, cutting off retreat towards Strasburg and Winchester. Colonel Kenly had no cavalry for outpost or reconnaissance purposes. The presence of the Confederates was not discovered until their cavalry came in contact with his pickets, one and a half miles from town. Kenly quickly brought his command together and took measures to make a stubborn fight to protect the bridges. He was then, but too late, joined by two cavalry companies sent from Strasburg. Attacked in front by overwhelming numbers, his retreat threatened by the cavalry which had arrived in his rear, he burnt his camp and retreated rapidly across both bridges, setting fire to them. The fire was extinguished by the Confederates but detained them a short time. The pursuit was continued. The gallant Colonel, with his command, made several stands, but was over-powered and crushed, Colonel Kenly being desperately wounded while attempting to the last to delay the Confederate advance. By nightfall the mass of General Jackson's army reached Front Royal. The Federals had lost 700 prison-

ers, 2 guns, and the stores collected at Front Royal. But this was not all, their left was turned, and the road to Winchester opened. General Banks was completely surprised, and reconnaissances determined the fact that the Confederate pickets had already occupied every road branching from Front Royal. At 9:00 A. M. the twenty-fourth, General Banks' command commenced its retreat on Winchester. The baggage was sent towards the rear, the main body following. The cavalry, with six guns, acted as a rear guard. General Jackson knew that a prompt movement on Banks' part towards Winchester might enable him to escape over the Potomac, whereas if the Confederates moved with all their forces direct on Winchester, Banks might escape via Front Royal and Manassas Gap to Washington. Jackson sent a cavalry force on the Front Royal-Strasburg road to prevent escape unobserved towards the former town, directed his main body on Middletown, and sent Ewell with a brigade and a regiment of infantry, with ten guns, direct on Winchester. A cavalry force was sent to Newtown. This cavalry force struck Banks' wagon train, producing great confusion. They were driven off by infantry. Jackson, hurrying his main body to Middletown, reached it after the Federal infantry had passed, but struck the head of the Federal cavalry, driving it off with great loss from the turnpike. The larger part of the latter, however, by hard marching on country roads, arrived at Newtown in time to join Gordon's Federal brigade. While General Hatch, with the Federal cavalry, was endeavoring to regain the main body, his rear brigade, with six guns, was endeavoring to force its way along the Valley Turnpike. After a spirited resistance it was driven back in confusion on Strasburg. Making a detour, six companies reached Clear Spring, beyond the Potomac. Six more companies, with six guns, joined the main command at Winchester in time to engage in the fight next day. A determined stand of Gordon's brigade and part of Hatch's cavalry, at Newtown, enabled the remains of Banks' army to reach Winchester, the rear guard reaching that point at night. During the retreat of the latter General Jackson repeatedly attacked in his earnest endeavor to reach Winchester as soon as possible, but the stubborn resistance of Lt. Col. Andrews, with his 2d Massachusetts, successfully retarded, during this night retreat, the impatient advance of the Confederates.

General Banks determined to make a stand at Winchester. He had about 6400 men and 16 guns. Jackson's army comprised 15,000 men and 48 guns. After a stubborn resistance the Federals were overwhelmed, and retreated in confusion to the Potomac, thirty-four miles in one day, having lost one-third of their entire strength, two guns, one thousand muskets, and a large amount of hospital, quartermaster, commissary, and ordnance stores, all of which were much needed by the Confederates.

These disasters to the Federal army resulted, in the first place, from the fact that General Banks' army was deprived of Shield's division without first supplying its place by drawing on Fremont. Leaving some five thousand men to watch the roads through the mountains, the latter should have been ordered to send ten thousand men to join Banks, and with this united force to have contested the mastery of the valley with Jackson. In the second place, General Banks' small army, as we have seen, was spread over a front of twelve miles; and Colonel Kenly on the left had no cavalry with which to perform the requisite reconnoissance duty, permitting the enemy to arrive undiscovered within a mile and a half of his position.

A better disposition of General Banks' forces would have been to place, say, five hundred infantry entrenched to observe the neighborhood of Strasburg, two hundred infantry near Lebanon Church on the Cedar Creek turnpike; three hundred infantry and the same number of cavalry at Front Royal to send out small patrols up the Luray Valley, keeping posted as to what was transpiring as much as twelve miles to the front; a somewhat larger cavalry force in the main valley for similar duty; and small cavalry outposts at Huff's, on the Moorefield road, and also at Manassas and Chester Gaps. This would have left, including Miles' command, about 7500 men (of whom 1500 were cavalry) and 18 guns. This main body could have taken position near Middletown on the Valley Turnpike, about five miles from either Strasburg or Cedarsville. At Front Royal, Strasburg, and Lebanon Church, mounted couriers should have been in readiness to convey intelligence immediately to the commander at Middletown of any movement of the enemy, with a second and a third messenger whenever the definite nature of the enemy's advance was discovered; similar messages, when practicable, to be sent to the commanders of the guards at the posts next on the right or left. With proper patrolling during the day and vigilance at night on the part of the cavalry, the Confederates could not have arrived in force within several miles of these advanced posts without discovery. The infantry grand guard would have been notified. Such disposition would have seemed prudent. It is never safe to imagine there is security in the presence of a most active enemy: at any rate, if no enemy is present in the immediate neighborhood, the habit of providing for, and exacting, a most perfect performance of outpost duty is essential to eventual success with any army. Let us suppose that General Banks' forces had been disposed as described. Jackson's forces arrived at ten miles from Front Royal on the evening of the twenty-second, having marched fifty-three miles—part of them sixty-three miles—since the morning of the nineteenth. They were much fatigued with their marching, in great part, over poor roads.

The Federal cavalry would have prevented a surprise of the force at Front Royal and given it time to burn the bridges and retire across the North Fork. Word would have been sent to Middletown (six miles from Cedarsville). A strong cavalry force detached from the main body at Middletown could have reached Cedarsville and have assisted the force from Front Royal in detaining the enemy's advance, retiring slowly on the main body at Middletown. Colonel Kenly's pickets were discovered at 2:00 P. M. Before evening some idea of the enemy's force would be ascertained, the guards at Strasburg and Lebanon called in, the baggage started to the rear, and Newton secured. General Jackson did not advance on Middletown until the morning of the twenty-fourth. On the evening of the twenty-third the Federal army could have retired on Newtown, the cavalry watching the road to the east, and the United command assembled on a selected position for a defensive battle near Winchester, retiring on the latter next morning, the twenty-fourth; or, they could have fallen back to Lick Run, five miles beyond Winchester, where the road bifurcates for Martinsburg and Harper's Ferry. The Confederates would have had twenty-three miles to march to reach this point. This, with the time necessary to deploy, say something over an hour, would have consumed nearly all day. Not more than an hour or two could have elapsed before night-fall. The Federals, with eight miles less to march, would have arrived in time to prepare for defense. If the enemy hurried forward without taking time for judicious deployment and closing up, as was Jackson's wont, then the Federals would have realized those conditions, so often recommended for a detaining force, and never more perfectly realized than by our major general commanding in repulsing General Hood at the battle of Franklin.

The position at Lick Run would have involved the loss of Winchester without a struggle; still a repulse of Jackson would have given ample time for the safe arrival of the trains at Harper's Ferry and an orderly retreat of the army on that point. General Banks was aware of the overwhelming numbers of Jackson and Ewell, as was shown in his telegram to the Secretary of War on the twenty-second of May. In the proposed disposition of General Banks' army about one-fourth of his command would have been employed in observing the extended front from Front Royal to Lebanon Church, sixteen miles. It frequently happened, more particularly with relatively new troops, that complicated plans miscarry. Had General Banks not have been hampered by the obligation to secure, if possible, the Manassas Gap R. R., another plan would have been to observe by cavalry the principal roads and approaches, and, with Colonel Miles' command, to concentrate some 8500 men at Newtown. The direction of the enemy's approach being

reported, he could, with his large body of cavalry, have determined the nature of the advance and awaited attack as before, near Winchester, but with a larger force.

The defeat of General Banks' small army was by no means the only result of Jackson's success. It created general consternation in the north, causing the government to make another call for volunteers and several Governors of states to call out their militia, and deranged the plan of attack on Richmond. General McDowell's corps, increased to 40,000 men by the accession of Shield's division, was to have advanced on Hanover Court House via Fredericksburg to reinforce General McClellan's army. This movement was arranged to commence on the twenty-sixth of May. On the twenty-fourth General McClellan was telegraphed as follows:

In consequence of General Banks' critical position I have been compelled to suspend General McDowell's movement to join you. The enemy are making a desperate push on Harper's Ferry and we are trying to throw Fremont's force, and part of McDowell's, in their rear.

(Signed) A. LINCOLN.

Generals McClellan and McDowell both represented the serious mistake that was being made. Twenty thousand men from McDowell's Corps were, however, ordered to the valley via Manassas Gap. General McDowell, in reply to the order sending half his corps after Jackson, said:

I beg to say that cooperation between General Fremont and myself to cut off Jackson and Ewell is not to be counted upon, even if it is not a practicable impossibility; next, that I am entirely beyond helping distance of General Banks, and no celerity or vigor will avail so far as he is concerned; next, that by a glance at the map it will be seen that the line of retreat of the enemy's forces up the valley is shorter than mine against him.

It is needless to say that this strategic envelopment brought only disappointment. Jackson's 17,000 men were the objective for 58,000 Federal troops. McDowell's command was increased by King's division, making 30,000 in all. Fremont was marching on Strasburg with 14,000. A force of 7000 under Saxton had been hurried to Harper's Ferry, and General Banks' force at Williamsport had been increased to 7000.

General Jackson moved on Harper's Ferry but, in view of the concentration of the enemy on his line of retreat, did not risk an engagement with Saxton's small force. On the thirtieth he retired on Winchester, leaving Winder's brigade to cover his movement. When Jackson arrived at Winchester, after a 25-mile march of his main body, McDowell was in possession of Front Royal, only twelve miles from Strasburg. Fremont was twenty miles from Strasburg (at Wardens-

ville), while the head of Jackson's column was eighteen miles from that town, and his rear guard forty-three miles from the same point. McDowell alone outnumbered Jackson, and with Fremont, Banks, and Saxton, the combined Federal forces more than tripled those of the Confederates. Jackson decided to make a desperate effort to reach Strasburg before his way was barred. The next morning, the thirty-first, twenty-three hundred prisoners were sent towards Strasburg, followed by long wagon trains with captured stores, then the rest of the army except Winder's rear guard. The latter was ordered to hasten on and not encamp until he had passed through Winchester. He made twenty-eight miles, part of his command thirty-five miles, in this one march. Next morning, June 1, Jackson continued the movement of the prisoners and stores to the rear, but Fremont was commencing to force his way, and had attained a dangerous proximity about three miles from Strasburg. Ewell was detaining him, while Winder's brigade was hurrying towards Strasburg, which it reached at noon. Shields was directed on Strasburg this day, McDowell's intention being that he should intercept Jackson's retreat, throwing Rickett's division on his flank. Shields was diverted by a mistake of a staff officer towards Winchester, and upon returning was directed up the Luray Valley with the idea of intercepting Jackson. The latter, however, had the shorter and better road; to intercept his retreat by the Luray Valley was hopeless. Had Shields followed Fremont by the main turnpike his division would have caught up with Fremont by the time the latter reached Mt. Jackson. Their united force could have driven Jackson out of the valley. However, the shades of Wurmser and Alvinzi seem to have dissipated in the memory of the past: an impassible obstacle, and an army divided by this obstacle courting disaster.

General Jackson suspected the movement by Luray, and, the river being swollen by rain he directed a cavalry force to burn the two bridges that crossed the South Fork at White House and at Columbia, and later burned the bridge at Conrad's Store, thus not only preventing a junction of Shields and Fremont, but consigning the former to a sixty-mile march over rough, muddy roads in order to reach Harrisonburg, which the Confederates were approaching on a good macadamized turnpike. A signal party was sent to the peak at the southern extremity of Massanutton Mountain to observe Shields' movements. Jackson was closely pressed by Fremont, but on the second of June crossed the North Fork, burning the bridge, and on the third reached New Market; on the fifth, Harrisonburg. Then he retired towards Port Republic. Shields, in the meantime, was plodding along over poor roads. Such were the difficulties offered that he begged McDowell not to send any

more reinforcements, but to forward supplies. Ricketts' and King's divisions were withdrawn from the valley.

Jackson's army, especially the infantry, was much fatigued with the exertions of the previous three weeks; in twenty-four days they had marched three hundred miles. Jackson had succeeded in preventing the junction of his opponents, and with interior lines was preparing to avail himself of his advantageous position. "About four miles southwest of Port Republic the North and Middle rivers, the principal tributaries that go to form the South Fork, unite and flow thence in a northeast direction to this village. At this place the third tributary, 'South River,' coming from the southwest joins the stream." The latter is fordable. The North River at this time was not fordable; besides, the bridge at Mt. Crawford was destroyed. Port Republic lies in the angle formed by South River and the main stream. Just above the junction of the main stream and South River was a bridge which carried the road from Harrisonburg to Brown's Gap, into Port Republic. On the north side of the river there is a bluff continuing some miles below and completely commanding the bridge and the right bank. On the eastern side the river bottom, from one to two miles broad, was cultivated fields and meadows. Through this tract, and generally not over half a mile from the river lay the road to Conrad's Store and Luray. By this road only could Shields approach. Jackson's strength was about 15,000. Fremont's return for May 30 gave "present for duty" 14,672. Shields had 10,000 men. Jackson might have assailed Fremont's force; but after detaching a containing force to oppose Shields he would have had inferior numbers, and he did not underrate the fighting power of his opponents. He adopted by far the safer plan—one promising better results and enabling him to spare his own force more effectually for the more important events in which he was destined to play so important a part near Richmond. Jackson sent his prisoners to Waynesboro and his baggage to Port Republic. Leaving Ewell with 5000 men and 26 guns at Cross Keys, five miles north of Port Republic, he placed Winder on the heights overlooking Port Republic and the bridge. His position was unassailable by Shields if the latter arrived, as he must, from the east. Col. Carroll, with his brigade, was ordered to advance from Conrad's Store on the fourth. On the eighth, with a small cavalry force and two guns, he raided Port Republic to capture Jackson's train and burn the bridge but was repulsed with the loss of forty men and two guns without accomplishing either object. About this time Fremont attacked Ewell at Cross Keys. Jackson reinforced Ewell with 3300 men. The latter held a strong defensive position on commanding ground cleared in front. His right and left rested on thick woods. In his front was a small stream. His center

was somewhat withdrawn. Here he massed his artillery which commanded the approaches generally along the front. Fremont was repulsed with the loss of 664 killed and wounded. Ewell lost 287. During this fight Carroll's brigade remained at Lewiston, two miles from Port Republic. Tyler, with 3000 men, joined him at 2:00 P. M. In all, their united forces were less than 6000 men, with 10 guns. Tyler considered Winder's position unassailable. He, however, took up a strong position where he was.

Next morning, June 9, Jackson left Trimble's and part of Patton's brigades to oppose Fremont, with orders to make as much of a display as possible, to fall back slowly, and if driven across the river to burn the bridge at Port Republic. Taliaferro's brigade was left on the heights opposite Port Republic to support Trimble if necessary. It was essential to the success of Jackson's plan to prevent Fremont from pushing forward and crowning with his artillery the heights on the west side, which, as we have seen, fully commanded the river bottom on the east side and which was to be the scene of this day's battle against Tyler's two brigades. Early in the morning the rest of Jackson's forces were crossing the river to confront Tyler. The former experienced considerable delay in crossing and, in his impatience, sent forward, unsupported, a small brigade of 1200 men to the attack. An effort was made to turn Tyler's left, but was repulsed. Reinforced by a brigade, another effort against the Federal left was made while their right is attacked. This latter attack was repulsed with the loss of one gun. Two more of Jackson's brigades arrived on the field. One regiment was sent in to assist the attack on the Federal right, but arrived in time to be involved in the repulse. Two more regiments sustained the Confederate line on their left, and were scarcely able to hold their ground. Jackson, finding the resistance of the Federals far more obstinate than he had anticipated, ordered the forces which had been left on the left bank of the river to cross over to his assistance as speedily as possible and burn the bridge at Port Republic. In the meantime a brigade was forcing its way through the dense undergrowth to attack the Federal left. The latter had been somewhat weakened by Tyler's detaching part of his force from this flank in order to strengthen his right, by which means he had so effectually repulsed the Confederate left. The Confederate right was successful at first, capturing six guns; but Tyler withdrew the reinforcements which had been so successful on his right and with their assistance on his left attacked the Confederate right, recapturing the guns which had been lost. The Confederates, reinforced on their right, again captured all but one of these guns. At the same time the Confederate left advanced, supported by a battery and parts of three other batteries. The Federals were forced

back at every point, and fresh troops arrived to pursue them for several miles in their retreat which threatened to become a rout. The Confederate cavalry pursued them several miles further. The Federal loss amounted to 1018 men, 7 guns, and 800 muskets. The Confederate loss was 816 men. In the meantime Shields moved from Luray on the night of the eighth with his two remaining brigades, arriving at Conrad's Store, some fifteen miles from the battlefield, on the morning of the ninth, and, pushing on to the assistance of Tyler, encountered the remnants of his command.

While Jackson had shattered Tyler's two brigades, inflicting the loss in personnel and material stated, his success was by no means what it might have been had he not engaged a small brigade unsupported when he had overwhelming numbers, and he might have held the Federals with his cavalry supported by some artillery and sufficient infantry to secure his guns, while the remaining forces arrived and deployed. He may have been influenced by the idea that Tyler would have fallen back on Shields before he could engage him; and Fremont, while he had been repulsed with severe loss the previous day, still had a force equal to Jackson's. Again, the arrival at any time of Fremont's guns on the left bank of the river would have introduced an awkward factor while engaged with Tyler. In fact they arrived there in time to annoy Jackson's columns as they returned from the pursuit of Tyler.

The last injunction, before leaving the valley, of McDowell to Shields, was to be sure and keep his division well together and the different parts of his command within supporting distance of one another. Shields gives as a reason for retaining two of his brigades near Luray while the other two were thirty odd miles away that he had information that Longstreet was advancing over the mountains towards Luray with 10,000 men to attack him. If he believed such to be the case, the division of his force into two parts, one too small to contend with Longstreet, while, as we have seen, the other was nearly crushed by Jackson, was most imprudent. The following communication to General Fremont probably represents Shields' expectations at this time.

Luray, June 8, 9½ A. M.

* * * * *

I think by this time there will be 12 pieces of artillery opposite Jackson's train at Port Republic if he has taken that route. Some cavalry and artillery have pushed onto Waynesboro to burn the bridge. Hope to have two brigades at Port Republic today. I follow myself with two other brigades from this place. If the enemy changes direction you will please keep me advised. If he attempts to force a passage as my force is not large there yet I hope you will thunder down on his rear. Please send back information from time to time. I think Jackson is caught this time.

Yours, etc.,

JAS. SHIELDS.

He had evidently hastened part of his command forward with the idea of intercepting Jackson and had probably followed as quickly as possible with the remainder of his command, having found it impracticable with the bad condition of the roads to keep his entire command closed up without impeding their progress to such an extent as to render hopeless any attempt to intercept Jackson. But Tyler had found Jackson's position on the left bank of the river unassailable, and intervening obstacles, as well as Jackson's interior lines, prevented him from acting in conjunction with Fremont. Shields was ordered to rejoin McDowell at Manassas via Front Royal. Fremont, after Tyler's disaster, retreated from the vicinity of Port Republic on the next day (tenth) and by the fourteenth had fallen back sixty-five miles where he was joined at Middletown by Banks and Sigel. The latter's 14,000 men had not advanced beyond that town. This force had been kept in observation of Front Royal, Strasburg, and Manassas Gap while Fremont and Shields were contending with Jackson. Had they been sent to Fremont's assistance the combined forces would have nearly doubled Jackson's and must have been decisive. Jackson spread the report that he was largely reinforced and would again sweep down the valley. His cavalry kept up a bold front, and all communication through the lines was prevented. After resting his command on the seventeenth of June, in obedience to orders it moved towards Richmond, leaving the valley with a most excellent morale consequent on its numerous successes. On the nineteenth, two days after Jackson left the valley, General Banks telegraphed to Washington, "No doubt another immediate advance down the valley is intended with a force of thirty thousand or more"; and on the twenty-eighth, when Jackson was fighting at Richmond, Banks telegraphed that he believed Jackson meditated an attack in the valley.

This campaign is of interest as affording examples of many of the difficulties that embarrassed the actions of our armies early in the Civil War—conditions that might obtain in any future war in which we may be engaged at home or where the army might be within reach of telegraphic communications, unless the directing mind were that of a military man fortified by well-digested facts exemplified in history, capable of logical deductions, free from pedantry, applying the experiences of the past, and modifying them to accord with such new conditions and developments as may obtain at the time.

The want of unity of command on the Federal side in the theater of war was frequently manifest. The several commanders of geographical districts or departments seemed, when acting in an adjoining department, to carry with them their independence, reporting directly to the Secretary of War, sometimes to the President. General Fremont, when

at Harrisonburg, requested that Sigel's Corps reinforce him. The request seems to have been wise and prudent. Mr. Stanton replied, "General Sigel is under command of Major General Banks. Major General Banks will cooperate with you; but he is commander of a separate corps and does not come under your command." The efforts of Mr. Lincoln and Secretary Stanton to control the movement of each small body of troops were impracticable. It would seem that, with the numerous burdens of their offices, it would have been manifest that a single directing mind controlling all the troops in the valley would promise better results. Cooperation is an hallucination. Successful military operations have recognized only a hierarchy, precedence in which must be free from doubt. This, with a reasonable initiative, would promise the best results. General Jackson was not hampered by superior authority and from the time that Ewell and Edward Johnson acted with him they were under his control. Upon one occasion, submitting three different plans of campaign to General Lee, he was directed to choose the one he preferred, that he (Jackson) being on the ground could better judge of the chance of success. Free to exercise his own judgment, there remained but to choose the most vulnerable point of the opponent's lines. With just confidence in his troops, possessing a high potential, when the thunderbolt came it sent his opponents staggering back.

The interest of this campaign naturally centers about General Jackson. We have seen how his early efforts were unappreciated by his troops. Unused to the suffering and hardships of war they complained and induced the Secretary of War to interfere, losing all the advantages gained at considerable sacrifice; then the tremendous moral effect of his attack against greatly superior numbers at Kernstown, although repulsed with heavy loss; the consternation produced at Washington; the nervous anxiety to protect the capital; the large number of troops detained from McClellan's army to secure that object; then Jackson's safe retreat before Banks' superior force, followed by placing his army in its secure position at Elk Run with its strategical advantages; his quick march to Edward Johnson's assistance, bringing 9000 men against 6000 and checking Fremont's advance towards the Virginia Cent. R. R., obstructing the mountain roads so as to prevent his junction with Banks; his rapid return to the valley and junction with Ewell; their march down the valley, crossing over to the Luray Valley, and, while keeping up a bold front with the cavalry in the main valley, striking Banks' left at Front Royal with overwhelming numbers; then taking the main column in flank as it retreated towards Winchester, defeating this army at Winchester; threatening an invasion of Maryland; effecting a diversion in favor of Lee's army; upsetting the plan for Mc-

Dowell's advance with 40,000 men to aid McClellan; his masterly retreat when more than fifty thousand men were threatening his small army, which was encumbered with one-fourth of Banks' army as prisoners; then destroying the bridges on the South Fork, preventing his divided enemy from uniting; availing himself of interior lines, and, while containing the superior force, defeating Shields' two brigades; and, to the last while in the valley, producing the impression that he intended to advance with superior numbers, while marching rapidly in the direction of Richmond to participate in the important engagements at that vital point; all would stamp this general's ability as standing high in the list of commanders of small armies. It is useless to argue that his successes depended on the blunders of his opponents. Dutch Deputies, Aulic Councils, Committees of Safety, civilian advisers, have all hampered military talent, and to the end of time such features will present themselves to defeat the object for which vainly called into existence. Jackson, always with inferior numbers in the aggregate, except at Kernstown when he brought to bear superior numbers, exemplified that ability in his strategy which Napoleon repeatedly stated was one of the highest attainments of a general. Appreciating the advantage of interior lines, the disadvantage of exterior lines was compensated by celerity of movement.

Jackson's faults were mainly tactical. His impetuous disposition required at first some schooling in the consequence of engaging the heads of his columns and not waiting long enough properly to deploy. He gained but little by his methods except when bringing overwhelming numbers to bear. He lost many valuable lives, especially at Port Republic, by attacking with one small brigade two well-posted brigades with ample artillery support. The largest army he had was that with which he advanced up the Luray Valley on Winchester. It would have required, in a broken country, an hour and a half to deploy this command on the head of the advanced guard, even if properly closed up; and I fancy it was rarely well closed up.

We notice frequently the disposition in this campaign, more frequently however on the Federal side, to send two guns with a small command. Such misuse of artillery could never have availed, and certainly frequently resulted in providing the enemy with artillery.

The cavalry on both sides, especially in small scouting parties, were active and alert, obtaining information generally quite a day's march in advance; and the most disastrous surprise, that at Front Royal, as we have seen, could only have taken place under the conditions that obtained. Colonel Kenly was not provided with this necessary arm while some 1800 cavalry were in hand, under General Banks only twelve miles off.

The infantry of Jackson's army did some hard marching. I have been informed by a participant in the retreat from Halltown to Strasburg that a tremendous amount of straggling prevailed.

Generally the campaign shows the advantage of the initiative. Jackson possessed this element to the highest degree: and, although he took decided risks at times, never was the truth more manifestly exemplified that a prompt initiative tends to subordinate the opponent's movements to those of that army assuming the initiative.

The practicability of effectually obstructing mountain roads was shown when Jackson's small cavalry force with the assistance of the inhabitants broke culverts and chopped down trees so that for a mile and more they lay across the roads over the mountains to the west of Harrisonburg, preventing a prompt junction of Fremont's and Banks' armies.

Finally, while Jackson was operating in a friendly country with the advantage of obtaining prompt information and knowledge of the locality, his opponents, judging from dispatches sent to Washington by them at the time, show that from spies, prisoners, and deserters, they frequently obtained most valuable information of Jackson's movements.

