

THE GENERAL BOARD

United States Forces, European Theater

REPORT

ON

STUDY OF FIELD ARTILLERY OPERATIONS

MISSION: To Study the Tactical Organization for Combat and Employment of Artillery with All Command Echelons in the European Theater of Operations. This Includes Recommendations Concerning Changes in Published Artillery Doctrine.

The General Board was established by General Orders 128, Headquarters European Theater of Operations, US Army, dated 17 June 1945, as amended by General Orders 182, dated 7 August 1945 and General Orders 312 dated 20 November 1945, Headquarters United States Forces, European Theater, to prepare a factual analysis of the strategy, tactics, and administration employed by the United States forces in the European Theater.

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STUDY OF FIELD ARTILLERY OPERATIONS

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STUDY OF FIELD ARTILLERY OPERATIONS

PART ONE

GENERAL

CHAPTER 1

MISSION AND SCOPE OF REPORT

1. Mission: To study the tactical organization for combat and employment of artillery with all command echelons in the European Theater of Operations. It will include recommendations concerning changes in published artillery doctrine.

2. Scope. Since many of the subjects under tactical employment of artillery are presented in other reports, and because of the many aspects of artillery support, this report is limited to a general discussion of the employment of artillery with emphasis on tactical organization for combat, liaison maintained, analysis of fires and fire plans, ammunition expenditures, and noteworthy deceptive practices employed in type operations. Because of their importance, and the fact that ammunition is covered