I know of no war in which America has been engaged, offensive or defensive, which was brought about by army pressure, or, indeed, stimulated by military desire.—*Newton F. Baker.*

The Functions of the Commander-in-Chief in the Field as Exemplified by General Robert E. Lee

By LIEUTENANT COLONEL AVERY J. COOPER
Coast Artillery Corps

IN order to appreciate the manner in which General Lee handled the Confederate armies a careful study must be made of the means at his disposal, the type of army with which he had to deal, and the form of government under which he operated. This article attempts to draw some conclusions from such a study. For convenience in more clearly understanding the conclusions the study was divided into three headings:

- a. The general staff;
- b. The method in which General Lee controlled the different parts of his army;
- c. General Lee's relations with the War Department and the President.

THE GENERAL STAFF

There never was, in the Confederate Army, any general staff as the term is used at the present time. The so-called general staff consisted of an Adjutant General, a Military Secretary, aides, and chiefs of services or bureaus. An Act approved on June 14, 1864, provided for a general staff corps of the Army and stated that staff officers should no longer, except by assignment, be attached to any particular military organization or be held to duty at any military post; promotion was to be by selection, based upon capacity, merit and service; and no one should be appointed unless he had been two years in the military service during the war, or was over 45 years of age or unfit for service in the field. This law further provided the following general staff for a general commanding an army in the field:

- 1 General Officer, charged with administration;
- 2 Assistant Adjutants General, colonel;
- 1 Chief Quartermaster, colonel;
- 1 Chief Ordnance Officer, colonel;
- 1 Chief Commissary, colonel;
- 1 Surgeon, colonel;
- 1 Aide, colonel;
- 1 Aide, lieutenant colonel.

However, General Lee seems never to have taken advantage (if it could be called an advantage) of this law. He had a general officer as Chief of Engineers, three or four aides with the rank of major, and a colonel as Military Secretary. This staff was practically permanent to the end of the war, both as to numbers and as to individuals.

General Lee performed most of his own general staff work, signed most of his orders, and in general kept his plans to himself. The G-1 functions were performed in part by Colonel Long, the Military Secretary. The G-2 functions, in so far as collecting information of the enemy was concerned, fell to the Signal Corps, but General Lee himself made all the estimates of the enemy situation and personally disseminated what he thought best. Maps were handled entirely by the Engineer Corps. The G-3 functions were handled almost entirely by General Lee, though we find some instances where orders were signed by the Chief of Engineers, by Major Taylor (aide), or by the Adjutant and Inspector General. The G-4 functions within the army were handled by General Lee and the Adjutant and Inspector General, and with higher authority by General Lee only. There was no system of supply; this seems to have been due to the hand-to-mouth existence of the army. The subordinate commanders were quite frequently called upon for command estimates and the chief of artillery, or more properly the artillery commander, was sometimes consulted as to artillery support. The staff was not organized along functional lines nor were their duties prescribed or defined. Any one took any job that was given and the entire staff acted in a body as a buffer between General Lee and the chronic kickers or other complainers.

GENERAL LEE'S CONTROL OF THE DIFFERENT PARTS OF THE ARMY

General Lee's headquarters was in the nature of a permanent camp in the field and was always located with the Army of Northern Virginia. General Lee, though nominally commander of the Confederate armies, never in fact actually commanded them. He was primarily a commander of a rather small theater of operations. This discussion is based upon the assumption that his headquarters was a G. H. Q. of the Virginia theater. Although there were other forces operating in Virginia, they were essentially for the defense of Richmond and were not under direct command of General Lee. As has been stated, General Lee formulated and issued the great majority of his orders. These orders were often piecemeal and quite frequently given verbally to his generals. In the case of General Jackson they were usually letters suggesting certain lines of action but rarely gave specific directions. General Lee recognized the difference between a hired army and an army of civilians

and patriots fighting for a cause and he acted upon this knowledge to the extent that he controlled his subordinates by mild persuasion, mutual understanding, and deep affection; also, his disciplinary action was tempered accordingly. He took the blame for his subordinates' mistakes and rarely censured them, even mildly. With respect to his control of the defense of Petersburg before he moved his army south of the James River, General Lee merely suggested what action the commander might take. Sometimes these suggestions went direct to the commander, but more frequently they went through the President or the War Department. If any orders were issued as a result of the suggestions, they were issued from Richmond and not by General Lee. This method of control was the rule, always deferring to the commander on the spot or to Richmond. It seems to have been the best under the circumstances, though in some cases the lack of definite orders caused confusion and lack of understanding on the part of his subordinates. Considering the material with which he had to work and other conditions, nothing but the highest praise can be given for the manner in which he controlled his army. In the main his suggestions were carried out by his subordinates without bickering or any attempt to evade the spirit of his wishes.

GENERAL LEE'S RELATIONS WITH THE WAR DEPARTMENT AND THE PRESIDENT

Any discussion of the relations of General Lee, as a G. H. Q. commander, with the Confederate Government is so involved with the personality and actions of President Davis that a brief summary of the latter's characteristics seems advisable. President Davis was a graduate of the United States Military Academy; he had been a United States Senator and Secretary of War. He was very opinionated and had a very high regard for his own military ability. He dominated the military policy of the Confederacy and personally advised his military commanders. Any military movement in Virginia that was not based upon the safety of Richmond was frowned upon. He was very jealous of his authority and in many cases actively resented suggestions from General Lee. The Secretary of War seems to have been more or less of a figure-head, as the President usually had some one else for military adviser.

General Lee's conception of the functions of a commander-in-chief was that of execution merely, and that policies, plans and orders, except for his own army, were functions of the government. However, he did make many suggestions and recommendations to the President as to policies affecting replacements and the procurement of supplies,

but these views and opinions were usually given only after they had been requested. He made gratuitous suggestions as to the policy that should be followed regarding military offenders, but on at least one occasion his actions brought a rebuke from the President. His channel of communication was direct to the President, though some reports and suggestions were made to the military adviser and to the Secretary of War. His relations with the Confederate Government were those of a trustworthy, sincere and obedient servant, rather than what some minds of today seem to think the relations of a commander of the field forces should be, a super-being who dictates all governmental activities.

War has never been a mere matter of men and guns. It is a thing of disciplined might. If our citizens are ever to fight effectively upon a sudden summons, they must know how modern fighting is done, and what to do when the summons comes to render themselves immediately available and immediately effective. And the government must be their servant in this matter, must supply them with the training they need to take care of themselves and of it. The military arm of their government, which they will not allow to direct them, they may properly use to serve them and make their independence secure—and not their own independence merely but the right also of those with whom they have made common cause, should they also be put in jeopardy. They must be fitted to play the great role in the world, and particularly in this hemisphere, for which they are qualified by principle and by chastened ambition to play—*Woodrow Wilson.*

Strategical and Tactical Aspects of Coast Defense in the Future

A LECTURE DELIVERED AT THE ROYAL ARTILLERY INSTITUTION

By COLONEL (*Temp. Col. Comdt.*) J. E. S. BRIND
C. B., C. M. G., D. S. O.

[Reprinted by permission from the *Journal of the Royal Artillery*]

I PROPOSE, this evening, to talk to you on the subject of Coast Defense mainly from the Imperial and strategical point of view, that it, from the point of view from which it is considered by the General Staff. I do not propose to discuss the technical aspect at all, as that comes, I believe, within the scope of another lecture which is to be given here. Moreover, I am in no way qualified to talk to you about the technicalities of the subject.

To begin with, I am going to state one or two basic principles—principles on which the whole policy of coast defense is based. They may appear to be platitudes, but it is essential to bear them constantly in mind, if one is to understand the necessity for coast defense, and the policy on which defense measures are based.

“Control of the seas is vital to the Empire”—vital, not only because we, in this island, are dependent, as we all know, on supplies from overseas for our food—not only because we are dependent on our overseas trade for the raw materials on which many of our industries exist in times of peace and without which in war we should soon be totally deficient of munitions, it is vital also from the point of view of defense, to insure our homeland and our overseas possessions against the risk of seaborne invasion—it is vital from the point of view of communications, as it enables us to reinforce distant portions of the Empire as and how we wish, and it is vital from the point of view of offense as it enables us, as it has done for centuries past, to carry our wars into the enemies’ territory, or, at least, to ensure that the theater of war is in territory other than our own. That is an inestimable advantage which I don’t think is always quite realized in these days.

Now the control of the seas lies within the sphere of responsibility of the navy, but the navy can’t do all this for us without secure bases from which to operate. They must be free to operate in the waters surrounding our homeland, in the waters adjacent to our Dominions, to our overseas possessions, and to the countries from which our main

sources of supply are drawn, and free to operate also on the main lines of communication which connect the Mother Country and the rest of the Empire, and the various portions of the Empire to each other. With our empire scattered as it is all over the face of the globe, it is difficult to see what waters we should not want to control in wartime to secure our imperial communications and to ensure that "our frontier remains the enemy's coast line."

Though the bases required are nothing like so numerous as they were in the past they are more vital and perhaps more vulnerable than ever. May I take you back for a moment to the situation as it existed before the war, and then lead up to the situation as it exists at present.

We used to maintain what was called a two-power standard of naval strength, that is a sufficiently powerful fleet to deal with any likely combination of two foreign powers. Several other powers in Europe before 1914 maintained fleets of considerable size. Germany's navy was second only to our own, France and Italy maintained powerful fleets, and Austria and Russia had naval forces which were by no means insignificant. Across the Atlantic the United States maintained a large fleet, and Japan's navy was preponderant in the Far East. In order to meet and be prepared for the German menace our main fleet was, some years prior to the war, concentrated in home waters. This was facilitated firstly by our alliance with Japan and secondly our friendship with the U. S. A.

Now the situation is very different. Germany, as a naval power to be considered, has disappeared from the picture; so have Austria and Russia. France and Italy remain, but with the disappearance of the fleets of their hereditary enemies, the maintenance by them of large naval forces has become far less essential. Moreover, the size and numbers of their capital ships has been limited by the Washington Agreement to which I shall refer presently.

The United States on the other hand has, as the result of the war, been left with a fleet vastly superior to that which she maintained before the war. In fact, had she completed the shipbuilding programs contemplated at the end of the war, the British Empire would now be in a position of inferiority or committed to a competition with the U. S. A. which would have cost us millions.

In the Far East Japan maintains a fleet inferior in capital ships only to fleets of the U. S. A. and ourselves.

The Washington Agreement may be said to have stabilized this state of affairs for at any rate the next ten years or so. The five leading naval powers have agreed to a definite ratio of naval power in capital ships and aircraft carriers. This ratio, as far as the British Empire, the U. S. A., and Japan are concerned, is represented by the figures 5:5:3,

that is, equality as regards ourselves and the U. S. A. while each of us may maintain a 5 to 3 superiority over Japan. France and Italy combined may maintain capital ships which amount to rather less than the British Empire or than the U. S. A.

These figures apply only to capital ships, *i. e.*, battleships or battle cruisers and to large aircraft carriers. We, with our world-wide responsibilities, insist on the right to maintain as large a number of cruisers as we require, and no limitations are imposed on the numbers of destroyers, submarines, aircraft carriers of under 10,000 tons, and other small craft.

Another very important agreement was made in connection with the Washington Conference by which a large area south of Japan, embracing Hong Kong and stretching far out into the Pacific, was placed "out of bounds"—so to speak—as far as construction of naval bases and new construction on coast defenses was concerned.

The general situation, therefore, as the result of the great changes brought about firstly by the war and secondly by the Washington Conference, is that—

(a) In European waters we are easily supreme, and the only powers who have fleets of any appreciable size are our late allies, France and Italy.

(b) In the west, across the Atlantic, there is a great fleet equal to our own, maintained by a friendly power and late ally with whom we have agreed, for the time being, not to compete.

(c) In the Far East, Japan has local superiority and can at present maintain that superiority, as although we and the U. S. A. maintain larger fleets they cannot function in those waters, as neither power has a base from which to operate.

I have now touched on what I may call the Imperial aspect, that is, the fact that the Empire is dependent on the navy for control of the seas and therefore of Imperial communications, and the navy is dependent on secure bases from which it can operate. The Army is still responsible for the security of those bases. I have also outlined very briefly and very sketchily the present strategical situation as it affects coast defense. I now want to turn to some of the recent developments and changes which come rather within the tactical sphere.

There was considerable doubt after the war whether the old method of fixed gun defense was still the most suitable for coast defense, or whether, in view of modern developments, the time had not come to readjust our views and to replace or supplement our guns by other weapons. The subject was gone into in great detail by the Committee of Imperial Defense and the Staffs of the three services, with the result that the conclusion was arrived at that, though considerable modifica-

tions might be advisable, the time had not yet come for any drastic change in policy and that the gun must still remain the primary means of defense.

It had been suggested that the submarine and aircraft might form better deterrents to hostile fleets than fixed defenses. As regards submarines, the Naval Staff maintained that they were mobile forces belonging to the fleet, which must be free to operate with the fleet, and cannot be tied down to the task of defending some particular fortress or base. Furthermore, they were of the opinion that submarines, by themselves, would not form an adequate deterrent, though, if present, they would form a very valuable addition to the defense; that they had considerable limitations at night, and that the advance of anti-submarine measures was rapidly lessening the power of the submarine as a menace to a hostile fleet provided with adequate means of protection.

As regards aircraft the same argument against the locking up of mobile forces applied. Furthermore, the installation of airdromes, workshops, etc., in all our scattered fortresses throughout the Empire would involve very considerable expenditure. Finally, in their present state of development—one cannot say what might happen in the future—it was quite clear that aircraft, except in prohibitive numbers, could neither compete in accuracy or maintenance of a rate of fire with the guns, that they were far more vulnerable and had no means of correcting their errors. This applies only to the present state of development of aircraft. If they can add extreme accuracy to the undeniable advantage they now have in range, there may be very considerable modifications in the views now held and the decisions hitherto arrived at.

Broadly speaking, then, the conclusion was arrived at that no revolutionary change in the system of coast defense was yet possible. Just as in the past, history shows that no new weapon or invention has ever caused sudden revolutions in the art of war, so in the present time must the new weapons or arms take their place in the first instance side by side with the older weapons, until either they produce their own antidotes, or in the process of development they absorb the functions of their predecessors.

With regard to the gun itself, it was argued that the majority of our coast defense guns never fired a shot in the war, but this is certainly not a proof of their failure, it is rather a proof of their success as a deterrent. The primary object of coast defense artillery is to deter enemy ships from bombarding or attacking the vulnerable points it is designed to protect, in fact to make the game not worth the candle, and the existence of the defenses is fully justified if the enemy is prevented from even attempting to damage the ports and bases they are there to defend. The German fleet, in its occasional hasty raids on our coasts,

avoided any but the most lightly armored defenses. Their cruisers and raiders all over the world fought shy of all defended ports. In our own attacks on the somewhat out-of-date Turkish defenses of the Dardanelles, we did but little harm to those defenses and suffered considerable damage to several of our older battleships and cruisers.

In fact fixed gun defenses still have certain distinct and definite advantages over the ship. Briefly these advantages are—a fixed and stable platform—greatly superior means of rang-finding and often of observation—less limited ammunition supply—they afford a far less visible target and are infinitely less vulnerable. In every one of these attributes the existing advantages would be sacrificed by the substitution of submarines or aircraft for guns. The one great advantage that both have over the gun, namely, that they can operate much farther afield, provides really a reason against their being tied down to the defense of particular localities.

The advantages of the gun over the other forms of defense are therefore that it is a proved deterrent up to the limit of its range of observation from the shore. It is less vulnerable to hostile attack and less affected by the elements. It is very accurate and cheaper to provide, and it is a permanent deterrent which is not liable to removal from its allotted task. The personnel can be removed, and undoubtedly would be as the campaign goes on, and they would be replaced by war-trained or by local forces, but the gun would still remain and provide the necessary deterrents to attack.

Considerable changes have taken place as regards the guns themselves, the most important of which, without going into any technical details, is the great increase in range. Guns can now fire at ranges which are far beyond the range of observation either from shore O. P.'s or from ships. Modern war vessels are equipped and are being equipped with these long-range guns, and aircraft provide a means of observation which will enable fleets or squadrons to bombard ports and harbors from distances which are beyond the range of observation of shore O. P.'s. The obvious answer to this lies in the modernization of the fixed armament and the provision of aerial observation for the batteries on shore.

Another point which arose as the result of the war was whether guns on railway mountings could suitably replace guns on fixed defenses. The conclusion came after very considerable discussion and thought was that, as a general principle at any rate, the change would not be economical, and that owing to lack of traverse and their limited arcs of fire, guns on railway mountings would not provide so effective a deterrent nor so accurate a weapon against moving targets as guns on fixed mountings. There may be places where, in the future, guns on

railway mountings may be considered suitable, but as a general rule their adoption was not approved.

Now, if I may digress for a few minutes, I'd like to tell you how this problem of the defense of both at home and overseas ports is tackled by the responsible authorities. The Committee of Imperial Defense is finally the body responsible for making recommendations to the Cabinet. It works through a number of sub-committees on which the Admiralty, War Office, and Air Ministry are represented. The War Office Directorates of Operations and Intelligence, of Artillery, and of Fortifications and Works all provide members, and all three Ministries are represented by the branches most intimately concerned with the problem. The Colonial Office and India Office are also represented when directly concerned.

Under the normal procedure the Admiralty takes the first step and considers, in accordance with the general naval strategical situation and the distribution and disposition of our fleets, what ports and bases in certain waters are essential in order to allow our fleets and squadrons to operate, to replenish fuel and ammunition and supplies, to shelter our merchant vessels, for the assembly of convoys, and so on. Having decided what ports are essential and vital to our requirements, the next step also rests with the Admiralty who estimate, in accordance with the dispositions of our own and potentially hostile fleets and the degree of importance of the locality to be defended, what is the likely scale of seaborne attack to which each port is liable. This scale of attack may vary from bombardment by the enemy's battle fleet, to attack by raiding cruisers or auxiliary vessels, down to attacks by blockships or attempts by destroyers, submarines, or coastal motor boats to damage vessels or dockyards, etc. The liability of each and every defended port to any of these scales of attack is worked out and forms the basis of the scale of defense for which eventually the Army becomes primarily responsible.

Similarly, in the cases of certain defended ports, the Air Ministry work out the scale of air attack to which those ports may be liable. This depends on the proximity of the airdromes of potentially hostile powers, on the number and capacity of such airdromes, on the types of aircraft with which they are equipped, and the facilities for repair and means of reinforcement. In some cases also the feasibility of constructing temporary airdromes in neutral or allied territory has to be considered.

Having then appreciated the dangers to which each port to be defended is exposed, it becomes the duty of the Naval, General, and Air Staffs to make their recommendations as to the scale of defense necessary to secure the port against those dangers. The Admiralty are re-

sponsible for all such arrangements as mines, booms, etc., in fact, all defense measures taken beyond the high-water mark. The Air Ministry are responsible for making recommendations for any fighting and bombing or other aircraft which may be considered necessary for defense against air attack, or offensive action against enemy aircraft of vessels, for reconnaissance, and (in conjunction with the War Office) for artillery observation, but as I said before, the policy of locking up little packets of aircraft all over the Empire is not considered economical or strategically sound.

The War Office are responsible for making the recommendations for the scale of gun defense necessary to deal with the anticipated scales of attack, whether from the sea or from the air, and for lights necessary to enable those guns to fire at night. They are also responsible for asking for such aircraft as are required to observe the long-range fire of the guns. The General Staff are just as averse from locking up in static defense mobile units which will be wanted in the main theater of operations, as are the Naval and Air Staffs, and it is fully realized that every penny spent on static defense, and every man locked up in a fortress or base, has to come against the funds and personnel available for the Expeditionary Force. On the other hand, the Expeditionary Force can never leave these shores unless the navy has control of the seas and can adequately protect it during its passage and its lines of communication, and the navy cannot do that unless it has secure bases from which to operate. So it may be said that the art in coast defense policy consists in the provision of the minimum scale of defense which will afford an adequate and certain deterrent to the evil intentions of the fleets and in certain cases the air forces of hostile powers.

Experience shows, and common sense indicates, that an inferior fleet cannot afford to risk its capital ships in an engagement with up-to-date defenses, save in very exceptional cases when the object to be achieved is so important and the local conditions are so favorable to the attacker as to make the risk worth taking.

This was borne out by the experience of the war. The Germans, with their inferior fleet, never risked their ships in an attack even on our most lightly defended ports. We, on the other hand, with our numerically superior fleet were prepared to risk a proportion of our vessels in an attack on the Turkish defenses at the Dardanelles, but even then we practically only risked our older capital ships—the forts we attacked were not up to date or very efficient. We had immense local naval superiority in the Mediterranean and could undertake the operation without weakening our main fleet in the North Sea, and the political and strategical objects to be achieved were considered to be well worth the risk involved. How great the risk of loss to the fleet was, is

well demonstrated by the results. On March 18, 1915, the Turkish batteries defending the Narrows were deliberately attacked by something like sixteen battleships at the comparatively short ranges of from 10,000 to 14,000 yards. The Turkish batteries and guns were old, their works were badly sited, and they were very conspicuous. The damage done to them, however, was small. One battery, for instance, consisting of three 14-inch and six 9.2-inch guns, had one 9.2-inch put out of action and some casualties to its personnel. We, on the other hand, lost three battleships sunk by mines and three more so badly damaged by shell fire that they had to be immediately withdrawn to a dockyard.

Again, a large number of attacks, about forty in all I believe, were made by British monitors on the temporary defenses of the Germans on the Belgian coast, but in none of these was any German gun mounting or magazine hit.

Those attacks were carried out by old vessels and monitors, but we never pitted our modern vessels against the well-equipped and efficiently manned permanent defenses of the Germans. Our superiority over the Germans was not sufficient for that risk to be taken, and our main fleet had to remain intact to deal with the German battle fleet if and when it emerged from its bases. I think if we remember the amount of ammunition it took to knock out a battery in a destructive shoot on the Western front, with stable platforms, accurate observation and ranging, one can realize how difficult this task is when carried out from a rapidly moving ship.

We have always dealt with the problem of coast defense as a nation quite differently to other great powers. With our naval superiority we have hitherto been able to accept a much lighter scale of defense than they were able to accept. Whereas until recently we were satisfied with the 9.2-inch gun as the heaviest coast defense weapon and those only in moderate numbers, France, Germany, and other powers have for many years maintained large numbers of 11-inch and 12-inch and even larger guns in their coast defenses, because they had to face the possibility of attack by the battle fleet of a superior naval power and considered that nothing less than really heavy guns would provide an adequate deterrent. One cannot get away from the fact that as a power's scale of naval superiority diminishes, so must the scale of defense of her bases and ports increase.

America appears nowadays to be the power which is expending more money than any other power on her coast defense system, in which she is installing guns up to 14-inch and 16-inch caliber in her defenses both on her Atlantic and Pacific seaboard. It is difficult to understand why she is taking these excessive precautions, in view of the fact that the only other great naval powers are separated from her shores by

thousands of miles, but that is her business and she is probably prepared to pay a great deal higher rate of insurance than we could possibly afford.

I referred just now to the general situation which had been brought about as the result of the war and as the result of the Washington Agreement. I would like now to go into a little more detail and to consider how that situation affects us and our Empire, and the simplest method will be to consider the strategical situation first in home waters, secondly in the Mediterranean through which pass our main trade routes and shortest line of communication to our Dominions, possessions and markets in the East, then to consider the situation east of Suez, and in particular in the Far East and finally the situation in the Atlantic.

Great Britain is the hub of the Empire and the whole structure which has taken centuries to build up depends on her security and on the uninterrupted flow of trade to and from her ports. France is the only naval power within reasonable reach of our shores, and our superiority in naval power over France is adequate and fixed for some years to come by the terms of the Washington Agreement. But France is also a great air power, and just as adequate measures have to be taken to secure our country from even a remote chance of air attack, so have measures to be taken to insure that our navy has secure bases from which to operate, and that our commercial harbors are rendered as safe as possible for the free movement, loading and unloading, docking and refitting, and so on, of our mercantile fleets. The interests of our country and of France are identical; we both require peace for reconstruction. The danger to both countries in the future lies further east, though we hope that that danger is still very remote. Friendship between the two countries is essential, not only for our own sakes, but for the peace of the world. But experience shows us that political situations change, and that they change far more rapidly than defensive measures can be taken, and that, if defensive measures are left till the last moment, there is a danger that they will never be taken for fear of upsetting a delicate political situation and for fear of precipitating a conflict that politicians are striving to avoid. Therefore it is incumbent on us to take such steps in peace to protect our interests and our country from any danger of attack either from the air or from the sea by another power, no matter how friendly that power may be, and no matter how serene the political horizon may appear. The conclusion then as regards our home ports, both naval and commercial, is that adequate steps should be taken to provide a sufficient deterrent (but no more than a sufficient deterrent) to attack, either from the sea or from the air.

In the Mediterranean, through which passes a very large proportion of our trade, the vital points, as far as we are concerned, are Gibraltar, Malta, and the Suez Canal; in other words, the points which control the entrances and exits and the narrow waters between Sicily and North Africa. Here again, the only naval powers to be considered are our late allies—France and Italy—and our firm friends, we hope, for many years to come. But as in the case of our home ports precautions must be taken to be prepared in time for possible changes in the political situation, and our navy must be free to operate in, or move through, Mediterranean waters and to prevent, if possible, the dislocation of our trade which would result in the closing of the Mediterranean and the diversion of merchant shipping to the route round the Cape of Good Hope. Owing to the preponderance of our navy a heavy scale of coast defense does not appear to be necessary either at Gibraltar or Malta but both fortresses are, or will be within the near future, within reach of air forces based on foreign territory, and therefore it appears more than probable that an adequate scale of defense against air attack will have to be installed both at Gibraltar and Malta.

The Suez Canal, which is neutralized, does not come within the sphere of coast defense, so I will say no more than that it is vital that our interests should be secured by the continued presence of British troops in Egypt.

If we turn to the strategical situation east of Suez we find a very different state of affairs. Our interests in and bordering on the waters of the Indian Ocean and the Pacific are vast, very scattered, and separated by immense distances. We have, on our main line of communication to the East, a number of defended ports at or near (as in the Mediterranean) the vital strategical points, Aden, Colombo and Trincomalee, Singapore and Hong Kong, with Mauritius midway between India and South Africa; we have on the coasts of India and Burma the ports of Karachi, Bombay, Madras, Calcutta, and Rangoon. We have to consider the defenses of Australia and New Zealand (the Dominions are of course responsible for the protection of their own harbors), and we have great interests in the east coast of Africa and in the Persian Gulf. The bulk of our navy and the whole of our capital ships are concentrated in European waters, and our interests east of Suez are guarded by squadrons of cruisers and smaller vessels. The only great naval power in the East is Japan, another ally of the Great War and a power which was our ally for years. The alliance has now been abrogated, and its place has been taken to a certain extent by the Washington Agreement. But the fact remains that we are in a position of naval inferiority in those waters, and that in the unfortunate event of trouble we should have to be prepared to defend ourselves till our fleet could

arrive and when it arrives it would require a base from which to operate, and one which is capable of docking the largest type of capital ship. That is the whole genesis and *raison d'être* of the Singapore scheme. It is purely a defensive measure. It is much too far from Japan to be aggressive in any way, but its defense, by allowing the fleet to operate freely, will secure for us our communications and our trade in the Indian Ocean, the communications and trade route between Ceylon and Australia, and the entrance to the Pacific. A high scale of defense will be necessary there because of its importance and because of its distance from possible reinforcement. With Singapore secure, a comparatively light scale of defense can be accepted at the defended ports west of it in the Indian Ocean. But with no secure base from which our fleet could operate at Singapore, a much higher scale of defense would be required at all the other eastern ports, which would in the end probably cost us as much or more than the proposed base and which would not be nearly so effective.

Hong Kong requires separate and special consideration. By the terms of the agreement made at Washington we are precluded from adding to our coast defenses there. But Hong Kong has a land front, and it is from that direction that most anxiety may be caused in the future. Our interests in Hong Kong are enormous, as the volume of trade passing through that port is greater than that passing through any other port in the Empire.

In the Atlantic we have defended ports at Bermuda and Jamaica, in the west, and at Sierra Leone in the east. The other great naval power interested in the Atlantic problem is the U. S. A., but our interests are so similar that it may be anticipated that a comparatively light scale of defense will be considered sufficient to meet our requirements at those ports.

That being, briefly, the situation which we have to face in the various portions of our Empire, it now remains to see to what extent we are prepared to meet our responsibilities. As regards material, the requirements of the ports east of Suez have been settled and approved, in general, by the Committee of Imperial Defense. The requirements in European and western waters are being worked out in accordance with the procedure I spoke about just now. Speaking generally, the armament requires bringing up to date, as no changes have been made since some years prior to the war and the range of many guns is inadequate. In many cases the necessary results can be obtained by substituting 45° mountings for those now existing.

As regards personnel, as most of you know, it was decided after the war that the existing artillery personnel could be reduced practically to nucleus garrisons, which would be reinforced when the situa-

tion demanded it. Financial considerations demanded these reductions, and it was considered that the strategical situation was such that the risk could be accepted. The difficulty will be to reinforce in time of peace, as the necessary funds and personnel will be difficult to obtain. It is, therefore, very essential that those nucleus garrisons should be very highly efficient and that preparations should be made to make up the deficiencies at very short notice from territorial units at home and from local resources overseas. All our artillery units in coast defense at home and abroad are now organized on a heavy-battery basis, and are also trained as mobile units with their movable armament, so as to be ready in case of emergency to take their place in the field army as heavy or medium batteries as soon as the situation admits of their relief by territorial or local units. The provision of transport with which to train is a difficulty which is fully realized; it is a question of finance and we live in hope that it is a difficulty which will be overcome, at any rate to a limited extent, some day.

That brings me nearly to the end of my remarks on the wider aspects of coast defense, and before I conclude I would like to say a few words mainly to the younger members of my audience. Now that the Regiment is one, many of you may at some time in the future be posted to heavy artillery units in coast defenses. You may feel that with the small numbers available you are being asked to make bricks without straw. But the smaller the nucleus garrison, the more important it is that every man in it should be efficient. If every regular serving soldier can be trained to be a skilled worker of one sort or another, the unskilled or less skilled members of the unit can soon be trained from personnel enlisted on the emergency arising.

Then as regards the other rôle of artillerymen serving in coast defenses—the heavy artillery rôle—I purposely do not call it the second rôle because it is every bit as important as that of coast defense, and may in certain circumstances be the more important of the two. The urgent demand for more medium and heavy artillery in the early ~~days of the war~~ and the difficulties and delays in meeting that demand are well within the memory of many of you. It was the same at the beginning of the South African war, and in 1922 when hostilities with Turkey appeared imminent the same demand was made again. And so in all probability will it be when war comes again. After the close of the Great War it appeared that we had learnt our lesson, but down came the Geddes Axe, with the result that the organization of our medium and heavy artillery for the expeditionary force is not by any means all we could wish it to be. It is simply a question of cost; we can't have all we would wish so we have to make the best use of what we have got. In some ways we are far better off than we were prior

to 1914. We have the guns. We have the units suitably organized to take their places in the field if needs be. It rests with us to give those units the necessary training as far as facilities admit, to prepare themselves as units of the field army ready to take their places in it as soon as steps can be taken to relieve them of their coast defense duties.

Service in many defended ports, too, affords great opportunities for cooperation and liaison with the navy. It is remarkable how few opportunities one gets in most ordinary soldiering of getting in touch with the sailors, and for a great island power like ourselves it is all-important that every opportunity should be taken to cooperate and get to know each other's point of view.

There is one other point of great importance from the imperial as well as the purely military point of view, and that is no opportunity should be lost of helping and giving encouragement to the local forces. They vary immensely in different places. In some cases the local people exhibit the very general British trait of leaving volunteering to the few enthusiasts, at any rate in peace time, though doubtless they would offer their services, as their predecessors have, in hundreds, if another real emergency arose. Encouragement and assistance from the regular is what is wanted everywhere.

There is one question that is sometimes asked which I have not touched on, and that is, why is not coast defense handed over to the navy? The question was gone into both before and after the war and was turned down, both by the Admiralty and the War Office. There is no need to go into all the reasons; it will be sufficient to point out the difficulty of defining dividing lines of responsibility between the sailor and the soldier, particularly when there is the defense of a land front also to consider. The present dividing line is the high water mark and that is clear enough. Another important reason against the change, from the army's point of view, is that in the event of a great war we should lose all that great reserve of trained artillerymen, which was so valuable to us in the last war.

Whether the air will ever be able to assume control of coast defense is a matter which lies in the lap of the future. It depends on whether the bombers and torpedo-carrying aircraft of the future can provide as efficient a deterrent as the gun, and when that is the case the experts of the future will have to consider whether the change is economical and wise.

Antiaircraft Artillery on the Offensive

By MAJOR GEORGE A. WILDRICK

62d Coast Artillery (A. A.)

AUTHOR'S NOTE.—Last December the duty devolved upon me to prepare problems in antiaircraft artillery tactics and to furnish solutions for use in the officers' troop schools of the 62d Coast Artillery (A. A.) The following problems and solutions were made ready and were used.

The preparation of maneuver problems for an antiaircraft artillery regiment is somewhat laborious, since a corps is the smallest unit which a regiment usually supports. Nor is it an easy matter to describe a corps maneuver before ever we get to the antiaircraft artillery part of it. At least one of the officers in the troop school suggested that the problems might be of interest to those readers of the *COAST ARTILLERY JOURNAL* who have not had an opportunity to get the "feel" of the subject that can be secured by actually working with the materiel. The regimental commander, Colonel M. G. Spinks, has given his approval of the submission of the problems themselves for publication.

During the period May 9-23, 1926, fourteen officers of the 521st, 522d, and other Coast Artillery Reserve Regiments, on active duty with the 62d, took this course and appeared to find it profitable. I fear that had the same ground been covered in a series of lectures, they would have been fighting sleep instead of the Reds.

Herewith are three principal problems in one continuing series of situations. No. 1 is an employment of an antiaircraft artillery regiment during the crossing of a corps over an important highway bridge. No. 2 is an employment preparatory to a corps attack. No. 3 is an employment during the organization of a pursuit by the corps.

Nos. 1A, 2A, and 3A are troop-leading problems concerned with the work of the regimental commander pursuant to the solutions of Map Problems Nos. 1, 2, and 3, respectively. No. 1B is a troop-leading problem of the 1st Battalion commander pursuant to No. 1A. Troop-leading problems for both battalion commanders and for the various battery commanders can be developed from the series as it now stands.

This possibility of saving time and effort for some one else in getting up problems is the principal reason for my venturing to offer these for publication. One cannot work on this subject for long without having one or more pictures formed of how the works of the machine will probably operate. As the regiment is now organized, the following command posts will probably be located centrally: regimental, gun battalion, searchlight battery, and machine gun battalion—four command posts, each having a separate communication net extending laterally to near the limits of the corps zone of action, on a front of some seven miles.

The exercise of command depends upon the ability to communicate. The corps signal battalion will be fully occupied in the attempt to maintain communications from the corps command post to the three or four division command posts, especially in a moving situation. I believe that an antiaircraft artillery regiment, with only a part of the Headquarters Battery and battalion headquarters to establish and maintain them, will find it impossible to install or maintain four separate telephone nets. One telephone line may be maintained with difficulty from one central point to each of three or four command posts distributed over the corps front. That alone will be a real job.

Organization must be accommodated to command; that is, to communications. It appears to me that if the regiment remains organized as at present for training purposes, it should be organized tactically into three battalions, each battalion consisting of a gun battery, a machine gun battery, and a platoon of searchlights. Each battalion commander would then command an organization distributed in depth, as other arms have found to be the correct principle. The extra machine gun battery could be utilized for special purposes. The combat train might well join the service battery and operate in three sections, each of a strength according

to the circumstances existing at any time; this would produce the economies inherent in a transportation pool for both supplies and munitions.

Under the balanced battalion organization suggested above, it will be seen how battalion and regimental command posts would be far enough apart to warrant the use of radio; how the telephone net would be simplified; and how a four-division corps could be easily reinforced by a balanced antiaircraft artillery battalion. Anyway, it will usually be BATTERY COMMANDER'S ACTION, lest the airplanes will have come and gone before a single, centrally-located battalion commander can have heard that they have come, or that they have gone.

I. MAP PROBLEM No. 1

GENERAL SITUATION.—*a.* General Map, Gettysburg-Antietam, 1 inch = 10 miles. Geological Survey, 1:62500: Middletown, Lancaster, Hanover, York, McCall's Ferry, New Holland, and Quarryville quadrangles.

b. The Susquehanna River is the boundary between two hostile states, Red (east) and Blue (west). The Blue state is better prepared for war and plans an immediate invasion of Red territory at Columbia and Harrisburg. The Reds are concentrating at Reading and Lebanon and points farther east. The Air Services of both states have refrained from flying beyond their respective territories.

SPECIAL SITUATION (BLUE).—*a.* The I and II Corps will complete their concentration by midnight on 3 January, 1926; the II Corps north of Yellow Breeches Creek, and the I Corps as follows: the 1st Division just east of York, the 2d Division at York, 3d Division at Hanover, Corps troop between York and Hanover, and the 1st Cavalry (attached) at Hellam. Low clouds and rain were forecast for 2 and 3 January, so daylight movements are being pushed in order to expedite the concentration with freedom from any chance of hostile air observation.

b. As the 105th Coast Artillery (AA) is making camp at Spring Grove (Hanover Center) at 3:00 PM, 3 January, Colonel "105th Coast Artillery" is handed the following message by a motorcycle messenger.

I Corps,
YORK, PA.,
3 January, 1926, 1:50 PM.

Commanding Officer, 105th Coast Artillery, (AA):

War with Red will be declared at midnight tonight.

Reports indicate a movement of Red troops to LANCASTER and the establishment of an airdrome there today. Bombing material has been identified. Red partisans have destroyed the SUSQUEHANNA railroad bridge, four miles west of MARIETTA (Middletown-SE).

Our II Corps invades via the bridge at HARRISBURG at midnight tonight.

This Corps invades via COLUMBIA tomorrow to cover, in conjunction with the II Corps, the crossing of the main Blue forces.

The 1st Cavalry will seize the COLUMBIA Bridge at midnight tonight and will cover the crossing of the 1st Division.

The 1st Division, marching from the eastern vicinity of YORK at sunrise tomorrow, will cross the COLUMBIA Bridge and cover the crossing of the remainder of the Corps.

The 2d Division follows the 1st Division without distance.

The 3d Division, marching at sunrise tomorrow, will move from HAN-OVER to YORK.

Other movements will be ordered later.

Weather forecast for tomorrow: Wind changing from the east; strong northwest winds; clear and colder.

You will report in person to the Corps Commander at 5:00 PM today at the City Hall in YORK. You will be prepared at the time to submit:

a. Your general plan for the antiaircraft defense by your regiment during the crossing of the SUSQUEHANNA RIVER by the I Corps.

b. Your recommendations for additional arrangements which you may consider important for the antiaircraft defense during the same period.

Acknowledge by bearer.

By command of Lieutenant General Q:

X

G-3

REQUIREMENTS.—*a. First Requirement.*—Colonel “105th Coast Artillery’s” general plan for the antiaircraft defense by his regiment during the crossing of the Susquehanna River by the I Corps.

b. Second Requirement.—Colonel “105th Coast Artillery’s” recommendations for additional arrangements which he may consider important for the antiaircraft defense during the same period.

A SOLUTION TO FIRST REQUIREMENT.—Colonel “105th Coast Artillery” plans in general—

1. To concentrate the effort of his regiment on the protection of the bridge at Columbia.
2. To move tonight under the protection of the 1st Cavalry and establish the antiaircraft artillery defense of the bridge without delay.
3. General location of the gun batteries:
 - One battery vicinity of Roundtop (N of Wrightsville)
 - One battery vicinity of Klein School (SE of Wrightsville)
 - One battery vicinity of CR 380 (NE edge of Columbia)
4. General location of searchlight battery:
 - One platoon with each gun battery.
5. General location of machine-gun batteries:
 - A battery supporting and protecting each gun battery;
 - One battery in close protection of the bridge itself.
6. Advanced listening posts on the general line, Yorkhaven–York–Red Lion–Rockey–Shenks Ferry–West bank Susquehanna River between Shenks Ferry and Yorkhaven. Advanced listening posts to be established east of Susquehanna River under cover of 1st Cavalry or advancing infantry.
7. Regimental command post at Wrightsville.

A SOLUTION TO SECOND REQUIREMENT.—Colonel “105th Coast Artillery” recommends the following additional arrangements which he considers important for the antiaircraft defense during the same period.

1. That the Corps Signal Officer detail a liaison officer with the 105th Coast Artillery to make available commercial telephone lines for the antiaircraft artillery advanced observation net, and to the nearest Air Service pursuit command.

2. That the army be requested to send without delay at least one pursuit squadron to establish a landing field between York and Wrightsville in direct telephone communication with regimental command post. Airplanes not to be under regimental command, and the Air Service to be charged with the air defense of the bridge.

c. That the army be requested to send the necessary Chemical Warfare force without delay to put smoke screens on bridge and vicinity when called for. Chemical Warfare force to be placed under the command of the antiaircraft artillery commander who is charged with the defense of the bridge.

d. That the army be requested to send forward an antiaircraft artillery regiment without delay to relieve the 105th Coast Artillery regiment.

e. That the advisability of utilizing barrage balloons in the defense of the bridge at night be brought to the army’s attention.

II. MAP PROBLEM No. 1A

GENERAL AND SPECIAL SITUATIONS.—See Map Problem No. 1.

REQUIREMENT.—Actions taken and orders as actually issued by Colonel “105th Coast Artillery” from the receipt of the Field Message in Map Problem No. 1, until the departure of the regiment from Spring Grove. (To be based on the solution of Map Problem No. 1).

A SOLUTION TO MAP PROBLEM No. 1A.—*a.* 3:05 PM. Colonel “105th Coast Artillery” finishes reading the Field Message and signs the receipt on the message envelope and delivers the letter to the bearer. He then secures the quadrangles listed in Map Problem No. 1, from R-2. He estimates the situation, with special reference to the time and space factors and determines that he has not time for a reconnaissance and that he will have to rely on a map study as a basis for his recommendations to the Corps Commander. He proceeds to make a map study, staking out the probable troop movements of the Corps. He considers the lines of action open to the enemy air service and reaches the following conclusions:

(1) That the 105th Coast Artillery cannot give adequate protection at all points.

(2) That troops on the road can give some measure of protection to themselves either by their own fire on aircraft or by scattering to fields adjacent to the route on march; and that such scattering will only cause a temporary delay because air attacks can be only of short duration on account of the limited ammunition aircraft can carry.

(3) That aircraft attacks cannot stop the invasion if the attacks are directed at the troops, although some delay may be caused and some casualties inflicted.

(4) That if the highway bridge at Wrightsville is destroyed, the invasion will probably be defeated because of the delay to the Blues both in troop movements and in heavy motorized supply, the latter not being capable of movement over the usual pontoon bridges that might be constructed.

Colonel "105th Coast Artillery" concludes that the Red aircraft can gain the decision for the Reds by destroying the bridge by bombing; that they can inflict heavy casualties by machine-gun fire directed at troops moving on the bridge and unable to scatter or obtain shelter; and that they will attempt to neutralize our antiaircraft gun-fire by attempts to neutralize our searchlights and gun crews and position-finding details, preparatory to an aerial bombardment.

After considering the lines of action open to his regiment, Colonel "105th Coast Artillery" decides that he should concentrate his effort at the point where the Red aircraft can gain decision for the Reds, and he decides that the danger will commence as soon as the cavalry crosses the bridge and before the infantry approaches it.

Colonel "105th Coast Artillery" decides as follows:

(1) To concentrate his effort in the defense of the bridge at Wrightsville.

(2) To arrange his protection along the river and in the direction of the main highway and railroads from Lancaster, these being the best guides to the enemy night air raids.

(3) To risk one gun battery by sending it across the river under protection of the cavalry, and to deploy the necessary machine-gun batteries across the river.

(4) To establish the antiaircraft protection without delay after receipt of the Corps Commander's decision. (See solution of Map Problem No. 1.)

b. 4:00 PM. Colonel "105th Coast Artillery," having decided on his general plan to be submitted, verbally directs R-Ex as follows:

Warn the regiment to be prepared to move after 7:00 PM tonight. Issue the information contained in this message. Have my staff and the battalion commanders, with the staff officers they desire, await me here at 6:00 PM. Have them supplied with quadrangles: Hanover, York, Middle-

town, Lancaster, New Holland, McCall's Ferry. I am going to the Corps CP at the City Hall in York, leaving here at 4:30 PM and I expect to return here immediately after the conference. Any questions?

c. 5:30 PM. Colonel "105th Coast Artillery," having received the approval of the Corps Commander to his general plan as stated in the solution to Map Problem No. 1, and having returned to his command post at Spring Grove at 5:55 PM, and having been informed by R-Ex that the latter has formed the regiment on the road, and the order of formation, observes that all the designated officers are present, and dictates the following order, indicating by means of his map, the others following him by their own maps:

No change in the situation of the enemy or our own troops.

This regiment will move at 7:00 PM tonight on the main highway, via York and Wrightsville and will protect the bridge joining Wrightsville and Columbia.

The 1st Battalion will establish a gun area defense by one battery in each of the following general locations: Roundtop, Klein School, CR 380. The battalion will establish advance listening posts on the general line: Yorkhaven-York-Red Lion-Shenks Ferry-Rockey-West bank of Susquehanna River between Shenks Ferry and Yorkhaven. Advanced listening posts will be established east of the Susquehanna River under cover of the 1st Cavalry or advancing Infantry.

The 2d Battalion will support and protect the first battalion by deploying one battery in the general vicinity of each gun battery, and will deploy one battery in the close protection of the bridge itself.

The defense west of the Susquehanna River will be established without delay: east of the river the defense will be deployed close on the heels of the Cavalry advance.

The light transportation will precede the heavy column at twenty-five miles per hour.

The heavy column will follow the light column out of Spring Grove and will move at eight miles per hour.

Each column will be made up in the following order: Headquarters Battery, 1st Battalion, 2d Battalion, Service Battery, as now formed and in position.

D. P.'s for ammunition, rations, gasoline and oil, and signals, at Wrightsville.

Evacuation by batteries by attached medical personnel.

Command posts: Regiment and Battalions at Wrightsville.

All come forward and meet Captain "Corps Signals" who is to make available commercial telephone lines for the advanced listening posts.

Any questions? There appear to be none. Proceed on your duties.

d. 6:15 PM. Colonel "105th Coast Artillery" detains Major "1st Bn." a moment and directs Captain "Corps Signals" to work directly with the 1st Battalion Commander.

e. 6:17 PM. Colonel "105th Coast Artillery" directs R-3 to prepare the formal field order in conformity with his verbal order.

f. Colonel "105th Coast Artillery" inspects the formation of the columns and at 7:00 PM observes their departure.

III. MAP PROBLEM No. 1B

GENERAL AND SPECIAL SITUATIONS.—See Map Problem No. 1.

REQUIREMENT.—Actions taken and orders as actually issued by Major "1st Bn." from 4:15 PM until the departure of the regiment from Spring Grove. (It will be assumed that Major "1st Bn." receives from R-Ex at 4:15 PM a message directing him to be present at the regimental command post at 6:00 PM, and warning him to be ready to move after 7:00 PM.) (To be based on the solution to Map Problem No. 1A.)

A SOLUTION TO MAP PROBLEM No. 1B.—*a.* 4:15 PM. Major "1st Bn." receives a message from R-Ex directing him to be present at the R-CP at 6:00 PM, and warning him to be ready to move after 7:00 PM.

b. 4:18 PM. Major "1st Bn." directs Bn-2 as follows: "Get from R-2 the information of our own troops and of the enemy, and publish it in writing without delay, giving one copy to each organization headquarters and one to each officer."

c. 4:20 PM. Major "1st Bn." directs Bn-3 as follows: "Warn all organizations to be ready to move after 7:00 PM tonight. Battery commanders will assure themselves without delay that all vehicles are watered, gassed, and lubricated. Supper at 5:00 PM. Battalion staff and battery commanders will await me here with maps at 7:10 PM."

d. 4:23 PM. Major "1st Bn." receives one of each of the following quadrangles from R-2: Hanover, York, Middletown, Lancaster, New Holland, McCall's Ferry. He directs Bn-2 as follows: "Secure from R-2 and issue without delay to batteries these quadrangles at the rate of five to each battery and one to each officer."

e. 4:25-4:45 PM. Major "1st Bn." familiarizes himself with the map, especially observing probable guides for the enemy aircraft, the best roads, and gradients on the roads.

f. 4:45-5:00 PM. Major "1st Bn." inspects his battalion and confers with battery commanders with reference to readiness for movement. He observes the messing of troops and gets supper himself.

g. 5:20-5:50 PM. Major "1st Bn." supervises the formation of the elements of his battalion on the road under the supervision of R-Ex.

h. 5:50-6:00 PM. Major "1st Bn." proceeds to the R-CP and gets any further information he can from the staff.

i. 6:00 PM. Major "1st Bn.," accompanied by Bn-2 and Bn-3, reports to the regimental commander and receives the regimental order.

j. 6:15-6:18 PM. Major "1st Bn." meets Captain "Corps Signals," takes him to the 1st Bn. CP, and introduces him to the officers assembled.

k. 6:18 PM. Major "1st Bn." issues the following verbal order to the officers, indicating places on the map and allowing others time to make notes on paper or on their maps:

I have the following additional information:

The regiment moves at 7:00 PM tonight on the main highway via York and Wrightsville and will protect the highway bridge joining Wrightsville and Columbia.

The Second Battalion is to support and protect this battalion by deploying one battery in the general vicinity of each gun battery, and it is to deploy one battery in close protection of the bridge itself.

This battalion will establish the gun defense of the Wrightsville-Columbia bridge and the advance information net upon arrival in position.

Battery "A" will attach at once its First, Second, and Third Platoons to Batteries B, C, and D, respectively. The battery less detachments, will establish the advanced listening net on the general line: Yorkhaven-York-Red Lion-Rockey-Shenks Ferry-West bank of Susquehanna River between Shenks Ferry and Yorkhaven. The battery will be prepared to develop the net east of the Susquehanna under cover of the First Cavalry or advancing infantry.

Captain "Corps Signals" will work directly with Captain "Battery A."

Battery B, with the First Platoon of Battery A attached, will leave the route at CR 370 (west edge of Wrightsville) and will proceed to the vicinity of Klein School.

Battery C, with the Second Platoon of Battery A attached will leave the route at RJ 342 (one mile west of Wrightsville) and will proceed to Roundtop.

Battery D, with the Third Platoon of Battery A attached, will take position initially near CR 370 (west edge of Wrightsville) prepared for action. It will be prepared for displacement to CR 380 (northeast edge of Columbia) on my order.

Combat Train to Wrightsville.

Gun batteries will prepare for independent action immediately upon establishment in positions, without awaiting for completion of battalion telephone net.

DP's for ammunition, rations, gasoline and oil, and signals at Wrightsville.

Evacuation by batteries by attached medical personnel.

CP's: Battalion and Battery A at Wrightsville.

Any questions?

The battalion formal field order will be issued at Wrightsville.

l. 6:40 PM. Major "1st Bn." issues the following verbal order to the same officers: "Battery Commander's automobiles and the searchlight platoons are at the head of the light transportation. Battery commanders and searchlight platoons will follow my automobile in their present order to the vicinity of Wrightsville. Commanders will then proceed to make their individual reconnaissances. Secure guides from the population and arrange for route markings to avoid losing the way tonight. Proceed with your duties."

m. 6:42-7:00 PM. Major "1st Bn." inspects the last preparations for the movement. He grants permission to Captain "Battery A" to stop with his organization, less detachments, at York so that he and Captain "Corps Signals" can arrange in the office of the "Corps Chief Signals" for the utilization of commercial lines in the advanced listening net. Permission is granted for the deployment of the personnel from York.

n. 7:00 PM. Major "1st Bn." leads the light transportation of his battalion out on the road to Wrightsville.

IV. MAP PROBLEM No. 2

GENERAL SITUATION (Continuation of Map Problem No. 1).—*a.* General Map, Gettysburg–Antietam, 1 inch = 10 miles. Geological Survey, 1:62500: Middletown, Lancaster, Hanover, York, McCall's Ferry, New Holland, and Quarryville quadrangles.

b. The II Corps effected a crossing at Harrisburg, but is meeting stiff opposition in its attempt to advance eastward across Swatara Creek in the area Hummelstown–Palmyra. The Reds have apparently concentrated the bulk of their available ground forces against the II Corps.

The I Corps effected a crossing at Columbia as planned and has been pushing eastward on Lancaster against increasing opposition.

The Red aviation has been attempting day and night to destroy the highway bridge at Columbia, but without success. They have suffered heavy casualties. They have apparently given up daylight operations and are only raiding at night so as to eliminate effective action by our pursuit. These night attacks have been approaching along the Susquehanna River or along the railroad and turnpike from Lancaster to Columbia. Red daylight bombing operations were accompanied by heavy attacks by pursuit and attack planes against the gun positions in attempt to neutralize the gun defense during the bombing attempts. The same pursuit and attacks efforts have been made at night, the targets being, apparently, given by the searchlights in action and the gun flashes. The bulk of the available Red attack planes has been, apparently, concentrated for the defense of Lancaster.

SPECIAL SITUATION (BLUE).—A squadron of pursuit planes was attached to the I Corps and commenced operating from a flying field near Hellam on January 4, on information from their patrols and from the 105th Coast Artillery (AA).

A company of chemical warfare was attached to the 105th Coast Artillery (AA) on 5 January and has been putting smoke screens over the highway bridge at Columbia on orders from the antiaircraft artillery commander.

The air service is reconnoitering with a view to the employment of barrage balloons in the defense of the bridge at Columbia.

A heavy pontoon bridge has been constructed between the southern portions of Wrightsville and Columbia.

Colonel "105th Coast Artillery" is in conference with G-3 and G-4, I Corps, at Columbia at 8:00 AM on 5 January. At that time he is informed of the situation as follows:

The enemy air service is no longer operated from Lancaster, but has established flying fields at New Holland, Leaman Place (New Holland-S) and other points to the east.

Our air service is reconnoitering for Red flying fields and is undertaking bombing operations against them.

The 1st Cavalry is covering the Corps left and is reconnoitering toward Ephrata and New Holland.

Our 1st and 2d Divisions have been stopped temporarily with the battle position on the general line: RJ 253-RJ 385 (NE edge Millersville)-RJ 351-RJ 415-Rhorerstown-CR 355, with the 1st Division south of Brubaker Run (excl.) and the 2d Division north thereof. The two Divisions have attracted practically all of the Red forces immediately available. Aided by the inhabitants of Lancaster, the Red position has been strongly entrenched and protected with obstacles.

The 3d Division, marching at night from concealed positions to concealed positions in the direction of Manheimlitz, will advance southward on Lancaster from the direction of Kissel Hill on 7 January.

The Corps will capture Lancaster on 7 January. The 2d Division, making its main effort in the direction Shremer-Dillerville, will be prepared to make flanking attacks to the northeast to turn any hostile opposition on Fruitville Ridge, thereby assisting the rapid advance of the 3d Division.

The Corps artillery (less 1 regiment of 155-mm. Howitzers, supporting the 1st Division) is to be placed in the area Bamford-CR 355-Rhorestown-Centerville with the object of supporting the 3d and 2d Divisions. The Corps infantry reserve will be in the same area.

Army Engineer troops, assisted by I Corps Engineer troops, will complete a heavy pontoon bridge across the Susquehanna River from Long Level to Cresswell Station by the night of 6 January. The bridge will then be attached to the I Corps, and will be the only bridge available for other than heavy motorized units of the I Corps. Army takes control of the highway and pontoon bridges at Columbia, and heavy motorized units will have priority over the former.

The 105th Coast Artillery will be relieved from the antiaircraft defense of the bridges at Columbia by the "X" Coast Artillery (AA) by 5:00 PM on 5 January.

(The general plan proposed by Colonel 105th Coast Artillery, pursuant to the Solution of Map Problem No. 1, was approved and put into effect.)

REQUIREMENT.—Colonel "105th Coast Artillery's" general plan for the employment of his regiment between 5:00 PM, 5 January, and

sunset of 7 January, as announced by him at the Conference with G-3 and G-4.

A SOLUTION TO MAP PROBLEM No. 2.—Colonel “105th Coast Artillery’s” plans to employ his regiment between 5:00 PM, 5 January, and sunset of 7 January as follows:

As each of the following elements are relieved to employ them as follows:

The gun battery, the machine gun battery, and the platoon of searchlights, under the senior officer, to move from the vicinity of Klein School without delay and protect the Long Level—Cresswell Station pontoon bridge during construction and operation. This detachment to be tied into the information net of the AA defense of the bridge at Columbia.

The machine-gun battery now providing close protection for the bridges at Columbia to proceed without delay to join the 3d Division and be attached thereto.

The gun and machine-gun battalions, less detachments mentioned above, to protect the I Corps artillery and infantry reserve in the area Bamford—CR 355—Rhorerstown—Centerville and the main effort of the 2d Division, detailing one machine-gun battery to protect the 155-mm. Howitzer regiment supporting the 1st Division and to protect the main effort of that Division.

V. MAP PROBLEM No. 2A

GENERAL AND SPECIAL SITUATIONS.—See Map Problem No. 2.

REQUIREMENT.—Actions taken and orders as actually issued by Colonel “105th Coast Artillery” from 8:00 AM, 5 January, until 5:00 PM, 5 January. (To be based on the Solution of Map Problem No. 2.)

A SOLUTION TO MAP PROBLEM No. 2A.—Colonel “105th Coast Artillery” considers the information received by him at 8:00 AM, 5 January.

He stakes out the positions of the Blue troops now in contact with the enemy; the probable marches of the 3d Division, and their direction of attack; the direction of the main blow of the I Corps; the area to be occupied by the Corps Artillery and the Corps infantry reserve; and the bridge from Long Level to Cresswell Station. He considers the line of action open to the Red aircraft, and reaches the following conclusion:

That the enemy aircraft will be directed at those targets of primary importance which have the least mobility. These targets include the following:

a. The Long Level—Cresswell Station pontoon bridge will be on the main axis of the horse drawn supply and evacuation of the troops

of the I Corps. This bridge, while requiring protection, will be susceptible to quick repair, and its destruction in part will not be decisive.

b. The Corps Artillery will suffer materially in efficiency if it is forced to move on account of enemy air attacks, or if it is subjected to such attacks during the engagement—especially at the crisis.

c. The Corps infantry reserve will probably be in woods hidden from enemy aerial observation; but the location may be determined by the enemy. This force should be held immobile and free of casualties in order to have it in the best condition for the crisis.

d. The divisional artilleries, reserves, and supply and evacuation installations will lose efficiency if required to move at a time such movement is contrary to the commanders' plans.

e. The main effort of each Division and the Corps will attract available Red air effort as soon as the direction of each effort is interpreted by the Reds.

Colonel "105th Coast Artillery" reaches the following conclusions regarding the employment of his regiment:

a. His force is insufficient to protect all points.

b. He must concentrate on the protection of the most essential points.

c. The protection of the Long Level—Cresswell Station bridge need not be made as absolute as his entire force could make it. The protection need be relative only; and only sufficient to cause the enemy decidedly more damage during an air attack than they can probably inflict on the bridge.

d. Divisional artilleries, reserves, and supply and evacuation installations will be probably most dense in the general area immediately behind the main blow of the Corps and in the area occupied by the Corps artillery and the Corps infantry reserves.

e. A concentration behind the main effort of the Corps will probably place the bulk of the regiment in the location best suited to an eventual displacement directly forward rapidly to follow up and protect the advance of the main blow.

f. The 3d Division move must be kept secret until the latest possible moment in order to secure the full fruits of surprise. Marching at night, it should depend upon hiding against enemy daylight aerial reconnaissance. Antiaircraft artillery fire would probably warn the Reds of the movement without any other indication of the movement. A battery or battalion commander should not be permitted to jeopardize the secrecy of the movement by opening fire on his own initiative. The 3d Division should have antiaircraft protection available, but fire should only be opened on the order of the Division Commander who alone should be held responsible for the successful maintenance of

secrecy. The antiaircraft artillery to cover the 3d Division should therefore be attached to that Division.

g. The antiaircraft artillery deployed to protect the troops now in contact with the enemy should be in support in order to exploit the service of antiaircraft intelligence. Nothing is to be gained by attaching them to Divisions. Attaching them might cause confusion, because dispositions should be coordinated without regard to division boundaries.

h. The main effort of the Corps and of the divisions should be closely protected.

Colonel "105th Coast Artillery" proposes his general plans as given in the approved solution of Map Problem No. 2. The plan is approved by the Corps G-3 in the name of the Corps Commander.

Colonel "105th Coast Artillery" then arranges with Corps G-4 for the right-of-way across the highway bridge at Columbia and on the roads leading thereto and therefrom. G-4 undertakes to inform the military police to pass elements of antiaircraft artillery during their movements.

8:45 AM. Colonel "105th Coast Artillery" leaves for his CP at Wrightsville.

8:55 AM. He arrives at his CP and directs R-Ex to call in R-1, R-2, R-3, R-4, R-Com., R-Medical, and the battalion commanders or their representatives. He utilizes the intervening time in the preparation of his notes for his order.

9:05 AM. The designated officers or representatives having assembled, Colonel "105th Coast Artillery" determines that all are supplied with necessary maps. He then dictates the following order, indicating places on the maps and allowing time for the subordinates to make notes and stake out dispositions.

The enemy air service is no longer operated from Lancaster, but has established flying fields at New Holland, Leaman Place (New Holland south) and other points to the east.

Our air service is reconnoitering for Red flying fields and is undertaking bombing operations against them.

The First Cavalry is covering the Corps left and is reconnoitering toward Ephrata and New Holland.

Our 1st and 2d Divisions have been stopped temporarily on the general line RJ 253-RJ 385 (NE edge Millersville) RJ 351-RJ 415-Rhorerstown-CR 355, with the 1st Division south of Brubaker Run (exclusive) and the 2d Division north thereof, the two Divisions having attracted practically all of the Red forces immediately available. Aided by inhabitants of Lancaster, the Red position has been strongly entrenched and protected with obstacles.

The 3d Division, marching at night from concealed positions to concealed positions in the directions of Manheim-Lititz, will advance southward on Lancaster from the direction of Kissel Hill on 7 January.

The Corps will capture Lancaster on 7 January. The 2d Division, making its main effort in the direction of Shremer-Dillersville, will be prepared to make flanking attacks to the northeast to turn any hostile opposition on the Fruitville Ridge, thereby assisting the rapid advance of the 3d Division.

The Corps Artillery (less one regiment of the Howitzers supporting the 1st Division) is to be placed in the area Bamford-CR 355-Rhorerstown-Centerville with the object of supporting the 3d and 2d Divisions. The Corps infantry reserve will be in the same area.

Army engineer troops, assisted by Corps engineers, will complete a heavy pontoon bridge across the Susquehanna River from Long Level to Cresswell Station by the night of 6 January. The bridge will then be attached to the I Corps and will be the only bridge available for other than heavy motorized units of the I Corps. Army takes over control of the highway and pontoon bridges at Columbia, and heavy motorized units will have priority over the former.

This regiment will be relieved from the antiaircraft defense of the bridges at Columbia by the "X" Coast Artillery (AA) by 5:00 PM today.

This regiment, upon relief from present missions, will proceed to cover the operations of the I Corps.

Batteries B and E, and the 1st Platoon of Battery A, will, upon relief, proceed from the vicinity Klein School under the command of Captain "Battery E" to protect the Long Level-Cresswell Station bridge during the construction and operation. This detachment will tie itself in with the information net of the "X" Coast Artillery, via Klein School.

Battery H, upon completion of its relief from the defense of the bridge at Columbia, will proceed after dark to join the 3d Division via CR 380-CR 456-Centerville-Salunga, and will be attached to that division.

The First Battalion, less detachments, will move on completion of its relief, via CR 280-Ironville-Silver Spring-RJ 370-*vicinity Marietta Junction*-thence to selected positions. Troops now on advanced listening duty will join the battalions as they are successfully relieved and collected under battalion arrangements. Battalion movements will not await the arrival of these men. Battalion communications in the advanced listening net and command net, other than radio, will be left in place and equivalent material will be accepted from the "X" Coast Artillery.

The Second Battalion, less detachments, will, upon completion of its relief, move via the route designated for the First Battalion, and thence to selected positions. It will send one battery on the Lancaster Turnpike to protect the 155-mm. howitzer regiment supporting the First Division, and to protect the main effort of that Division.

The First and Second Battalions, less detachments, will protect the Corps artillery and the Corps infantry reserve, and will be prepared to protect the main effort of the Second Division. Movements from present positions by battery.

Reconnaissance will be completed during daylight hours today.

Supply arrangements will be announced later. Evacuation by batteries by attached medical personnel.

Regimental CP closes at Wrightsville at 5:00 PM today and opens at RJ one mile east of Centerville at same hour.

Battalion CP's with regimental.

Any questions? There appear to be none. Proceed on your duties.

9:00 AM. Colonel "105th Coast Artillery" directs R-3 to prepare the formal field order in conformity with the dictated order.

9:31-10:00 AM. Colonel "105th Coast Artillery" occupies himself with the several questions which are presented by his staff for decision, and he studies the road net and the topography and determines his route for his reconnaissance.

10:00 AM-2:00 PM. Colonel "105th Coast Artillery," having directed R-Ex to superintend the relief and having informed the latter of his route, and having signed the formal field order, proceeds to reconnoiter the battle area accompanied by R-3. He proceeds via Columbia—CR 380 (where he briefly inspects the battery there)—Ironville—Silver Spring—Marietta Junction—Bamford—RJ (just west of RJ 397)—Centerville. He stops frequently to leave his car and proceed to high ground from which he can look over the terrain to compare it with his map. He and R-3 note in detail on their maps the locations of the field artillery already in position. He inquires the way to the CP of the Corps Chief of Artillery and finds out where additional units will go. He then returns to his CP.

1:55 PM. Colonel "105th Coast Artillery" directs R-3: "Inform the First and Second Battalion headquarters of the information we have gained, especially that which may guide them in avoiding high positions over which field artillery will be firing at short range and in selecting quiet positions for sound locators.

2:00-5:00 PM. Colonel "105th Coast Artillery" orders forward the forward echelon of his CP under R-1 and adjusts any questions arising concerning the relief with Colonel "X Coast Artillery," and orients the latter concerning the defense of the bridges. He then makes a tour of certain positions to observe the progress of the relief.

5:00 PM. Colonel "105th Coast Artillery" proceeds to his new CP accompanied by the rear echelon and the remaining staff officers.

VI. MAP PROBLEM No. 3

GENERAL SITUATION (continuation of Map Problem No. 2).—*a.* General Map, Gettysburg—Antietam, 1 inch = 10 miles. Geological Survey, 1:62500: Middletown, Lancaster, Hanover, York, McCall's Ferry, New Holland, and Quarryville quadrangles.

b. The attack was launched on 7 January as planned. The Reds were surprised by the movement of the 3d Division. The Red communications are via Reading.

SPECIAL SITUATION.—The 105th Coast Artillery (AA) is in action according to the general plan proposed by the regimental commander in Map Problem No. 2. The construction and operation of the Long Level bridge has attracted numerous Red attacks, but no damage has

been caused that could not be corrected by rapid repairs, and the attacking forces have been roughly handled.

At 11:00 AM, 7 January, Colonel "105th Coast Artillery," in response to being summoned, meets the Corps Commander on the hill crest just northeast of Fruitville. The Corps Commander states the following:

The Reds are evacuating Lancaster in disorder, closely pursued by our troops. A Red covering force is making a desperate stand on the line Roseville-Landis Valley. Captured Red Engineers gave information that the bridges over Conestoga Creek from Hunsecker to the Susquehanna are prepared for destruction. I anticipate Red air effort by their entire available force in an attempt to delay our crossing at Conestoga Creek.

The bulk of the First Cavalry holds the bridges in the vicinity of Brownstown opposed by Red cavalry and partisans. A column, consisting of the 1st Cavalry and a reinforced Brigade of the 3d Division, is being formed to pursue in the direction of Brownstown-New Holland.

The Corps will attack at noon to capture the Roseville-Landis Valley position and will pursue across Conestoga Creek.

The 3d Division (less detachments) and the 2d Division, will capture the Roseville-Landis Valley position and will force a crossing on pontoon bridges to be constructed on the front: Eden-Hunsecker, and will pursue toward New Holland.

The 1st Division will pursue toward Smoketown and Sondersburg, via pontoon bridges to be constructed east of Lancaster.

The bulk of the Corps Artillery, from present positions, will support the attack on the Roseville-Landis Valley position.

What general plan do you propose for the employment of your regiment from this moment until the Corps has crossed the Conestoga?

REQUIREMENT.—The general plan proposed by Colonel "105th Coast Artillery" for the immediate employment of his regiment and until the Corps has crossed the Conestoga.

A SOLUTION TO MAP PROBLEM NO. 3.—The general plan proposed by Colonel "105th Coast Artillery (AA)" for the immediate employment of his regiment and until the Corps has crossed the Conestoga is as follows:

Send one gun battery, one machine-gun battery, and one platoon of searchlights, now protecting bulk of Corps artillery, at once, under 1st battalion commander, via East Petersburg-Lititz-Disston—and road one half mile N of Millport School—to vicinity Brownstown to protect bridges pending arrival of reinforced brigade, and to protect the troops in the vicinity of the crossings.

Detach the machine gun battery from the 3d Division and have it revert at once to battalion control.

Send one gun battery and one platoon searchlight, now protecting bulk of Corps Artillery, to report without delay to the 2d Battalion Commander, 105th Coast Artillery (AA), battery to move under 2d

Division control and closely follow the attack via Roseville.

2d Battalion Commander, 105th Coast Artillery (AA), to be charged with the protection of the 3d and 2d Divisions during the crossing of the Conestoga on the front Eden-Hunsecker.

Attach, at once, to the 1st Division, the one machine-gun battery now protecting Corps Artillery, supporting the 1st Division.

One machine-gun battery, one gun battery, and one platoon of searchlights to remain on present mission of protecting Long Level-Cresswell Station pontoon bridge.

Inform each Division Commander without delay of the provisions for antiaircraft artillery protection on his front.

VII. MAP PROBLEM No. 3A

GENERAL AND SPECIAL SITUATION.—See Map Problem No. 3.

REQUIREMENT.—Actions taken and orders as actually issued by Colonel "105th Coast Artillery" from the beginning of the Corps Commander's statement at 11:00 AM until 1:00 PM. (To be based on the solution of Map Problem No. 3.)

A SOLUTION TO MAP PROBLEM No. 3A.—Colonel "105th Coast Artillery" is accompanied by R-3, a motorcycle messenger, and his automobile.

11:00-11:10 AM. Colonel "105th Coast Artillery" roughly stakes out on his map the information given by the Corps Commander, and hurriedly fixes directions and places by comparing the ground in view with the map.

11:10-11:20 AM. Colonel "105th Coast Artillery" makes a rapid and brief estimate of the situation.

11:20 AM. Colonel "105th Coast Artillery" reaches the following conclusions regarding the probable course of action that will be taken by enemy aircraft.

a. That they will endeavor to preserve the Conestoga as an obstacle in order to delay the Blues and gain time for themselves by the following means.

(1) Destroy by bombing the bridges in the vicinity of Brownstown as soon as the reinforced brigade is seen en route in that direction.

(2) Destroy by bombing any pontoon bridges that may be thrown across by the Blues.

(3) Bomb and machine-gun troops congested on the bridges or along the approaches thereto.

b. That, being already defeated, the Red Commander will see little immediate advantage to be gained by air attacks on the Corps Artillery, but will rather use his air force to gain time at the Conestoga to form his columns for a retreat and to break off contact with the Blues.

Colonel "105th Coast Artillery" comes to the following conclusions with respect to the employment of his regiment.

a. The detachment protecting the Long Level-Cresswell Station pontoon bridge is more valuable there than it will be if an attempt is made to get it up via Columbia to the support of the 1st Division, with the possibility of its being caught in the traffic and not getting into action in time to be of consequence. It cannot cross on the pontoon bridge.

b. That the machine-gun battery protecting the Corps Artillery supporting the 1st Division is all the aid he can furnish to the pursuit by that Division in a direction that is not as decisive as the operations further north. Also, that operation is on a distant part of the front, and the battery cannot be coordinated with the other elements of his regiment. That battery may just as well be attached to the 1st Division.

c. A pursuit in decisive directions is about to be initiated by the Corps; rapidity and decentralization is paramount in supporting the Corps operations at decisive points. A regimental communications net (other than radio) is out of the question. The regiment should operate by anti-aircraft strong points consisting of balanced anti-aircraft artillery forces.

d. A balanced force may be made up by regaining control of the machine-gun battery (H) now attached to the 3d Division. That battery should cover the 2d Division and the remaining part of the 3d Division which are to cross on the front Eden-Hunsecker. A platoon of Battery "A" and one gun battery can be made available by relieving them from present missions of protecting the Corps artillery. These last two must come forward under 2d Division control. A forward point should be designated for the commander of the force to get control of all elements. Roseville will do.

e. A balanced force can be made up of one gun battery and one platoon of Battery "A" and the machine-gun battery now protecting the Corps Artillery. Forces immediately under regimental control are selected for prompt movement on Brownstown, whence the most promising pursuing force is to start out. The route should avoid con-jesting with the reinforced brigade. The force should go around by virtue of their high speed compared with the infantry. The danger to the bridges will commence before the infantry arrives at the bridges. The force must go at once and rapidly and establish the protection with the minimum of delay and under cover of the 1st Cavalry.

11:20 AM. Colonel "105th Coast Artillery" proposes his general plan as given in the solution of Map Problem No. 3. The Corps Commander gives his approval.

11:25 AM. Colonel "105th Coast Artillery" secures from the Corps Staff Officer the locations of the several division command posts and a written order on the 3d Division Commander to release Battery "H."

11:26 AM. Colonel "105th Coast Artillery" writes field messages.

11:30 AM. Colonel "105th Coast Artillery" directs R-3 as follows: "Take this motorcycle and side car. You have heard the general situation. Go at urgent speed to the regimental CP. Assembly R-Ex and the Battalion Commanders or representatives. Inform them of the situation. Instruct R-Ex to issue the following order in my name and rush movements." He hands order in written form to R-Ex which contains the following:

1 gun battery, 1 machine-gun battery, 1 platoon battery "A," Major 1st Battalion Commanding, proceed rapidly via EAST PETERSBURG-LITITZ-DISS-TON—and road $\frac{1}{2}$ mile N. MILLPORT SCHOOL to vicinity BROWNSTOWN to protect bridges pending arrival of reinforced brigade and to protect troops in vicinity of crossings over CONESTOGA CREEK near BROWNSTOWN.

1 gun battery, 1 platoon battery "A," Major "2d Bn." commanding, move under 2d Division control and closely follow attack. Await further orders at ROSEVILLE, where Battery "H" will come under control Major "2d Bn." Major "2d Bn." is charged with protection of troops constructing pontoon bridges and troops in vicinity of bridges on front EDEN-HUNSECKER.

"I am going to 3d Division CP at — to get Battery 'H' released; then to 2d Division CP at — to expedite movement of Major '2d Bn.'s' detachment. Any questions?"

Colonel "105th Coast Artillery" then hands a written message to R-3 for delivery, the substance of which is as follows: To C. O. 2d Bn. Attach to 1st Division the machine-gun battery now protecting 1st Division and Corps Artillery now supporting that Division. Order Battery Commander to report to Commanding General, 1st Division without delay at —.

11:40 AM. Colonel "105th Coast Artillery" then goes down the hill to Fruitville and gets in his automobile. He then proceeds to 3d Division Command Post, secures the release of Battery "H" by presenting the Corps Commander's order, and directs the Battery Commander to move, giving him the route arranged with 3d Division G-4 and directing him as follows: "Get contact with Major '1st Bn.' at Roseville. Use your initiative. Employ your battery on the front Eden-Hunsecker without delay to protect pontoon bridges under construction and troops on and in the vicinity of the bridges. Report your dispositions to Major '2d Bn.' When Major '2d Bn.' arrives at Roseville your battery comes under his command."

Colonel "105th Coast Artillery" informs General "3d Division" of the arrangements for antiaircraft artillery protection on the front Eden-Hunsecker and at Brownstown, and arranges for the passing of the detachment under Major "1st Bn." across the rear of the 3d Division.

Colonel "105th Coast Artillery" then proceeds by automobile to the 2d Division CP and informs the Division Commander of the arrangements for antiaircraft artillery protection on the front Eden-Hunsecker, and secures from the 2d Division G-4 an assurance regarding the rapid forwarding of the detachment under Major "2d Bn."

1:00 PM. Colonel "105th Coast Artillery" is en route to expedite the advance of the detachment under Major "2d Bn."

In the interests of peace, which they seek, to avoid war, which they know so well, ex-service men stand for the adequate defense of the empire. We have seen what unpreparedness cost this generation. Young lads scarcely more than boys, many of them, sacrificed to the neglect and lack of foresight which left us to face the World War with an army in numbers and artillery totally inadequate.
—*Lord Haig.*



LIEUTENANT COLONEL AND BREVET COLONEL JUSTIN DIMMICK

Commandant Artillery School, 1860-1861

EDITORIALS

Military Training in Colleges

A RESOLUTION against compulsory military training in schools and colleges, recently adopted by the Federal Council of Churches in the belief that such training fosters militaristic sentiments and is therefore undesirable, drew very general attention from the press of the country. Interest was added to the question when a statement by President Coolidge to the effect that he believed such training should have for its purpose the betterment of mind and body, rather than the inculcation of a military spirit, was misinterpreted, particularly by the pacifists, to indicate that the President disapproved of compulsory military training in educational institutions. The discussion then spread over the length and breadth of the land, and the subject of military training in educational institutions received editorial notice in the newspapers from Maine to California.

In general, the discussion was devoted to two phases of the question of military training. Many of the papers concentrated on "compulsory training," debating whether it was or was not desirable to have military training a required part of the curricula of schools and colleges. Other papers, passing over the "compulsory" idea, went into the broader subject of the value of military training *per se*, and thereby brought in the summer camps and the Organized Reserves. On the whole, the newspapers agree that military training is valuable and that there is nothing objectionable in compulsory military training.

In regard to the compulsory feature, it seems to be felt that, since military training has been required in many of our schools and colleges for more than sixty years without developing a military spirit in this country, we need fear nothing for the future. As the *Grand Rapids Herald* says, "Sixty-three years is a long time in which to test a system." Some of the papers go so far as to argue that we have no such thing as "compulsory" military training, since the students are not compelled to attend the institutions in which military training is required as part of the curriculum. Even the *Advocate of Peace*, organ of the American Peace Society, "is not aware that there is any compulsory training in our public schools."

With respect to the general value of military training, there is a practical unanimity. The *Sacramento Bee* desires more training of the

young men of the country, not less. The *Indianapolis Star* does not believe that students taking military training would ever become disciples of militarism. The *Kansas City Star* finds it "ridiculous to hold that military training tends to bring on war." Hundreds of other papers express similar sentiments, and it is interesting to note that the *Advocate of Peace* "is not sure that the military drill, as conducted in our high schools and colleges, does our boys any appreciable harm," that it fails "to discover that the exercise produces any vicious sentiments, cruel dispositions or lust for war."

Better, perhaps, than other papers, the *Grand Rapids Herald* sums up in a few words the direct and immediate advantages to be gained from military training and expresses the sentiment of all. "Careful study," says the *Herald*, "of high schools and collegiate military training will disclose these assets: sturdier physique and better carriage; appreciation of discipline; understanding of team work; greater intimacy with the responsibilities of citizenship. Where are there comparable liabilities?"

More Officers Needed

The graduating class at West Point this year numbers 152, just about officers enough to command a single regiment. If we were dependent upon this training school for officers for the whole army we would get sufficient for ten regiments in ten years, if no allowance were made for death, incapacitation or resignation. This is clearly not enough. That fact is recognized by the recent announcement that more officers will be appointed this year from civil life than are graduated from the academy. That means, of course, that while the civil appointees may be as good intellectually and physically, they will lack the technical training needed for high command. It is an old saying that a soldier is born and not made, but that is a fallacy. Even the genius of Napoleon was enhanced by his military training. We have had some very fine soldiers who have reached high command without special training—such as Gen. John A. Logan—but few of them have planned campaigns and led large armies independently.

If training has been important in the past it is still more so in this age of great complication and scientific conduct of war. There are not only military principles to be exemplified, but there is also a great body of scientific technique that must be understood and used. The higher posts of military command must always be filled by men of technical military training. Those high posts are reached by a process of elimination and selection, through which only a born military genius could pass without technical training. For the lower commands, especially those of the line, technical training is not so important, and from

a nation so large as ours it is possible to pick men from civil life having the personal characteristics that go to make the successful soldier, which may be developed in actual service. We are compelled to select more than half our younger officers in this way, and in some of its aspects this system is not a bad one, yet it does not supply us with the volume of men of high military technical training from whom to select high commands, that would exist if all had the benefit of four years in the military academy.

We are a people who have always been afraid of ourselves in the military sense. We have frowned upon a large military establishment. We are habitually opposed to a large army. That opposition has manifested itself in the difficulty of getting support for a military school adequate to the real needs of the country when such an army is required. Such need is greater now than ever before, because of the advancement of the scientific side of warfare. We have had two great lessons in the difficulty of quickly creating a large army from the body of the people, chiefly because of the absence of enough trained officers to command it. The training camps we now conduct each summer to give to suitable young men the rudiments of training, so that in an emergency they may become officers at least partially ready for the job, is an effort to supply this need of officers without invoking the hostility of the people against a large army. But it is so plain that such officers can only be trained for the small commands and do not receive the military education needed for the large ones that we might well consider whether or not proper preparation for defense of the nation does not require that we at least double the output of our technical military school. When war comes we must work with the material we already have on hand.—*St. Louis Globe-Democrat.*

Army Housing

Since the World War, housing conditions in the Army have admittedly been bad and, with the rapidly increasing rate of decay of the temporary wartime buildings, have recently been growing worse. Since perhaps no other single condition will have a greater effect upon morale than the degree of comfort provided in barracks and quarters, there gradually grew up a tendency to place the blame for desertions and resignations and all the other ills to which the Army is heir upon deficiencies in housing conditions. The situation finally reached the press of the country and became the subject of numerous editorials deploring the existing conditions.

The solution lay, of course, in the provision of funds for construction, but this solution was not simple in a country already heavily bur-

dened with taxes. However, a plan was ultimately worked out whereby the "Military Post Construction Fund" was obtained. Seven million dollars having been made available, the question of distribution came up for settlement. The estimates of requirements called for a tremendous sum to put the army under comfortable roofs, so it was necessary to allot the first funds carefully to cover the most pressing needs. Very properly, then, the greater part of the first money to be made available goes to the erection of barracks and hospitals. The distribution, as recently announced, is as follows:

Camp Lewis, Wash.	Barracks	\$800,000
Schofield Barracks, H. T.	Hospital	450,000
Fort Benning, Ga.	Barracks	725,000
Fort Monmouth, N. J.	Barracks	555,000
Fort Monmouth, N. J.	Hospital	100,000
Camp Lewis, Wash.	Hospital	125,000
Fort Sam Houston, Tex.	Barracks	500,000
Selfridge Field, Mich.	Barracks	570,000
Selfridge Field, Mich.	N. C. O. Quarters	180,000
Camp Meade, Md.	Barracks	410,000
Fort Bragg, N. C.	Barracks	360,000
Fort Humphries, Va.	Barracks	500,000
Camp Devens, Mass.	Barracks	500,000
Erie Proving Ground, O.	Barracks	47,000
Edgewood Arsenal, Md.	Officers' Quarters	90,000
U.S.D.B., Ft. Leavenworth, Kans.	Hospital	125,000
Mitchell Field, N. Y.	Barracks	287,000
France Field, Panama	Officers' Quarters	139,000
Schofield Barracks, H. T.	N. C. O. Quarters	72,000
Fort Wadsworth, N. Y.	Barracks	285,000
Maxwell Field, Ala.	Barracks	130,000
Maxwell Field, Ala.	N. C. O. Quarters	70,000
	Total	<u>\$7,020,000</u>

The completion of this project will effect a great improvement in the Army, particularly among the enlisted men. Nevertheless the needs of the officers are no less pressing. Many officers, even of field rank, are now housed in temporary shacks which they would not occupy at any price in civil life. Considering the lack of permanent partitions in many of the quarters at Fort Leavenworth, the use of rapidly decaying frame sheds at Forts Monroe and Eustis, and the serious lack of housing facilities at Fort Benning—to cite only a few examples—it is to be hoped that this first and very important Army construction program will soon be followed by another which will relieve somewhat the conditions among the commissioned personnel.

Decision by War

One of the silly statements used by pacifists is that war never settled anything. It is repeated by people who want to believe that war is not only a avoidable way of getting results but, worse than that, no way of getting any results which will endure.

Human affairs do not contemplate perpetuity, and the wars which left the white man master of Europe and the dominant force in the world may not keep him in that position for the rest of time, but thus far it has been a settlement.

War made the Roman empire and it made a civilization which was everything to centuries of Roman generations and which has its effect even now on life. War decided that the Asiatic Huns should not have Europe and it kept the Saracens from control of France and drove them out of Spain. If the settlement had been the other way white civilization would have been retarded, modified or possibly prevented.

War gave England a Norman leadership, a consolidated government and a changed language. It gave man freedom from arbitrary mastery. It gave them protection under governments which respect their lives and their property. It substituted successful democracies for intolerable tyrannies.

In this country it determined that the occupancy should be by white states instead of Indian tribes. It determined that the port of New York should be New York and not New Amsterdam. It determined that the French should not have this country or Canada and it determined that the American people should be free and that Canada should not be a part of the new republic.

It determined that this northwest territory should not be a part of Quebec. It determined that the country should remain united and should not be divided and that it should not be part free, part slave. The best minds in the country tried for years to find a settlement of that which would avoid war and they exhausted themselves and failed.

Even if the North had surrendered the principal of union and had permitted the erring sisters to go in peace there is no reason to believe that war could have been avoided. Two nations instead of one would have had the problem and it would not have downed just because there was one government in Washington and another in Richmond established by uncontested secession. It probably would not have been more than a few years and they would have been fighting over fugitive slaves or for new territory. War settled that.

It determined that the territory north of the Rio Grange and along the Pacific Coast should not be Mexican and that the territory south of the river should not be Spanish. It determined that Germany should

not be the military master of Europe at this day, that Russia should be a communistic autocracy and that Germany should be a democracy and not a reign of terror.

So far as permanence goes in human affairs war has settled more things of profound importance than any other agency or method or instrumentality. Most of the settlements have been what we regard as good settlements. It is better to have this country with the homes of whites rather than the tepees of Indians. We think it is better that we are speaking English and not French and that we are American citizens and not British subjects. We think it is better that there is not an international boundary line running along the Potomac and the Ohio or another running along the Mississippi. We think it is good that Americans are not passing through customs every time they want a change of climate in what is now their country and that the territory of the United States has one flag and not several.

War made it possible for a united country to celebrate the Fourth of July in conditions which are about as good as ever fell to the lot of the human race. If the men who signed the Declaration of Independence had trusted to their pens, to their persuasiveness, what they regarded as the justice and logic of their cause, that declaration might have been their death warrant, but it would not have been much else.

Washington made it an effective document and he did it with war. It may not be the most pleasant settlement, but frequently it has been the only one the human race was able to find.—*Chicago Tribune.*

The principal source of man-power for our armies in war is the citizen soldier, organized as far as possible in peace as our reserve force.—*General John J. Pershing.*

PROFESSIONAL NOTES

Practice Mobilization of the 213th Coast Artillery

On June 26 and 27 of this year the 213th C. A. (A. A.), Pa. N. G., under command of Colonel C. J. Smith, carried out a practice mobilization at Kutztown, Pa., in preparation for the annual field training period to be held later at Fort Monroe, Va. Kutztown is located centrally to all the organizations of the regiment, which is scattered over an area of 200 miles in Eastern Pennsylvania, in the cities of Allentown, Bethlehem, Easton, Lancaster, Lebanon, Reading, Pottsville, and Schuylkill Haven. The closest batteries to the mobilization point had to travel twenty-one miles and the farthest fifty-five miles, all by motor convoy. This mobilization was not held at the direction of higher authority (per-



CAMP AT KUTZTOWN

mission was obtained, of course) but through the initiative of the regimental personnel who took two days of their own time to assemble and check up on the functioning of the various elements of the regiment as to training and preparedness to make the 816 mile motor convoy trip to the annual training camp and return. In a general way the objectives of this practice mobilization were:

- (a) To determine if the regiment could mobilize according to a schedule planned to meet a possible emergency situation.
- (b) To develop the morale and solidarity of the regiment after being separated nearly a year by reason of geographical location of the batteries.
- (c) To familiarize the officers with the topography of this section under a condition that would probably be met in case of a future emergency mobilization.

(d) To give the officers an opportunity to work out a practical problem in the tactical employment of anti-aircraft artillery as a refresher before the annual training period.

(e) To provide training in convoy and march discipline and to test motor transportation under loaded conditions.

(f) To determine the state of efficiency attained in basic training carried on during the armory training season just closing.



COLONEL C. J. SMITH

(g) To foster and promote the interest of the people of Eastern Pennsylvania in their National Guard by assembling at a point easily accessible to the population for their observation at close range.

A warning order was sent out to all organizations on June 7. On June 24 a formal mobilization order was published directing the departure of all organizations from their home stations at 1:00 P. M. on June 26. In compliance with this order the batteries began arriving at Kutztown at 3:00 P. M., on date set, and by 7:00 P. M. the last of the batteries had arrived and the regimental camp was fully established.

Early on the morning of June 27 the following order was published from Regimental Headquarters.

213th Coast Artillery,
KUTZTOWN, PA.,
27 June 1926, 8:00 A. M.

Field Order
No. 2.

Maps: U. S. Geological Survey: Hamburg Quadrangle, 1:62500.

1. (a) The enemy forces have advanced and are now concentrated in the vicinity of SLATINGTON and are forming for attack. The enemy has superior air force.

(b) The III Corps is taking up defensive position along the road LEHARTSVILLE-KLINESVILLE-KRUMSVILLE-GRIMVILLE. The II Corps is taking defensive position on the right of the III Corps and the IV Corps on the left. Friendly air forces are based south of KUTZTOWN.

2. This regiment will support the III Corps in defense, giving anti-aircraft protection to the zone MAIDEN CREEK-LEHARTSVILLE-KLINESVILLE-KRUMSVILLE-GRIMVILLE-EAGLE POINT-RJ 405.



CAMP AT KUTZTOWN

3. (a) The 1st Bn will go into position with two batteries in the front line to give anti-aircraft protection to the zone MAIDEN CREEK-LEHARTSVILLE-KLINESVILLE-KRUMSVILLE-GRIMVILLE-EAGLE POINT-RJ 405.

(b) The 2d Bn will establish a two-line machine-gun barrier astride the general line RJ 421-HILL 460-RJ 433-HILL 510, with right battery locating two platoons in front line.

(c) All batteries will be in position and ready for action by 6:00 P. M. Exact report of positions, communications and establishments will be submitted by 5:00 P. M.

4. (a) C Tn and Btry Maint Sec at KUTZTOWN.

(b) Service Btry at KUTZTOWN.

(c) Am DP at fairgrounds KUTZTOWN.

(d) Regtl Aid Sta in public park KUTZTOWN.

5. (a) Signal Communications: Normal.

(b) OP's: 213th CA on HILL 460. Bns report theirs by 5:00 P. M.

Distribution:

File	Serv Btry	SMITH,
1st and 2d Bns	Staff	Colonel.
Hq Btry	Hq III Corps	

Complying with the above order the Battalion Commanders, accompanied by Battery Commanders, made a reconnaissance of the indicated zone and located positions for all elements of the regiment. Lack of time prevented the placing of

the materiel in the positions selected in accordance with the published orders but this situation was simulated as nearly as possible by having the units take up the same relative positions on a reduced scale in a large field near by, which served as well for a tactical test of regimental communications. All normal lines of communication were established and an airplane from a nearby civilian field flew several courses, which furnished an actual target for drills.

At 1:30 P. M. a tactical test of communications was held. Special situations were assumed in connection with the general situation given in Field Order No. 2. The Regimental Commander sent orders by telephone and radio to the Battalion Commanders, based on assumed special situations, who in turn sent messages appropriate to the situation to the batteries. The times all messages were sent were recorded, and the times they were received also. All gun-battery data were recorded when actual target was tracked, and analysis of drill was made at the completion of the drill period (a new feature of training during the armory drill periods).

At 2:30 a critique was held at Regimental Headquarters in which the terrain problem of the morning was covered as well as the tactical communications test. A position chart had been prepared on which was located to scale all of the battery positions and the area to be defended by the antiaircraft artillery in the problem. A graphical illustration of the efficiency of the regimental communications system was shown by placing a pin on the position chart at the point where enemy bombers were reported approaching sensitive areas during the special situations. Then using a speed-time rule another pin was placed at the point reached by the bombers during the time between the sending of the message from the Regimental CP and the going into action by the batteries.

After the Regimental parade at 4:45 "March Order" was given and the departure for home stations was begun. The maneuver was covered by special correspondents of newspapers of the cities of the regiment and also those of Philadelphia. It was estimated that ten thousand people visited the camp during the last day, being attracted there by the publicity given this announced maneuver during the preceding month.



EIGHT-INCH HOWITZERS IN ACTION NEAR VERDUN

542d Coast Artillery (A. A.) Completes its First Unit Camp

Fort Terry, N. Y., July 24, 1926. The 542d Coast Artillery (A. A.), Headquarters Portland, Me., under the command of Lt. Col. Waldemar P. Adams of Augusta, Me., today completed its first tour of duty as a unit at this Post. Forty-four officers and three enlisted men comprised the regiment. Officers were included from the 501st, 543d, and 544th A. A. regiments.

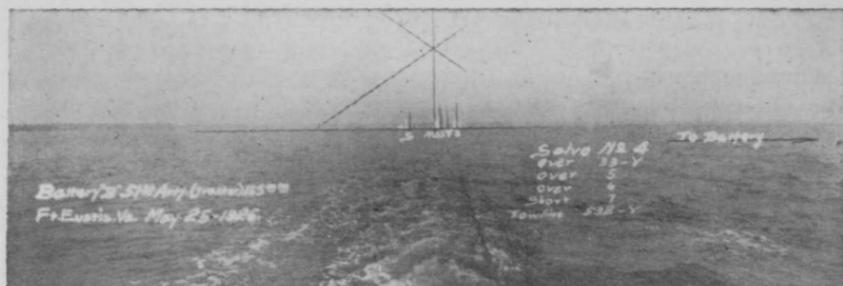
The program for the camp consisted of the following:

- a. Organization and tactical employment of anti-aircraft artillery.
- b. Theory of instruments, 75-mm. guns.
- c. Field stripping and assembling, machine guns.
- d. Instruction 75-mm. guns and instruments.
- e. Machine-gun drill by squads.
- f. Belt filling and stoppages, machine guns.
- g. Searchlight instruction.
- h. Ground firing, machine guns.
- i. Communications, including battery net.
- j. Orientation.
- k. Aerial firing on balloons.
- l. Drill, 75-mm. guns and instruments.
- m. Construction of battery emplacements, with communications.
- n. 75-mm. gun, firing at towed targets.
- o. Machine-gun, firing at towed targets.
- p. Machine-gun firing.
- q. Pistol practice.

On Friday a successful shoot was made on a towed target. Lieut. Sutton, commanding officer of the Boston Air Port, towed the target and reported very good results. Colonel William Monroe, C. A. C., D. O. L., was the regular army executive officer on duty with the regiment.

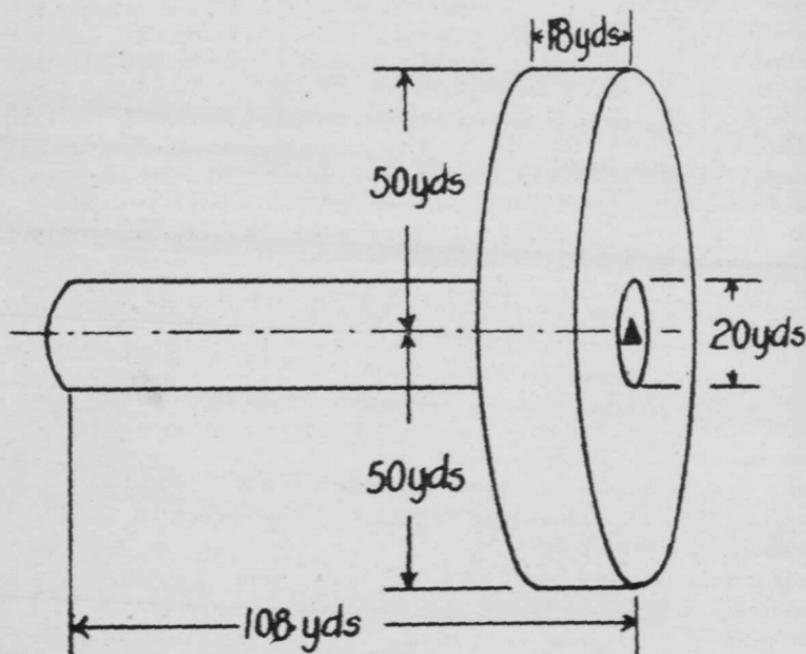


EIGHT-INCH HOWITZERS IN ACTION NEAR VERDUN



Salvo No. 4 of a series of nine salvos fired by Battery "B," 51st Coast Artillery, (Heavy Tractor) at a moving target on May 25, 1926, at a range of 9990 yards. Every salvo of this practice bracketed the target. Range: 9990 yards.

3-INCH ANTI-AIRCRAFT TARGET



ADOPTED BY THE WAR DEPARTMENT
 APRIL 6, 1926
 VOLUME 4,580,442 CU. FT.

Actual Position of Material Target

U. S. Veterans' Bureau

A synopsis of the more important amendments to the World War Veterans Act of 1924, as recently enacted by Congress, was recently issued by Gen. Frank T. Hines, director of the Veterans' Bureau, for the information and guidance of all concerned.

The two amendments of most immediate interest are: first, that which extends the time for reinstatement of insurance by ex-service men until July 2, 1927 (Under previously existing legislation, July 2, 1926, had been set as the terminal date); second, the extension of time for completion of vocational training to January 1, 1927, for placement training, and to July 2, 1928, for institutional training (the terminal date formerly having been June 30, 1926, for all classes of vocational training). This extension is applicable only to those veterans who were in training on June 30, 1926.

Specific provisions concerning women veterans grant authority for their hospitalization in other than Government hospitals; allow burial expenses for women who served as Army nurses under contracts between April 21, 1898, and February 1, 1901; and include within the provisions of the World War Veterans' Act, as amended, women citizens of the United States who were taken from the United States by the Government and who served in base hospitals overseas. Women who served as Army nurses between April 21, 1898, and February 1, 1901, are entitled to hospitalization under the supervision of the Veterans' Bureau under the same conditions governing the hospitalization of veterans of wars (other than the World War) participated in by the United States.

Authority is granted to the Director to refuse to make further payments to any guardian, curator, conservator, or other fiduciary in the District of Columbia who, in the opinion of the Director, is acting as fiduciary in such a number of cases as to make it impracticable properly to conserve the estates or supervise the persons of the wards. In any case where a fiduciary is not properly executing the duties of his trust or is collecting inequitable fees or commissions the Director is authorized to appear in court and make presentation of such matters. Suspension of payments may be made in any case where the fiduciary neglects or refuses to render an account showing proper application of payments for the benefit of the ward. Authority is granted for payment of court or other expenses incident to investigation or court proceeding relative to appointment or removal of fiduciaries.

The Director of the Veterans' Bureau is granted authority to alter, extend, or improve existing hospitals or outpatient dispensary facilities without the approval of the President, providing that such alteration, extension, or improvement does not materially increase the bed capacity. Authority is also granted for courses of instruction for the professional personnel of the Bureau and the detailing of not more than two per cent of such personnel to attend professional courses offered through non-Governmental agencies—employees so detailed to be entitled to payment of their expenses in addition to their salaries. It is anticipated that this last proviso will prove of great benefit to the Medical Service and will be a distinct aid in carrying out the Director's policy of stabilizing and improving the Medical Service and the status of medical officers of the Bureau.

Spinal meningitis is included among those diseases conclusively held to be of service origin when developing to a degree of ten per cent or more prior to January 1, 1925, while organic loss of speech is included among those conditions classed as permanent total disability.

Provision is made for reimbursement of beneficiaries who may sustain loss of personal effects by fire in Bureau hospitals, this provision being retroactive, and authority is also granted to furnish clothing and prosthetic appliances (and repairs thereto) to veterans who are entitled to hospitalization under Section 202 of the World War Veterans' Act, but who are financially unable to supply themselves with these necessities.

Pensions of veterans entitled to the benefits of this section are specifically removed from the purview of the now existing statutes which provide for deductions from pension for board and maintenance while the veteran is maintained in a Government hospital; also, the Director is authorized to use other than Government hospitals in territories, as well as in the Insular Possessions of the United States, in order to provide hospitalization authorized by this Act.

The Director is authorized to extend the time for filing claims not to exceed five years for good cause shown, and the time for filing evidence of service origin of disability is extended three years from the passage of the World War Veterans' Act, or until June 7, 1927.

Section 212 is amended to make effective as of April 6, 1917, the provision therein which states that compensation shall not be paid while a person is in receipt for *active service* or *retirement* pay. This removes the present bar against payment of compensation while the veterans were receiving *reserve* pay.

Provision is also made that the schedule of ratings provided by the World War Veterans' Act shall *hereafter* be applicable to disabilities formerly compensable only under the War Risk Insurance Act as amended; that is, disabilities incurred between April 6, 1917, and July 2, 1921, and which heretofore have been governed by the Rating Table adopted under the War Risk Insurance Act.

Section 300. Applications for insurance heretofore made by reserve officers on active duty at training camp or station are validated. Members of the Coast Guard are included among those entitled to apply for insurance.

Section 304. The time for reinstatement of insurance by ex-service men suffering with disabilities of service origin is extended one year from the passage of this Act, or to July 2, 1927. The unpaid premiums may be carried as an interest bearing indebtedness against the policy, to be deducted from any settlement made thereunder, in a case where all the other requirements of reinstatement are complied with but the veteran is unable to pay the premium in arrears with interest. The time for reinstating yearly renewable term insurance generally is extended to July 2, 1927.

Section 305. This section is amended to apply to canceled or reduced insurance as well as lapsed insurance, and a new proviso is added limiting the payment of insurance revived under this section to the insured, his widow, child or children, or dependent parents, and in the order named unless otherwise designated by the insured during his lifetime or by his last will and testament.

Section 308. This is a new section to provide that where the insurance lapsed and the insured forwards not later than the seventh day of the month following the grace period an amount sufficient to reinstate the insurance, reinstatement may be made whenever it is shown that the insured was in the required state of health at time of remittance.

Section 309. This is a new section to provide that where any person allowed his insurance to lapse and died after February 24, 1919, prior to collecting the \$60 bonus, the insurance shall not be considered to have lapsed during such period as the uncollected bonus would, if applied in payment of premiums

when due, equal or exceed the same. Insurance revived under this section is payable only to the classes mentioned in the proviso added to Section 305.

In this Section extending the time for vocational training, there is also included permission for payment of the two months' allowance provided by Section 404 to all trainees upon rehabilitation. By reason of the language of the old law which prohibited payment of any training allowance after June 30, 1926, men who were rehabilitated after May 1, 1926, were discriminated against in respect to the two months' allowance.

Section 506, a new section, extends the penal provisions of the statute to the Philippine Islands.

Other miscellaneous provisions included in the amendments enacted as of July 2, 1926, are:

Section 26. Where the accrued amount due at the time of the death of the beneficiary is \$1000 or less, payment may be made direct to the person who would take under the laws of intestacy without necessity of letters of administration.

Section 28. Provision is made for the reimbursement of the Government Life Insurance Fund from the Military and Naval Insurance Fund in any case where recovery is waived of an overpayment under a converted policy.

Section 202 (7). This section is amended by substituting the phrase "Government of the United States" for the word "Bureau," so that the subdivision will apply where the veteran is hospitalized in any Government institution. Provision is made for the payment of such additional sum as would equal the total sum by which compensation is reduced through this subdivision in the event the disabled person recovers his reason and is discharged.

Provision is made for the payment of not less than \$50 per month for life in arrested tuberculosis cases. This provision is effective as of the date of the passage of the amendatory Act and is specifically made not retroactive.

Section 203. Provision is made for a straight per diem allowance of \$2.65 per day in lieu of loss of wages incurred while submitting to examination in connection with applications for treatment or compensation.

The Influence of the Noncommissioned Officer

By CHAPLAIN MILTON O. BEEBE
United States Army

We hear very much about the "old Army" in these days of the "new." By way of comparison, the new is not highly regarded by men who have served in the old. Opinion seems to be that the new Army is unstable and lacking in that splendid *esprit de corps* which characterized all organizations and every branch of the Service previous to 1917.

In our criticism, however, we are quite unfair, since we forget that the Army which became venerable in our esteem, and whose traditions we sincerely love, was once new, untried, and without proper spirit. Gradually, through the years, disorganization gave place to system, instability to a definite policy, and a high and holy pride grew up in the breasts of men for the companies, regiments, corps, and departments of which they were a part. This spirit pervaded the whole Army and instinctively revealed itself in the deportment, appearance, and efficiency with which our soldiers performed their duties. Soldiers try never to be sentimental toward their Army, their flag, their country, but they do not seem to succeed. Ask any old soldier what his ambition is, and he will probably reply that the fact that he is in the Army and has made it his career is sufficient proof that he has none at all. However, the unexpressed ambition that lay deep below the drab

exterior of every soldier of the old Army was to serve his country and to honor his flag and his uniform. That, I insist, is the sentiment and purpose of the men who comprise the new Army, the Army of today, and under its power we are even now being transformed into the splendid Army of yesterday.

There is no greater factor in all the Army or one that can do more to bring back to us the balmy days for which we now pine in our service than the non-commissioned officer. I have heard these sentiments from many officers and enlisted men, so I claim nothing for them by way of originality. Indeed, the last time I listened to the Department Commander, he made statements to this effect: That the noncommissioned officers of the United States Army are among the most powerful persons in the Service, since they, more than any other group of men, can create and maintain a splendid morale and *esprit de corps*. This is a duty that is not written into the Regulations, but is a real responsibility none-the-less. Whether or not we appreciate it, it remains true that the Army of tomorrow is very largely dependent upon the way in which the noncommissioned officers of today acquit themselves. If we linger in memory upon the days of the old Army, it means that we are not lacking in that sentiment and ambition which can change the new one into the splendid organization of the past.

QUALIFICATIONS FOR NONCOMMISSIONED OFFICERS

I might discuss for hours the qualifications requisite to a good "noncom" and still leave the subject unexhausted. Naturally, the man with the best educational advantages back of him, all other things being equal, will make the best non-commissioned officer. The chief requisite, and the one which will more than compensate for other shortages, is a "sound common sense." Lacking this essential qualification, no man can hope to be a successful noncommissioned officer, or properly to control and manage men. Give a man the wisdom of the ages, let him be a hand-book of information, let him write behind his name one-half the letters of the alphabet as degrees that have been awarded him by colleges and universities, and if he lack that very tangible and uncommon thing that we call common sense, he can never lead men in our Army or serve the varietal recruit as a model soldier. I know soldiers who have been in the Army for upward of twenty-five years. They are still privates, first class, and mighty good ones, but they are not material for noncommissioned officers. They lack a certain, indefinable something that is essential to a good noncommissioned officer. They never could succeed in any grade above the one they fill. They work hard, try their best, but do not seem to be able to master the intricate laws that control human nature.

To be a good "noncom" depends largely upon study and close observation. Even a most gifted man could not succeed here without effort. There are no born soldiers. Some men seem to have a peculiar aptitude for the Service, but it is cultivated, not natural. Hard work is always the price of mastery, and ninety-nine per cent of genius is hard and continued effort. If we are able to direct and control the men under us, if we are able to apply the principles of Military Science in any emergency, it will be because we have been studying, reading, observing, and thinking about these things.

THE CONTROL OF MEN

The noncommissioned officer must be a disciplinarian, he must be exacting, he must be very strict in requiring a punctilious observance of all rules, orders, and regulations. That is the strong meat that makes real soldiers. He can require what he will of his men so long as he does not nag them, ride them, or irritate them.

One of the most exacting noncommissioned officers I have ever known was also one of the most popular. He know how to say both "yes" and "no." He knew his men, not merely by name or duty but by heart. He was under tremendous pressure from his superiors and had to be very severe and exacting. However, he never lost sight of the man with whom he was dealing. To him, each man was more than a serial number, a name, or a nationality. He was an individual with a distinct personality and personal qualities that were different from those of every other man in his troop, and who, as a result, had to be treated differently. Off duty, this noncommissioned officer was captain of the regimental baseball team, and it was a winner. That sergeant was human.

A namby-pamby, weak-as-water man is not fit to be a "noncom." Neither is a martinet, a man who is unduly severe. Both of these men, in the matter of results, are identical—inefficient. One is not obeyed, because the men under him know that they can get away with it; the other is not obeyed, because his tone and attitude inspire men with the spirit of disobedience.

CREATING PRIDE

There is nothing that can make a good soldier like fostering pride in the uniform he wears, his organization, the whole Service. The pride he feels normally swells out his uniform, takes the hump out of his shoulders and the kinks out of his spine.

Can you imagine a man not being proud of membership in some of our great regiments? I had a friend who was killed in France while serving in the 16th Infantry. He loved that regiment better than his life. That is the reason he did not come back with it. It was Battery C, 6th Field Artillery, that fired the first shot after our troops went to France, and Captain Idus R. McLendon (formerly a noncommissioned officer in the Coast Artillery at Fort Barrancas, Florida, where I first knew him), then commanding the battery, told me that every man in that battery was unspeakably proud of his membership in it. Organization, tradition, and achievement make men proud of their regiments and batteries.

He is a poor noncommissioned officer who cannot turn the pride which a soldier feels in his organization to account. Every man wants to succeed. He wants a part in every victory. The noncommissioned officer, who is always in intimate touch with his men, can foster and build up a consciousness of pride in his soldiers that will be tremendously worth while. Before trying more severe methods with the men, appeal to the sense of pride in their uniform and organization. It will bring out the best in every soldier.

THE ARMY AND THE CIVIL COMMUNITY

The Army of the United States is the best fed, best paid, and best kept army in the world. The men who compose it are generally self-respecting, well-behaved, intelligent, and contented. They are worthy of the wholesome respect and good esteem of all law-abiding citizens. Whether or not they will receive this is dependent on the influence of the key-men of the Army, and the key-men are the non-commissioned officers. They can make lawlessness and carelessness so unpopular that all will seek to keep both the letter and the spirit of the regulations. When this occurs, one will be conscious of a distinct difference in the attitude of the community near which the post is situated. This is worth while. One cannot safely disregard the demands of the civil community. A good soldier is as worthy as a good civilian. If the men deserve the confidence of the civilian community you may be sure that they will get it.

A Patriotic Citizen

EDITOR'S NOTE.—*The following memorandum, published recently at one of our overseas stations, is self-explanatory. The spirit displayed by the writer of the quoted letter is well worth encouragement.*

Fort —, —.

July 12, 1926.

MEMORANDUM:

1. The following letter, from the father of one of the men of this garrison, is published for the information of all concerned:

DEAR SIR:

I am in receipt of your favor of the 1st inst. to me directed, referring to my son having arrived safely in the Fort, and getting along very well for which I thank you most heartily, and to which I wish you to give him all the encouragement you can, to stay right with it, as his brother has stayed with the Navy since 1916, and is still there, now at San Diego, Cal., and married in the Navy, and has no desire to quit it until he is pensioned out.

Will you kindly call him into conference with you and tell him that you have had a letter from me stating that I am getting along alright, and for him not to worry about me or the rest of the family at all, but that it is my wish, *most dearly*, that he will be a *real good soldier* and be a *pride* to the Army and the Flag to which he has sworn allegiance, and in doing so he will not only be doing me a great credit, but will be giving me encouragement to say that I am proud of *my two sons* in the *Service*.

My reason for asking this favor of you is because, in his last letter to me, he seemed to be getting homesick, yet he should be thinking of the time when he can come back home *a credit to his Country, his Flag, and his home*, and in order to reach that point or to attain such an honor, he must be an *obedient, truthful, and honorable soldier*. Am I not right?

* * * * *

Thanking you for your letter of advice, and awaiting your early favor, I ask to remain,

Yours very truly,

2. The sentiments expressed by this soldier's father are worthy of thought and emulation by all of us. His love for our country, his great respect for the military service, and his earnest desire that his sons remain in the service and become good soldiers—a credit to him, themselves, and their country, indicates that he is deeply and truly patriotic.

3. At a time when pacifism, "internationalism," and Bolshevism are rampant in the world, it is well for us to give more thought to combating these insidious and dangerous doctrines. So long as we have a sufficient number of men of the type and character of this soldier's father, our country is safe, but we must do our part to foster this spirit of patriotism and to combat all ideas, schemes, or "isms" that tend to undermine our ideals, to discredit patriotism and love of country, or to overthrow our system of government.

* * * * *

MILITARY NOTES

furnished by

THE MILITARY INTELLIGENCE DIVISION, G. S.

Great Britain

NEW IMPERIAL DEFENSE COLLEGE.—In a statement before the House of Commons on June 29, 1926, the Prime Minister said that it was proposed to found an Imperial Defense College for the purpose of training officers and civilian officials in the broadest aspects of Imperial strategy. He said that the college would probably be located in London, that the instructional staff would be drawn from the three services, and that the Commandant would be nominated in turn by each service. He also stated that it was intended to start the college in a small way and gradually develop, and that at first they expected to graduate about thirty students in each course.

THE NATIONAL RIFLE ASSOCIATION RANGE AT BISLEY.—Bisley is a small place about thirty miles southwest of London and about three miles east of Aldershot. The National Rifle Association is practically independent of the Government and the War Office. It was founded in 1860 to encourage rifle shooting in the British Empire. It now has about 3000 members, and owns and runs the great Rifle Range at Bisley. The membership dues for a civilian are \$5.00 per annum; for soldiers and ex-soldiers \$1.25 per annum. Any one contributing in any one year the sum of \$50.00 or upwards, or the donor of a prize of the value of \$100.00 or upwards, is made a life member of the Association. The ground on which the Rifle Range is located originally belonged to the Government and was included in the Aldershot Military Reservation. When the Rifle Association moved its ranges from Wimbledon to Bisley in 1890 the Government furnished the Association with the land it now occupies. The land is well drained but unfit for agricultural purposes and makes an ideal situation for a target range.

Three ranges are provided. The short range has 35 targets; the medium range, 500 and 600 yards, has 100 targets; and the long range, 800 to 1200 yards, has 50 targets.

The Rifle Association is governed by a President, elected by the Governing Council. The Governing Council consists of the President, the Treasurer, 30 ordinary members, 3 Coöpted members, and the Ex-Officio members. The Ex-Officio members consist of high officials in the State, Army, Navy and Air Force, and include High Commissioners for the various Colonies, the First Lord of the Admiralty, the Secretary of State for War, Chief of the General Staff, Secretary of State for Air, Chief of the Air Staff, and Commanding Officers of the Great Departments on land, sea, and air. An enormous amount of interest is taken in the Association, and they have no difficulty in persuading various high officials to accept the responsibilities of serving on committees during the meetings throughout the year. When the team from the 107th United States Infantry recently

competed against a team from the Queen's Westminster and Civil Service Rifles, Admiral of the Fleet Lord Jellicoe acted as chief umpire. The teams were also received by the King, and were given a dinner by the Prince of Wales.

The Government has the privilege of hiring targets from the Association for the instruction of soldiers in the Regular and Territorial Army. There are nearly always one or two battalions encamped near the Range and they carry out both rifle and machine-gun firing. The Association charges the Government 75 cents per day for each target used, and furnishes all targets necessary.

The N. R. A. is financed by its own members and also by donations from various persons interested in promoting rifle shooting.

Meetings at Bisley are very cheery affairs and many persons attend them, more for a holiday and a reunion than for the purpose of competing for prizes.

France

1927 CLASS AT THE ECOLE SUPERIEURE DE GUERRE.—The present class or 47th Promotion, as it is called, at the French Ecole Supérieure de Guerre consists of 109 student officers, 83 of whom are French and 26 foreign. The French officers include 2 majors, 61 captains and 20 lieutenants. The foreign officers are as follows: 3 American, 3 Polish, 3 Czechoslovakian, 3 Roumanian, 3 Greek, 1 Spanish, 1 Chinese, 1 Esthonian, 1 Persian, 1 Belgian, 1 Swiss, 1 Turkish, 1 Paraguayan, 1 Japanese, 1 Finnish, 1 Latvian.

For instructional and administrative purpose, the class is divided into groups of about 13 officers in each, foreign officers being assigned to each group.

The staff of the school consists of 63 officers all of whom are French with the exception of 1 British officer, 2 Russians, and 1 Pole.

It is interesting to note that one of the ten history lectures was devoted to a study of the battle of Chancellorsville.

The following notes on the first year's course of instruction indicates the subjects which are being stressed. In the infantry course, great attention is paid to the use of fire power, both in the offensive and defensive, and on liaison with the artillery. Especial emphasis was placed on instruction in the approach march, gaining contact, and in the attack against a hastily organized position. Under the general heading of artillery, liaison with the infantry and ammunition supply received most attention. In problems the organic divisional artillery was usually reinforced by 75-mm. portée units. In an attack problem against a strongly organized position, the organic divisional artillery (3 battalions of 75's and 2 battalions of 155 shorts) was reinforced by—

- 6 battalions of 75's,
- 3 battalions of 155 shorts,
- 3 battalions of 65 mountain,
- 1 battalion of 220 mortars,
- 2 battalions of 120 trench mortars,
- 1 battalion of 240 trench mortars.

The French seem radically to have changed their ideas on the employment of cavalry since the War. Mounted action, except for small units, is no longer contemplated and greatly increased fire power is given the cavalry division. In a problem involving a cavalry division on the offensive, the mission of the division was to drive back small enemy forces which had crossed a river. The three cavalry brigades were used to make holding attacks, while the main effort was made by a battalion of infantry (brought up in trucks) and supported by a regiment of 75 portée.

COAST ARTILLERY BOARD NOTES

Communications relating to the development or improvement in methods or materiel for the Coast Artillery will be welcome from any member of the Corps or of the Service at large. These communications, with models or drawings of devices proposed, may be sent direct to the Coast Artillery Board, Fort Monroe, Virginia, and will receive careful consideration. R. S. ABERNETHY, Colonel, Coast Artillery Corps, President Coast Artillery Board.

Projects Initiated During the Month of July

Project No. 472, Percentage Corrector Slide Rule for Fuze Range.—The Coast Artillery Board has designed a circular slide rule which permits the determination of a percentage fuze correction based on trial shots. This correction can be applied on the corrector scale of the fuze setter without interrupting the present procedure in the range section of antiaircraft gun batteries.

Project No. 473, Horizontal Angle Indicator.—The Bureau of Standards has developed an instrument called the "Horizontal Angle Indicator" intended primarily for use in range finding from captive balloons or from dirigibles. A description of this instrument was furnished the Coast Artillery Board. The Board expects to make a test of it for the purpose of determining whether or not this instrument has application in the development of terrestrial spotting against either naval or aerial targets.

Project No. 474, Dummy Projectile (12-inch Gun).—It has been stated that the present type of dummy projectile, which frequently sticks, is so constructed that the moving parts are all exposed and require frequently to be oiled and freed of dirt and grease; that it jumps back after being rammed with the proper force to that an added push with the rammer is required, and the rammer drill with this projectile is different from that with the service projectile. Two modified types of dummy projectiles have been tested in the Hawaiian Department and the report of this test has been referred by the Chief of Coast Artillery to the Coast Artillery Board for consideration and recommendation.

Project No. 475, Service Test of Diaphragm Gas Masks.—Ten diaphragm type gas masks which have been adopted for manufacture and issue to the service in addition to the Mark I (Model 1919) face piece have been sent to the Coast Artillery Board for an extended service test.

Completed Projects

Project No. 415, Trial Shot Problem for Antiaircraft Artillery

I—HISTORY OF THE PROJECT.

1. Letter O. C. C. A., dated November 9, 1925, Paragraph 2, states:

It is not believed that the present method of firing trial shots and of computing and applying the results are such as to produce the maximum possible benefits. In the report of recent firings the lack of faith of officers in the present method is evidenced by their attempts to modify it in one or more of the following particulars:

- (1) Method of observing the burst.
- (2) Method of computing results of observation.
- (3) Method of applying results of computation to subsequent firing data.

The necessity for a standardized system of conducting trial shot firing, computing the results, and applying this to subsequent firing is apparent.

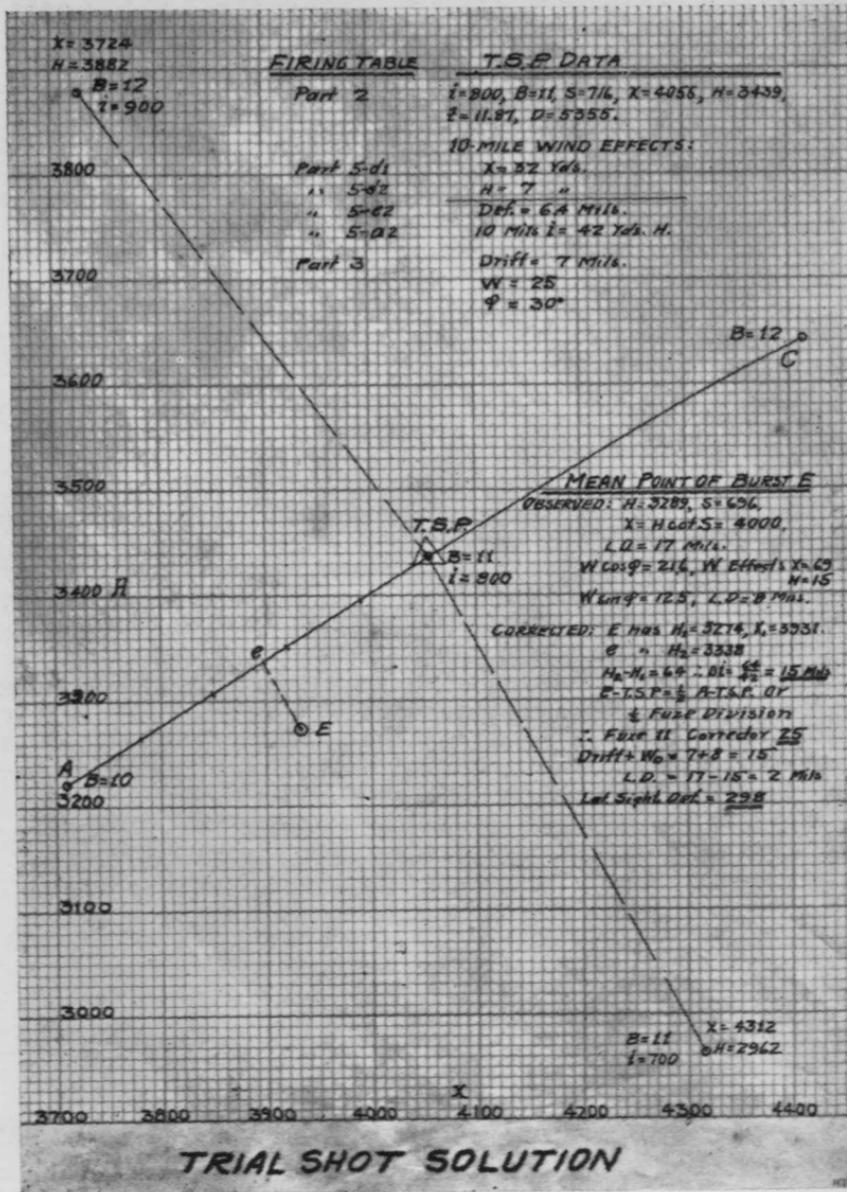


FIG. 1

II—DISCUSSION.

2. In Section XI, "Preparation of Fire" in *Gunnery and Position Finding for Antiaircraft Artillery* the trial shot method given is applicable to fire at the summit of the trajectory and the altitude correction is termed the most important element of the trial shot problem. A per cent altitude correction was determined and applied to the percentage scale on the 1920 altimeter. The fuze range error was corrected by means of a flat correction applied on the corrector scale of the fuze setter. A further correction was applied for variations from firing-table time of flight, obtained in percentage, but not successfully applied on the R. A. Corrector. Lateral error after correction for wind and drift is applied as a flat correction.

3. A method, simple and quick, permitting the use of trial shots at any point that will provide corrections for fire upon a target anywhere, and applicable to present instruments is what is desired. The new data computers under construction for test will permit corrections for wind, drift, and muzzle velocity within the computer. After correcting for these variables, trial shots should produce much lesser deviations from the trial shot point. With smaller deviations, corrections with larger percentage of error may be permissible. When using the Model 1920 Altimeters, with base line for measuring altitude, percentage corrections for altitude could be applied. With the stereoscopic height finders now on hand, no percentage correction for altitude is applicable directly to the instrument. This may be corrected in future instruments. Present fuze setters have no means of applying directly a percentage correction for the fuze corrector. The R. A. Corrector permits no percentage corrections for altitude, fuze range, or time of flight.

4. The method described in paragraph 2 is that developed and used by the French Antiaircraft Artillery during the war. It is prescribed that the selected trial shot point be at the summit of the trajectory, because at the summit the altitude results are least affected by fuze variations. This method is the one taught in the Coast Artillery School and supposedly in general use. However, unofficial information is that this method, as prescribed, seldom has been used by our organizations. Many times the method, in part, has been tried, using a trial shot point not at the summit but on the ascending branch of the trajectory, under which conditions corrections obtained were in error. It is prescribed and desirable that trial shots be fired at the altitude and range where it is expected that fire will be opened upon a target. In service this point will, usually, be at the summit of the trajectory, that is, at extreme effective range. In target practice, because of visibility and safety conditions, fire on sleeve targets at such ranges can seldom be held. Therefore, a method of firing trial shots on the ascending branch at altitude and ranges expected during the target practice has been the subject of experimentation by various gun batteries. Most of the means used have been incomplete, or mathematically incorrect, or unnecessarily obtuse and complicated, or for some reason unsatisfactory.

5. Percentage corrections for altitude, fuze corrector, quadrant elevation, etc., are not mathematically accurate but they are more nearly true for points other than the trial shot point than the flat corrections obtained for the trial shot point. In Coast Artillery Board Project No. 472, "Percentage Correctors for Altitude and Fuze Setter," there will be recommended a circular slide rule for percentage corrections in altitude when use of such is desired, and a circular slide rule for percentage corrections for the fuze setter corrector. For setting fuze corrector an additional man is needed at the fuze setter whose duty it is to change the corrector as obtained from the percentage device. The device will be simple, quick and

easy to use. The main objection is the necessity of extra personnel. These devices can be easily constructed from the photographic prints which can be supplied by the Coast Artillery Board.

6. Battery "B," 61st Coast Artillery (A. A.), during the past few weeks fired 205 rounds to obtain data for study of the trial shot problem. Table I is a compilation of data obtained. The tabulation shows the trial shot point data with date, hour, gun number, number of shots, wind, temperature, and density for each trial shot series, also the coordinates of the plot of the mean position of the trial shot series; the mean altitudes as obtained from the mirror position finder and from the stereoscopic height finder. Corrections were obtained by two methods, *i. e.*, the Altitude Correction Method and the Quadrant Elevation Correction Method, both obtained by graphical solution. No wind corrections, as such, were applied. Analysis of results shown in Table I demonstrates that the correction by either method can put bursts upon the Trial Shot Point but neither flat corrections nor percentage corrections will correct to put the bursts upon any other point. It is noticeable that different series fired at the same trial shot point at hourly intervals will give different corrections. The altitude corrections vary, within one hour, firing the same gun, from +17.6% to +3.8%. Likewise, the fuze corrector varies from -16.1% to -3.5% and the Quadrant Elevation Correction from +6.7% to +1.8%. The Quadrant Elevation Correction, however, for points not varying beyond two hundred mils in quadrant angle of elevation and several units of fuze range, usually varies to no considerable extent.

7. Table I shows the variation in altitude readings of bursts when taken simultaneously by the Schneider Stereoscopic Telemeter and by the Mirror Position Finder. The Telemeter read low on 80% of the bursts and varied from 2 to 250 yards low, averaging about 70 yards low. The newer Levallois Height Finders may prove more accurate, but ranging upon the indefinite outline of a burst with either stereoscopic instruments or the 1920 Altimeter will probably always be subject to error. If the position of the burst cannot be definitely established, no trial shot corrections can be accurate. One suggestion is to plot the position of the burst by angular height and time as taken by stop watch. This has not been established as practicable, rather the contrary. Tests with the Schneider instrument with the Mirror Position Finder reading on sleeve targets shows the readings from the stereoscopic device to vary from the readings from the Mirror Position Finder which were accepted as accurate. If altitude cannot be determined with extreme accuracy it is useless to make refined corrections in altitude.

8. Deviations from expected point of burst are due to changes from firing table conditions in: (a) muzzle velocity, (b) wind, (c) drift, and (d) density, and to (e) errors of laying, (f) errors of observation, and (g) materiel errors of gun and fuze. The only accurate method of placing bursts on a succession of points differing in elevations or fuze is to correct continuously during fire for the causes of deviations of these causes; (a), (b), (c), and (d) can be corrected to conform to range table conditions; (e), (f), and (g) can be corrected partially by training and by improved materiel. Trial shots fired after the application of ballistic corrections should result in deviations much smaller than developed at present. The cause of this deviation can be assumed as muzzle velocity and corrected for as such, or a flat or percentage correction applied in elevation, altitude, or fuze. Errors in such application being small, corrections should not be prohibitive. The use of correction boards for altitude, elevation and fuze, using basic principles in use in seacoast artillery, is now the subject of investigation by the Coast Artillery Board and will be the subject of a later project.

9. The deviation of any burst from the expected point of burst is the combined effect of causes listed in preceding paragraph. Not only the effects of all causes but some of the causes themselves vary for every different point in space. Therefore, any corrections applied as result of trial shots will apply only for that trial shot point, regardless of what method of trial shot correction is used. Causes or effects follow no rule so simple as percentage. However, for fire upon a target in the general vicinity of a trial shot point, corrections for that trial shot point will be reasonably accurate. At the present time and with equipment now in use the proper service condition would be to fire trial shots at about six trial shot points, for example:

<i>Elevation</i>	<i>Fuze</i>	<i>Elevation</i>	<i>Fuze</i>
400	8	1000	8
600	16	1000	18
800	10	1200	10

Corrections obtained would be listed as applicable to these points and the battery commander would apply the corrections for the trial shot point nearest the target, with additional wind corrections. The greater the number of trial shot points, the greater the accuracy. This system would be extravagant in ammunition and cumbersome in application but more accurate than the use of a single trial shot point.

10. The trial shot method promising most, considering simplicity and accuracy, is as follows:

a. (1) Select a trial shot point in the center of the expected field of fire. For target practice, this is the center of the 60° arc in front of the battery, at the mean of the expected altitude and fuze ranges.

(2) Record the range table data for the trial shot point—altitude (H), angular height (S), fuze (B), time of flight (t), also the intensity and direction of the wind (W) as given in the meteorological message.

(3) Fire five rounds with gun carefully laid on range table data.

(4) Read and record the altitude, angular height, and time of flight for each burst, and determine the mean of the readings.

b. (1) On a fuze chart with scale about 1 inch to 250 yards or on cross-section paper, plot (to a scale sufficient to permit plotting in altitudes to within about 10 yards) a section of the trajectory through the Trial Shot Point showing the trial shot point, the point on that trajectory for the next higher and next lower fuze range. Plot also the point on the next higher and lower trajectories having the same fuze range as the trial shot point. Correct these points of equal fuze ranges by drawing the fuze range curve (straight lines from the trial shot point to upper and lower trajectories will be sufficiently accurate).

(2) Plot the mean point of burst, *E*, after correcting for wind. The range component of the wind (*Wr*) is equal to $W \cos \phi$, where ϕ is the windplane of fire angle. In paragraph 5-*d* of firing tables, "Differential Effect for Rear Wind," the effect is found on altitude and horizontal range for the value *Wr* at the trial shot point. From *E* draw a line parallel to the line of equal fuze ranges to intersect the trajectory through the trial shot point at the point *e*. The altitude of the *E* call *H*₁, the altitude of *e* call *H*₂. Then *H*₂—*H*₁ is the altitude change.

(3) Part 5-*a*(2) of firing tables gives the effect on altitude for a ten-mil change in angle of elevation. Using the altitude change as the argument, enter this table to obtain the number of mils change in angle of elevation at the trial shot point that are necessary to move the trajectory through the point of burst so it will pass through the trial shot point. This angle of elevation correction can

TABLE I. TRIAL SHOT DATA

DATE	HOUR	GUN No.	SHOTS	TRIAL SHOT POINT DATA								PLOT OF BURST				CORRECTIONS								H METHOD				H		WIND	TEMP.	DENSITY %
				b	i	x	H	s	t	BY		BY		i	%	CORR. DIV.	%	H %	CORR. %	t	t	TELE.	MIRROR									
										THRODOLITE	MIRROR P.F.	MIRROR	P.F.																			
5-4	1:50 P.	3	5	9	500	3953	1786	432	8.86	3924	1698	3903	1608	19	+3.6	+1	+1.1	+12.5	-7.9	+3	-10.6	1660	1698	No	62	102						
5-4	1:50 P.	3	5	11	800	4055	5439	716	11.87	4200	3367	4203	3367	28	+3.6	+2	+1.8	+12.86	-7.9	+3	-10.6	3300	3367	No	62	102						
5-6	1:00 P.	2	5	11	800	4055	5439	716	11.87	3913	3905	3905	3205	13	+1.6	+4	+3.7	+7.7	-4.3	+1.2	-4.1	3270	3295	No	62	101						
5-6	1:20 P.	3	5	9	400	3903	1786	432	8.86	4013	1739	1739	1739	18	+6.6	+1	+1.1	+9.8	-7.9	+7	-6.6	1705	1739	No	62	101						
5-6	1:35 P.	1	5	13	1000	4022	4682	898	16.00	3635	4045	3786	4045	8	+3	+8	+4.4	+7.3	-3.0	+1.2	-2.7	4650	4645	No	62	101						
5-10	1:15 P.	1	5	9	500	3953	1786	432	8.86	4117	1747	4020	1747	20	+4	+4	+4.4	+12.5	-17.4	+4	-15.7	1728	1747	No	70	98						
5-10	1:20 P.	3	5	13	1000	4022	4682	898	16.00	4045	4178	4745	4045	42	+4.2	+0	+2.4	+11.8	-12.7	+1	-17.7	4650	4735	No	70	98						
5-10	2:20 P.	1	3	19	800	6825	4405	581	23.6	4745	4200	6722	4200	27	+3.4	+4	+2.1	+5.2	-4.0	+3	-3.6	4000	4200	No	70	98						
5-11	12:00 P.	1	5	9	500	3953	1786	432	8.86	4215	1800	4199	1780	20	+4.0	+7	+7.8	+10.5	-18.0	+2	-17.6	1785	1780	No	64	100						
5-11	12:15 P.	2	5	9	500	3953	1786	432	8.86	4040	1721	3967	1721	21	+4.2	+2	+2.2	+13.4	-16.0	+4	-13.4	1660	1721	No	64	100						
5-11	12:30 P.	3	5	9	500	3953	1786	432	8.86	4005	1705	3953	1705	23	+4.6	+1	+1.1	+14.5	-16.0	+4	-16.2	1680	1705	No	64	100						
5-11	1:00 P.	3	5	11	X	800	4045	3439	716	11.87	4240	3288	4158	47	+5.9	+2	+1.8	+19.3	-19.5	+27	-12.8	3150	3288	No	64	100						
5-11	1:10 P.	3	5	13	1000	4022	4682	898	16.00	4345	4601	4150	4601	62	+8.2	+2	+1.5	+18.3	-17.7	+0	-24.5	4430	4601	No	64	100						
5-11	1:25 P.	3	5	19	X	800	6825	4405	581	23.6	6774	4180	6689	4180	+29	+3.6	+3	+1.5	+5.72	-5.2	+3	-4.8	3970	4180	No	64	100					
5-17	1:00 P.	2	5	9	500	3963	1786	432	8.86	4120	1776	4135	1776	14	+2.8	-5	-5.5	+8.5	-14.3	+3	-12.5	1700	1776	No	72	98						
5-18	10:20 A.	1	5	9	500	3963	1786	432	8.86	4014	4055	4055	4776	7	+1.4	+2	+2.2	+4.6	-7.2	+2	-5.6	4920	4776	No	72	98						
5-18	1:00 P.	3	5	13	1000	4022	4682	898	16.00	4117	4681	4080	4981	4	+4	-3	-2.3	-1.34	+8	-3	-3.8	4725	4981	N	72	98						
5-18	1:58 P.	2	5	9	500	3953	1786	432	8.86	4100	1802	4038	1802	6	+1.2	+4	+4.4	+4.3	-9.1	+12	-8.5	1600	1802	N	72	98						
5-18	2:00 P.	2	5	11	800	4055	5439	716	11.87	4135	3344	4134	3340	26	+3.2	-1	-0.9	+12.5	-13.4	+25	-14.7	3550	3344	N	72	98						
5-21	1:15 P.	4	5	9	500	3953	1786	432	8.86	4068	1750	4200	1750	33	+2.6	+2	+2.2	+8.6	-13.2	+22	-10.0	2153	1750	No	72	99						
5-24	1:30 P.	3	5	9	500	3953	1786	432	8.86	4023	1746	4040	1746	14	+2.8	-2	+2.2	+9.3	-12.2	+4	-9.2	1724	1746	No	72	99						
5-24	2:20 P.	2	5	9	500	3953	1786	432	8.86	3930	1721	3973	1721	14	+2.8	+1	+1.1	+9.5	-9.9	+2	-8.7	1719	1721	No	72	99						
5-24	2:27 P.	1	5	9	500	3953	1786	432	8.86	3910	1721	3935	1721	14	+2.8	+1	+1.1	+9.8	-10.4	+15	-9.7	1749	1721	No	72	99						
6-2	1:20 P.	1	5	9	500	3953	1786	432	8.86	3990	1768	4006	1768	+3	+6	0	0	+2.4	-2.2	+2	+2.0	1746	1768	No	72	99						
6-3	1:50 P.	2	7	9	500	3953	1786	432	8.86	3922	1747	3846	1747	7	+1.4	+1	+1.1	+5.1	-5.2	-14	1721	1747	No	72	99							
6-10	10:40 A.	3	5	13	1000	4022	4682	898	16.00	4060	5000	4303	5000	70	+7.0	-16	-12.3	+14.1	-23.5	-1.61	-38.8	4920	5000	No	62	102						
6-10	10:50 A.	3	5	19	800	6825	4405	584	23.6	6850	4211	6818	4211	25	+3.1	+1	+1.5	+4.9	-5.5	+7.3	-3.6	4070	4211	No	62	102						
6-10	11:05 A.	3	5	11	800	4055	5439	716	11.84	4105	3342	4105	3342	53	+6	-6	-2.2	-22.4	+4	-25	3260	3342	No	62	102							
6-10	11:15 A.	3	5	9	500	3953	1786	432	8.86	4020	1751	4102	1751	13	+2.6	-2	-2.2	+8.5	-11.7	+37	-9.0	1760	1751	No	62	102						
6-10	1:10 P.	3	5	9	500	3953	1786	432	8.86	4000	1704	3722	1704	39	+3.8	-3	+3.7	+16.9	-20.6	+0.3	-21.3	1678	1704	No	64	100						
6-10	1:30 P.	3	5	11	800	4055	5439	716	11.87	3980	3224	4032	3224	30	+3.8	+4	+3.6	+16.0	-20.6	+3	-9.8	3178	3224	No	64	100						
6-10	1:53 P.	3	5	19	800	6825	4405	584	23.6	6900	4192	6672	4192	67	+6.7	+6	+3.1	+5.4	-6.5	+6	-5.3	4150	4192	No	64	100						
6-10	2:04 P.	3	5	13	1000	4022	4682	898	16.00	4210	4624	4172	4624	67	+6.8	+0	-0.1	+17.6	-16.1	+24	-21.5	4740	4624	No	64	100						
6-10	2:11 P.	3	5	19	1200	4670	6975	900	30.7	5030	6765	4512	6765	44	+2.7	+1	+5	+8	-10.8	-2.7	-19.5	6900	6765	No	64	100						
6-10	2:23 P.	3	5	9	500	3953	1786	432	8.86	3940	1700	3926	1700	39	+2.6	+4	+4	+8.9	-6.1	+3	-3.1	1704	1700	No	62	101						
6-10	2:31 P.	3	5	11	800	4055	5439	716	11.87	4000	3380	4090	3380	41	+2.5	+1	+2.7	+10.2	-11.1	+3	-9.0	3300	3380	No	62	101						
6-10	2:41 P.	3	5	19	800	6825	4405	584	23.6	6900	4208	6819	4208	51	+1.8	+1	+1.5	+5.0	-5.9	+0.7	-7.3	4007	4208	No	62	101						
6-10	2:49 P.	3	5	13	1000	4022	4682	898	16.00	4160	4334	4331	4334	24	+2.4	+2	+1.5	+7.4	-8.5	+58	-9.1	4810	4334	No	62	101						
6-10	3:00 P.	3	5	9	500	3953	1786	432	8.86	3990	1725	4047	1725	16	+3.2	+3	+3.0	+10.7	-12.6	+32	-10.4	1680	1725	No	64	100						
6-10	3:05 P.	3	5	11	800	4055	5439	716	11.87	4100	3305	4061	3305	29	+3.6	+1	+1.9	+14.1	-13.4	+2	-15.0	3210	3305	No	62	101						
6-10	3:10 P.	3	5	19	800	6825	4405	584	23.6	6880	4251	6786	4257	20	+2.5	+2	+1.1	+3.8	-3.5	+38	-5.8	4217	4257	No	62	101						

be set either on the sight elevation scale or preferably on the arbitrary vertical deflection scale on the gun.

c. The burst is now on the proper trajectory at the point *e* but beyond or short of the trial shot point. Scale off this difference and apply on the corrector the difference between fuze range of *e* and that of trial shot point. When percentage devices are available correction is applied as percentage.

d. The lateral deviation of the mean point of burst is corrected for the wind and drift effects as found in the firing tables. Remaining error is set in opposite sense on the arbitrary lateral deflection scale of the sight, or can be placed on lateral deflection scale on the R. A. Corrector. Drift can be left in the lateral deviation and applied with the error as a flat correction. Drift will vary little for target practice and no provision is made in present equipment for changing the correction for drift during fire. For target practice the lateral wind effect can be left in with drift, etc., and applied in bulk with total lateral deviation as a correction. However, the lateral wind effect varies with the azimuth and for service should be corrected for by Wind and Parallax Computer or a Wind Component Indicator.

11. Appended is a copy of instructions for above method. Figure 1 is a sample of a solution.

III—CONCLUSIONS.

12. It is the opinion of the Coast Artillery Board that:

a. The idea that corrections based on trial shot fire at one point in space can apply to fire at any other point is incorrect to a degree varying with the changes in range and elevation.

b. A revision of present data computing system to include corrections for variations from normal in muzzle velocity, wind, density, and drift to be applied continuously will reduce trial shot deviations to a lesser magnitude, permitting larger percentage error in the universal application of the corrections obtained from trial shots.

c. Trial shots fired at a point in the expected field of fire will furnish corrections reasonably applicable to points in the vicinity; *i. e.*, for target practice trial shots fired in center of expected field of fire will give sufficiently accurate corrections.

d. The method of correcting quadrant elevation and fuze corrector described in paragraph 10 is the most satisfactory method for target practice purposes.

e. Fuze charts with scale 1 inch = 200 yards should be furnished batteries for use in graphic solutions of trial shots and for purposes of study and analysis. Fuze ranges could be indicated to fifths.

f. There is nothing basically wrong with trial shot solution prescribed in *Gunnery and Position Finding for Antiaircraft Artillery* when fired at the summit and when corrections are applied to fire at the same point.

g. Observation of altitude of burst is subject to error.

h. Angular height to burst should be read by theodolite to obtain necessary accuracy.

i. Location of bursts by angular height and time of flight is a possibility deserving further consideration.

IV—RECOMMENDATIONS.

13. The Coast Artillery Board recommends:

a. That antiaircraft organizations be cautioned that trial shots fired at one point do not provide corrections truly applicable elsewhere.

b. That for target practice, trial shots be fired as given in paragraph 10.

c. That the Ordnance Department be requested to furnish fuze charts with scale 1 inch = 200 yards.

d. That the future development in computing instruments, and if practicable, changes in use of present equipment provide for ballistic corrections.

V—ACTION OF THE CHIEF OF COAST ARTILLERY.

14. Proceedings of the Coast Artillery Board on the above mentioned project are approved.

APPENDIX

TRIAL SHOT CORRECTIONS

(*Elevation and Fuze Corrector*)

I. INSTRUCTIONS:

a. Select Trial Shot Point in center of expected field of fire at expected altitude and fuze range.

b. Record for T. S. P. data from firing tables as follows:

Part 2—(i), (B), (S). (X—horizontal Range) (H) (t) (D).

“ 5d—1 Wind effect on X

“ 5d—2 Wind effect on H

“ 5e—2 Wind effect on L. D.

“ 5a—2 Change in H for 10 mil change in *i*

“ 3 Drift

Also intensity and direction of wind (W) from meteorological message and value of wind fire angle ϕ .

c. Plot on cross section paper, scale 1 inch = 200 yards (or use fuze chart of similar scale) section of trajectory through T. S. P. from next lower to next higher fuze range curve. Plot points on next higher and next lower trajectories with fuze range of T. S. P.; construct curve of equal fuze range by connecting these points with T. S. P.; take all necessary data from Part 2, firing tables. (Plots can be prepared for different trial shot points and used as needed).

d. Record H and S, data for mean point of burst. Plot by H and X ($X = H \cot S$), or by H and S, using protractor. Correct for wind effects ($WR = W \cos \phi$) on H and X, (or S) getting E.

e. From corrected position of point of burst (E) draw line E—*e* parallel to curve of equal fuze range T. S. P. intersecting trajectory at *e*. Read altitude (H_2) of *e*. $H_2 - H_1 =$ altitude change.

f. From part a—2 Firing Table determine *Change in Elevation* for altitude change.

g. Scale off distance *e*—T. S. P. Apply on *fuze corrector*.

h. Lateral Deflection. Correct for wind and drift. Remainder apply as flat correction. Drift, apply and change when necessary. Wind correction taken from Wind and Parallax Computer.

BOOK REVIEWS

Napoleon's Campaign of 1812 and the Retreat from Moscow. By Hilaire Belloc. Harper Bros., New York. 1926. 5¼"x 8¼". 284 pp. Ill. \$3.50.

Hilaire Belloc, one of England's best-known writers, has written a vivid narrative of Napoleon's Campaign of 1812 and the Retreat from Moscow. The book is a popular history rather than a critical study, but Mr. Belloc is a sound historian and has gone over the ground in order to understand two important factors in the campaign: the vastness of Russia and the mortal cold and terrible heat that proved such strong allies to the Russians.

The writer considers the decision of Napoleon at Smolensk to continue the march to Moscow the turning point of the campaign and speculates on what might have happened had the Emperor stopped here and consolidated Western Europe.

His answer to the question: "Why did he determine to go forward?" is interesting.

It was not the success of his distant wings to the right or left, nor was it alone the presumption that the holding of Moscow, because it was a capital, would mean the control of a people. It was the effect of experience upon a soul all alive with experience. Time and again, from the days when he had first heard the "Marseillaise" there had struck—sharp, immediate, and deep—into the memory of this Gunner the result of a decision. Force a battle and win it. When you have won it all complexities are resolved. You have killed the cat. Is not that the whole meaning of Arcola, of Austerlitz, of Friedland? Is it not also the driving power of man—the desire to reach one clear end? And of all men soldiers are most fully men. Experience, the closest of guides, held Napoleon tight and, as it were, grasped his right wrist and drew him forward, forcing him into unwisdom. * * *

* * * A rule, a memory, an experience, a mode of thought must never be allowed to deflect the direction of your effort to confuse clear reason. If you allow such a deflection, and if it is serious, you will fail. You must want one thing, not two! How Napoleon, setting forward from Smolensk in the third week of August, 1812, allowed an experience, a memory, a habit—the effect of past pitched battles won—to color and therefore to cloud his reason. He had two incompatible pictures before his mind: one, the nature of the problem; the other, habit, or memory: victory immediate. He trusted the last. He went forward.

Large type, specially drawn maps, lucid style, and sound scholarship combine to make this book an excellent narrative of the campaign it portrays.—W. W. L.

The Next War. By N. F. Hall, Z. Chafee, Jr., and M. O. Hudson. The Harvard Alumni Bulletin Press, Cambridge. 1925. 4½"x 6½". 109 pp. \$1.00.

Under the above title three learned members of the Harvard faculty present the academicians' view of war in general and of the next war in particular. It is not necessary that we agree with every thought in these papers in order to derive benefit from them, and they should certainly be of interest to members of the military profession.

In the first paper, "Science in War," Dr. Norris F. Hall, Instructor in Chemistry, indulges in random speculations on the development of military technique

and material. Lacking in progressive, logical analysis, he is not particularly convincing.

Under the caption, "The Conscription of Public Opinion," Zachariah Chafee, Jr., Professor of Law in Harvard Law School, delivers a fervent plea against the Espionage Act of 1917 and against the spirit of intense nationalism which permits and enforces war-time censorship. His argument contains food for thought, but, as with the preceding speaker, his intolerance and narrowness are distasteful to any one who has an intelligent conception of preparedness.

Manley O. Hudson, Professor of International Law, presents the final paper, "The Stacking of the Cards." His purpose is to show that war is usually ineffectual because war aims change during the progress of hostilities and the treaty of peace rarely shows any relationship to the immediate causes of the war. He is an enthusiastic supporter of the League of Nations and the World Court. His argument is well constructed, and by broad-minded cosmopolitanism he accomplishes what the other two speakers failed to accomplish in carrying the audience with them.—P. H. F.

The World Court. By Antonio S. de Bustamante. The MacMillan Company. 1925. 6"x 9¾". 379 pp. \$3.00.

Senor de Bustamante, a Judge of the Permanent Court of International Justice, having a long and wide acquaintance with international jurisprudence, has herein presented the first authoritative volume on the world court to appear in English. The history of the movement for international justice is covered with a detail surprising for so brief a book.

Questions relating to the world court, its constitution, its judges, its organization, its operation, its finances, its jurisdiction, its procedure, and its judgments are answered most clearly and concisely. The statute of the court is given as an appendix to the volume. For him who would make a detailed study of the world court, a most inclusive bibliography of literature thereon is appended.

Those who would have an intelligent understanding of the world court, its history, constitution, and actions with a minimum of effort can do no better than read Judge de Bustamante's book.—G. H. B.

History of Fort Leavenworth, 1827-1927. By Major Elvid Hunt, U. S. A. The General Service Schools Press, Fort Leavenworth. 1926. 6"x 9". 298 pp. Ill. \$2.00.

On April 17, 1817, four companies of the 3d Infantry left Jefferson Barracks for the purpose of establishing a permanent cantonment on the Missouri River, near the mouth of the Little Platte, and on May 8 the commanding officer, Colonel Henry Leavenworth, reported that he had chosen the site of the present Fort Leavenworth. This tiny settlement, the first in Kansas, was in a position to cover trade routes to the Southwest, West, and Northwest, and at once became of great importance in the development of the West. There was, at first, no thought of establishing settlements in this region—in fact, the soil was considered unsuited for cultivation—but there was an ever increasing trade which required protection and escort. For years, then, Fort Leavenworth remained the only community within a radius of many miles and was, naturally, the focus, the outfitting point for the trade caravans and the exploring expeditions passing through this part of the country.

From the first, this garrison was of outstanding importance to the region it served. Its history is largely the history of Kansas. It housed the first governor

and served as the first capital of the Territory. It assisted in the transformation of an undeveloped Indian country into a Territory, and the Territory into a State. It saw the immense grass plains on which the buffalo ranged grow into one of the most productive and valuable regions of the country.

Through all these years the post itself changed, without, in any sense, decreasing its importance. As its original mission of protection against Indians passed, it developed a new mission. Little by little it lost its character of a small frontier military station, and turned more and more toward the education of the Army, with the result that today it houses one of the important military educational institutions of the world. It is well, then, as the post approaches the end of its first century of existence, to review the part it has played in the development of the Nation and of the Army.

In this volume Major Hunt presents vividly and adequately the picturesque past of Fort Leavenworth. His treatment is sympathetic and his style, in the main, lucid. He has avoided the temptation of too great detail—although at times he finds details necessary—and he has thereby achieved a very interesting and very readable book. He might, perhaps, have presented more fully, or at least emphasized, the part the Army—particularly the garrison at Fort Leavenworth—played in the development of the West. The explorations, the trail making and marking, the assistance rendered to the emigrants, the influence of the Army in the formation of the State, and the contributions of the officers in the fields of Natural Science are but lightly treated. Statistics and local details are covered in an extensive appendix. The book is well worth while.

Report on Army Maneuvers, 1925. General the Earl of Cavan, K. P., C. C. M. C., C. C. V. O., K. C. B., Chief of the Imperial General Staff. His Majesty's Stationery Office, London. 1926. 6"x 9½". 98 pp. Maps. 4 s. 6 d.

On September 22-25, 1925, England held her first Army maneuvers since the war. The troops included four infantry divisions, one Territorial infantry brigade, three cavalry brigades, eight squadrons of the Royal Air Force, and Corps and auxiliary units, all at peace strength and numbering about 41,000.

The general situation divided England and Wales into four states: Northumbria, Buckingham, Mercia, and Wessex. Wessex and Northumbria were at war, while Buckingham and Mercia mobilized their forces and declared their neutrality. Mercia, however, was drawn into the war on the side of Northumbria, and the maneuvers developed the initial operations of Wessex and Mercia.

The report of the maneuvers is very complete. After presenting the "General Idea" and the "Special Idea" for each side, the report takes up the general intentions of the two commanders and the narrative of operations with detailed comments. Section V of the report includes the complete instructions regarding training in the maneuver area. A full set of maps accompanies the report, enabling the reader to follow in every detail the progress of the maneuvers. The report is of value to American military students and can be obtained from the publishers' New York address: The British Library of Information, 8th floor, 44 Whitehall Street, New York.

A Short History of the British Army to 1914. By Eric William Sheppard. Constable and Company, Ltd., London. 1926. 5½"x 8¾". 314 pp. Maps. 14 s.

The outstanding history of the British Army is, of course, Fortescue's monumental work, but this is far too voluminous except for the military student. There being no history suited to the requirements of the general reader to be found

in print, Captain Sheppard undertook to supply the deficiency in his well written and admirably proportioned book.

The task of compressing into a single volume the long and usually glorious record of the British Army from the days of the Celtic warriors to the opening of the World War could be neither simple nor easy. Much easier would it have been to have written at greater length, but the author, by carefully weighing the relative importance of the many campaigns in all parts of the world and by ruthlessly cutting out all non-essentials, has produced a readable, rapidly moving, and well-balanced work. In fact, he has omitted details to such an extent that the book becomes more a military history of Great Britain than a history, properly speaking, of the Army itself. In any case we are given a vivid portrayal of the surprising accomplishments of the small regular British Army that has had usually to bear the first brunt of war. In this respect the book will be of all the more interest to Americans, since we place much the same reliance upon our unarmed citizenry for the military defense of the country as do the British.

In one respect his desire for brevity has led the author too far and may confuse the reader. It would have taken but a few more words here and there throughout the book to have identified better the commanders mentioned. For example, we may learn from the text that Law commanded French troops, while Caillaud appears to have been British; but we are not informed of the rank of either at the time they opposed each other. To read simply that Jones joined Smith in an attack upon Brown is scarcely conducive to clarity; but in no other respect do we find cause for criticism. The chapters on the wars with America are unbiased and—interesting to Americans—include tributes to the two outstanding American generals of our Revolutionary War—George Washington and Nathaniel Greene. The type used in the text is pleasing; the maps are adequate, though no more than so; and the index is complete.

Taschenbuch der Tanks. By Fritz Heigl. J. F. Lehmann's Verlag, Munich. 1926. 4½"x 6¾". 402 pp. Ill. 12 marks.

This handy pocket book by a well known Austrian engineer contains authoritative and up-to-date information regarding the tanks now in service or under construction in practically all the important countries of the world. It is well illustrated with 105 half-tones and over 300 sketches and diagrams.

Part I is devoted to the construction and principles of operation of tanks in general. Part II gives specifications, plans and recognition silhouettes of the individual tanks of the various powers. Part III discusses in considerable detail the methods of tank warfare with particular emphasis on the means of defense against tank attacks. The book is of value and deserves a place in every officer's library.—D. L. D.

Pocket Cyclopedia of Medicine and Surgery. 3rd Ed. By Gould and Pyle. Revised by R. J. E. Scott, M. A., B. C. L., M. D., Fellow of the New York Academy of Medicine, etc. P. Blakiston's Son & Co., Philadelphia. 1926. 3½"x 6". 922 pp. Ill.

When a work has passed into its third edition it is needless to say that it must be a popular one and one that has fulfilled its mission.

Such a work is Gould and Pyle's *Pocket Cyclopedia of Medicine and Surgery*, and the reviewer feels that it is hardly necessary to comment upon this most excellent presentation of the subject. The success of the former printings amply justifies its publication and it is believed that this new edition will be even more

popular. It has been thoroughly revised, much of it has been rewritten with the addition of new material resulting in an increase of 150 pages. Special provision has been made for the needs of the reader who looks for immediate information by increasing the number of cross references and by tabulation of data; the Physician's dose table, which is in accordance with the new United States Pharmacopeia; and other valuable information that is covered in the abstract.

It is believed that this book will meet with favor in the hands of the medical profession of the United States.—C. E. D.

Talks on Leadership Addressed to Young Officers. By Basilisk (pseud). Royal Artillery Institution, Woolwich. 2d ed. 1926. 5½"x 7½" 38 pp. 1 s. 4 d.

This little pamphlet is addressed particularly to the company officer. The author, discussing the elements of leadership, divides his subject into two parts—the group and the individual. While he does not deal with the soldier as a psychologic problem, he recognizes a difference between individuals and suggests individual treatment. For the young officer, aspiring to success in the company and to a foundation for successful leadership, the volume is full of valuable suggestions.

Chats on Naval Prints. By E. Keble Chatterton. Frederick A. Stokes Company, New York. 1926. 5"x 8". 208 pp. Ill.

Since the World War the sailing ship has practically disappeared from the ocean, and its passing has revived an interest in its past. In the days before steam there was, perhaps, no more magnificent sight than a squadron of war vessels on a stormy sea or two fleets engaged in battle at the point-blank range of the artillery of the day. Such scenes provided notable subjects for contemporary artists and many of the best prints of the seventeenth and eighteenth centuries are naval in character.

The author, taking advantage of the present interest of collectors in naval prints, has prepared an interesting volume in which he shows us capital ships in battle, fleets at sea, privateers, pirates, and slavers. He tells us somewhat of many of the more noted engravers and etchers and discusses their work. He takes us from wood engraving through engraving on steel to the more rapid processes of today. He reproduces many of the prints and in some cases he indicates the approximate market value of prints.

The book is non-technical in treatment and is, therefore, easy to read. To anyone interested in marine development, particularly to the coast artilleryman, who should be familiar historically with the evolution of the warship, the book will have a particular appeal.

The Practical Use of Books and Libraries: an Elementary Manual. By Gilbert O. Ward. 4th ed. The F. W. Faxon Company, Boston. 1926. 5¾"x 8½". 139 pp. \$2.00.

This deservedly popular manual was written primarily to provide elementary instruction in the use of books and libraries. It is well arranged, simple in language, and clear in exposition. Its contents include discussion of the structure and care of books and their arrangement in libraries, the card catalogue, reference books, magazines and magazine indexes, reference work, sources of information about books, and the purchase of books. This work will be of value to young people of high school age and could well be used as a text in high schools.

Men in War. By Andreas Latzke. Modern Library Series. Boni and Liveright, New York. 1918. 4¼"x 6½". 264 pp. \$0.95.

The author has turned to the field of fiction to portray what he deems the nature of men in war. His vision is limited to the horrible and gruesome side of the life, and his portrayal of that is vivid enough. His work, however, is negative in general character and contains little of value to the military reader.—C.S.H.

Elements of Library Methods. By L. D. Arnett. G. E. Stechert & Co., New York. 1925. 5¾"x 8". 225 pp. Ill. \$2.00.

This book has been prepared primarily as a text for students who desire to learn how to use libraries to the best advantage. It discusses catalogues and cataloguing, classification and use of reference works, the several systems of classification, and the selection and purchase of books. More general in character are chapters on types of libraries, service to the public, bookbinding, and history of books and libraries.

The discussion is approached more from the point of view of the librarian or the library assistant than that of the reading public. However, the reader who is familiar with the contents of this volume will be able to use the library with greater facility and greater intelligence. The book is scarcely extensive enough, particularly in the matter of classification, to serve as a complete text on the subject of library methods, but, as a supplement to the usual normal and high school texts, it will be valuable to students who contemplate pursuing library work.

Character and Happiness. By Alvin E. Margary. Charles Scribner's Sons, New York. 1924. 5½"x 7½". 214 pp. \$1.50.

This book, called a "simple" one by the author in his preface, is a series of sermons preached in a down-town church. While the author offers no solution to problems of every day existence, he endeavors to show his readers how to obtain the greatest happiness for themselves and others by holding up the character of the individual.

Character is such a broad word, taking in so much territory, that all aspects of life are treated under that head. Our physical being, our mental state, as well as our spiritual life, all go towards making the composite man. All of these are treated in a very understanding manner, and they will help many in these days of hectic living and speeding, where character building is more or less left to chance and to outside influence.

A person's real happiness comes from within, and should not be too much dependent on outside diversion.—L. B.

The Mastery of Fear. By William S. Walsh, M. D. E. P. Dutton & Co., New York. 1924. 5½"x 7¾". 315 pp. \$2.00.

One of the characters in Robert Louis Stevenson's *Suicide Club* says that "fear is the strangest thing there is in life." Whether this is true or not, everyone must consider that fears of various kinds largely determine our actions. In this book Doctor Walsh writes on Fear in its various aspects as it relates to life in a civilized community. Each one of us has some fear, in one form or another, and each one knows to what length he will go to escape the particular thing he fears. To some it is physical, but more often it is a mental or moral fear which attacks us.

The author has grouped these different forms in nineteen chapters, all indexed and classified. Decide for yourself which type is causing you to lose ground in the game of life and read this book for the help it can bring you.—L. B.

HOTEL ASTOR—NEW YORK

FRED'K A. MUSCHENHEIM

ARMY AND NAVY HEADQUARTERS

A Perfect Permanent Wave—Nestle's Circuline Process

Hair Dressing, Shampooing, Facial and Scalp Massaging, Manicuring, Permanent Wave, Marcel Chiropody, and all Beauty Work. First Class Line of Hair Goods Carried in Stock. Phone 224.

NICHOLAS' BEAUTY SHOP

3313 Washington Avenue

NEWPORT NEWS, VIRGINIA

The HEFFELFINGER COMPANY, Inc.

COAL, WOOD, LUMBER, and
BUILDING MATERIAL

FOOT OF
KING STREET

PHONES
23 and 58

HAMPTON, VIRGINIA

STUDEBAKER

SALES :: SERVICE :: PARTS

Newport News Motor Car Company
INCORPORATED

B. J. STEPHENSON, *Secretary and Treasurer*

232-238 27TH ST., NEWPORT NEWS

101 E. QUEEN ST., HAMPTON



The MAGNOLIA TREE INN LUNCHEON · DINNER
AFTERNOON TEA

TEA ROOM AND GIFT SHOP

ROOMS AND BOARD BY DAY OR WEEK

Special arrangements for card parties, etc.

TELEPHONE: Hampton 951

26 S. KING STREET

HAMPTON, VIRGINIA

EISEMANN'S SHOES and HOSIERY

That Satisfy

2600 WASHINGTON AVENUE

NEWPORT NEWS, VIRGINIA

McEnany & Scott

ARMY AND NAVY UNIFORMS AND EQUIPMENT

High Grade Civilian Clothes

E. T. McENANY

For 43 years manager
Cadet Store, West Point

11 WEST 56TH STREET

Telephone
CIRCLE 2811

ROBERT SCOTT

For 35 years cutter
Cadet Store, West Point

NEW YORK

L. M. NEWCOMB
President

G. K. VANDERSLICE
Vice-President

THE OLD POINT NATIONAL BANK

PHOEBUS, VIRGINIA

*Foreign
Exchange*

*Travelers
Checks*

YOUR NEAREST NATIONAL BANK
and
U.S. GOVERNMENT DEPOSITARY

WE CAN HANDLE YOUR ACCOUNT
SATISFACTORILY TO YOU

*Safe Deposit
Boxes*

*Four Per Cent Paid
on Savings*

Call on us for anything in regard to Banking

P. McK. JOHNSON, *Cashier*

The Journal of the Royal Artillery

PUBLISHED QUARTERLY

*By the Committee of the Royal Artillery Institution,
Woolwich, London, S. E. 18*

SUBSCRIPTION, £1-0-0 PER ANNUM

WHEN WRITING ADVERTISERS PLEASE MENTION THE COAST ARTILLERY JOURNAL



Used by Uncle Sam's Expert Riflemen
HOPPE'S

NITRO SOLVENT POWDER No. 9

(Trade Mark Registered)

FOR CLEANING HIGH POWER (*Springfield*) RIFLES, REVOLVERS, MACHINE
GUNS AND FIREARMS OF ALL KINDS

Necessary to the success of all contestants for honors
at every Rifle Match

For sale at Hardware and Sporting Goods Stores and at Post Exchanges

FRANK A. HOPPE, INCORPORATED 2314 N. EIGHTH ST.
PHILADELPHIA, PA.

The Philippine Trust Company

Manila, P. I.

Commercial and Savings Bank

Trust Department

Special Attention Given to Army Accounts

M. H. O'MALLEY, *President*

Ford

WE SELL ANYWHERE

Ford

SHACKELFORD AUTO COMPANY

HAMPTON, VIRGINIA

Ford

Lincoln-Ford-Fordson

Ford



FERGUSON MUSIC COMPANY

ESTABLISHED 1893

EVERYTHING MUSICAL

PHONE 566

2909-11 Washington Ave. NEWPORT NEWS, VA.



**COMPLETE LINE OF MILLINERY and
LADIES' READY-TO-WEAR APPAREL**

MRS. M. B. GAMMON

13 Mellen Street

PHOEBUS, VIRGINIA

WHY WORRY ABOUT A CAR?

You either own one or you don't. You always have two alternatives. If you don't, there is nothing to worry about, except getting one. If you do, you have two alternatives; either you insure it or you do not.

If you insure it you don't need to worry. If you don't, there are two alternatives; either you sustain an accident or you don't. If you don't, you needn't worry. If you do there are two alternatives; either you get damages, or you pay the other fellow. You have two alternatives each way. You either get paid by him or you don't. If you do, you're lucky. If you don't, you may sue. If you don't get a judgment, you're out of luck; if you do, he may have nothing you can attach and you're still out of luck. If you pay his damages, no need to worry. If you don't, he may sue you.

Have you cash to pay the judgment of damages? If you have, you're lucky. If you have not, are you judgment-proof? Can he collect? These are the answers to the last two questions, no alternatives available. If you are in the Services, No to the first, and Yes to the second. Better let us pay for you.

SERVICE TO THE SERVICES

Write for particulars, giving description of your car

**UNITED SERVICES AUTOMOBILE
ASSOCIATION**

Fort Sam Houston, Texas

**B. W. Wilson Paper
Company**

RICHMOND, VIRGINIA

*Distributors of WARREN'S
STANDARD PRINTING
PAPERS and
also all kinds of Printing Papers,
Cardboard and Envelopes*

STRATHMORE QUALITY PAPERS
for the Printer

NACHMAN'S DEPARTMENT STORE

*We extend to the members of the Association of Army and Navy Stores
the convenience of a charge account*

Washington Ave. at 30th St.

NEWPORT NEWS, VA.

BRITTON - ROWELL HARDWARE COMPANY

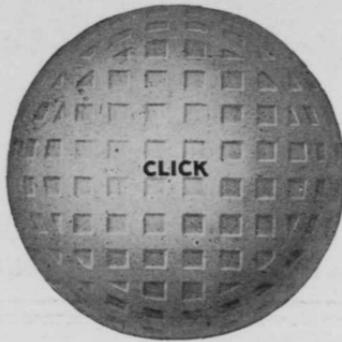
HARDWARE, PAINTS, OILS, PUTTY AND CROCKERY

Window Glass and House Furnishings

GOODYEAR TIRES AND TUBES

19-21 Mellen St., PHOEBUS, VA.

PHONE 559



Tee
up today
a Click Colonel—
the golf ball that carries
farther and lasts longer. It
has everything the perfect golf ball
should possess.



Tee
up a St.
Mungo Colonel—
the best popular priced
golf ball obtainable. Famed for
its long life, accuracy and balance.

COLONEL GOLF BALLS

The quality is higher than ever before—yet there is no advance in price! Click Colonel \$1.00 each, \$12.00 dozen; St. Mungo Colonel 75c each, \$9.00 dozen. Each one in dimpled or meshed markings.

ST. MUNGO MFG. CO. OF AMERICA
121-123 SYLVAN AVE. NEWARK, N. J.

CUT BALLS REPLACED

THE MEISTER TAILORING COMPANY

Military and Civilian Tailor

Telephone 242

P O. Box 452

Phoebus, Va.

FINE ENGRAVING

MAGAZINE SUBSCRIPTIONS

The Bookshop, Coast Artillery Journal

SERVICE PRINTING

HIGH GRADE STATIONERY



The



HIGH INTENSITY
SEARCHLIGHT

has been used exclusively by the U. S. Army and U. S. Coast Artillery for the past eight years. This fact alone proves the Sperry Searchlight as Supreme in *quality and efficiency.*

THE
SPERRY GYROSCOPE CO.
LONDON NEW YORK TOKYO

SPERRY
FOR BETTER NAVIGATION

Everything in Season

Tables for Ladies

SHERRILL'S RESTAURANT

THE PLACE FOR MEN AWAY FROM HOME

120 Mellen Street

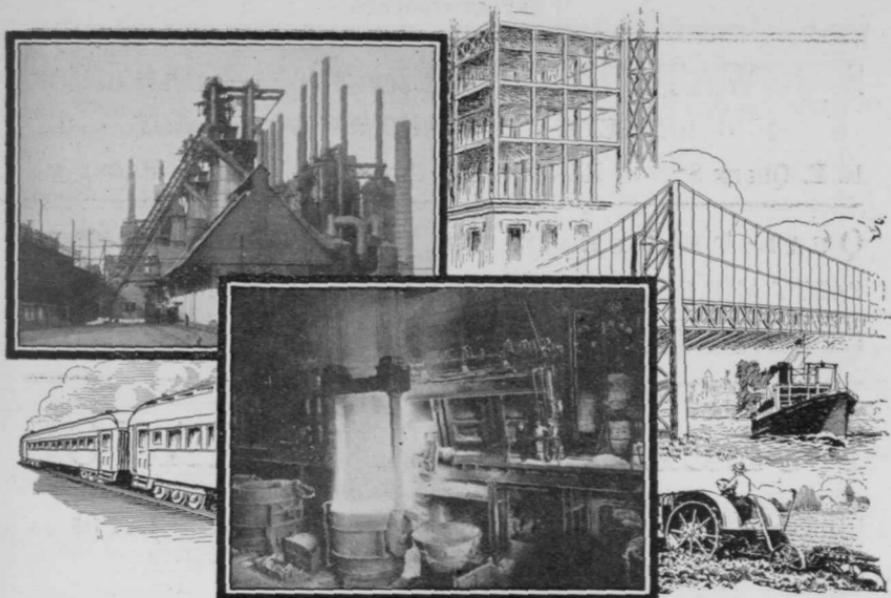
Home-made Pies a Specialty

PHOEBUS, VA.

Post Exchange Market FORT MONROE, VIRGINIA
TELEPHONE 315

Fresh Fruits and Vegetables. Everything in Season. Fresh Killed Chicken
a Specialty. Deliveries: Morning and Afternoon

M. CARLI, Proprietor



STEEL — FOR EVERY PURPOSE — IN ANY QUANTITY

STEEL is used in some form in practically every industry.

In the railroad industry, in the automotive industry, in the shipbuilding industry—steel is essential.

In the manufacture of machinery, in the erection of bridges and buildings, in the manufacture of agricultural implements—steel is a first requirement.

In the manufacture of ordnance material, in the equipment for practically every military and naval purpose—steel is indispensable.

The raw materials that go into the making of Bethlehem steel are extracted from Bethlehem-owned and -operated mines and quarries. Bethlehem-owned vessels and cars transport these raw materials to Bethlehem Plants, and complete control of every process in the manufacture—from ore to finished product—insures consistent quality. Extensive manufacturing facilities enable Bethlehem to supply steel for every purpose in any quantity.

For many years Bethlehem has shared in supplying the nation's demand for commercial steel, manufactured steel products and ordnance material.

BETHLEHEM STEEL COMPANY

GENERAL OFFICES: BETHLEHEM, PA.

PLANTS AT

Bethlehem, Pa. Steelton, Pa. Johnstown, Pa. Lebanon, Pa. Reading, Pa.
Coatesville, Pa. Lackawanna, N. Y. Sparrow's Point, Md.

BETHLEHEM

WHEN WRITING ADVERTISERS PLEASE MENTION THE COAST ARTILLERY JOURNAL

S. J. WATSON, JR., *Electrical Contractor*

IGNITION REPAIR

STORAGE BATTERIES

16 E. QUEEN ST.

RADIO—AUTO SUPPLIES

PHONE 166

QUALITY BREAD, ROLLS *and* PASTRIES

PARTY AND CLUB ORDERS SOLICITED

PHONE HAMPTON 75

QUALITY BAKE SHOP, INCORPORATED

56 W. QUEEN STREET
HAMPTON, VA.

I SELL LIFE INSURANCE

To Officers of the Army—Navy—Marine Corps

MY SELLING POINTS ARE:

Low Rates.

Suitable Policy Forms—Life, Income, Educational.

Most Liberal Disability Provision.

Monthly Premium Payment by Allotment.

Double Benefit in Case of Accident.

LAWRENCE C. CRAWFORD

MAJOR, U. S. A., *Retired*

601 Woodward Building

WASHINGTON, D. C.

JOE FRANK & SON

210 THIRTY-FIRST STREET
NEWPORT NEWS, VA.

Expert Dyers and Cleaners

Daily Deliveries to Fort Monroe

PHONE 2030

25 YEARS SERVICE TO OFFICERS OF THE CORPS

SHERWOOD INN BARBER SHOP

ANTONIO SARIBRO, *Proprietor*

LADIES' WORK SOLICITED

SHERWOOD INN

FORT MONROE, VA.

ADVERTISEMENTS

HOUSTON

PRINTERS
PUBLISHERS
ENGRAVERS

De Luxe Printing at a Fair Price



HOUSTON BUILDING

HAMPTON, VIRGINIA

WHEN WRITING ADVERTISERS PLEASE MENTION THE COAST ARTILLERY JOURNAL

*The
Army
Souvenir*

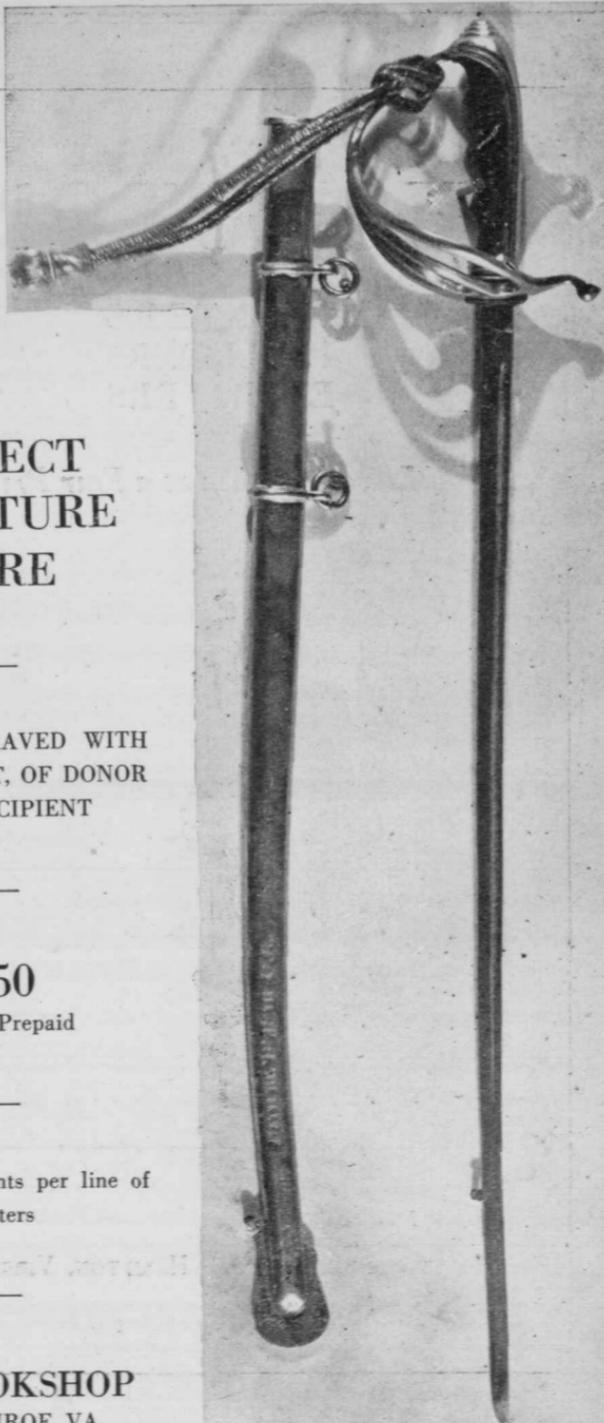
A
PERFECT
MINIATURE
SABRE

CAN BE ENGRAVED WITH
NAME OF POST, OF DONOR
OR OF RECIPIENT

\$1.50
Carriage Prepaid

Engraving 25 cents per line of
16 letters

THE BOOKSHOP
FORT MONROE, VA.



Target Practice Essay Competition

PRIZES

First Prize	\$60.00
Second Prize	\$40.00
Third Prize	\$20.00

SUBJECT: A description of a preparation for and conduct of a target practice, or any phase or feature thereof.

PURPOSE: To secure for publication in the JOURNAL, the experiences and viewpoints of officers who recently have trained for, engaged in, or reported upon the results of target practices.

NOTE: This Competition is additional to and not in place of the JOURNAL'S Annual Prize Essay Competition.

CONDITIONS

(a) The competition is open to any officer of the Coast Artillery branch of the Regular Service, National Guard or Organized Reserves.

(b) The articles must be descriptive of practices held between November 1, 1925, and September 15, 1926, at batteries of 3-inch guns or larger caliber.

(c) Articles may relate to Fixed Artillery, Tractor Drawn Artillery, Anti-aircraft Artillery or Railway Artillery.

(d) Articles must not exceed 3000 words in length (approximately eight typewritten, double spaced pages of legal cap paper). Photographs, drawings, etc., may however, be submitted in addition if desired.

(e) All articles entered in the competition become the property of the JOURNAL.

(f) No competitor may submit more than one article.

(g) Articles must be received on or before October 1, 1926, and be addressed to the COAST ARTILLERY JOURNAL.

(h) Award will be made by a Committee of Award consisting of three officers to be nominated by the Editor.

(i) Articles must contain nothing to indicate authorship. They must be signed with a *nom de plume* and must be accompanied by a sealed envelope containing the *nom de plume* and the name of the person submitting same. These envelopes will remain in the hands of the Editor of the JOURNAL until after the award has been made by the Committee. They will then be opened by the Executive Officer of the Third Coast Artillery District.

F. W. DARLING, *President*

H. H. HOLT, *Vice-President*

W. H. FACE, *Cashier*

G. B. BRADFORD, *Asst. Cashier*

The Bank of Hampton, Virginia

HAMPTON, VIRGINIA

Located Near Fort Monroe, Virginia

“A FRIEND TO THE ARMY”

Capital, Surplus and Profits - over \$550,000.00

Resources over 3,000,000.00

The OLDEST BANK on the PENINSULA

You can, and a great many officers do, bank with us as easily by mail as in person. Write to us about it. Special attention given to all Army Accounts and we will be pleased to serve or advise in all financial or business matters.

4% Interest Paid on Savings Deposits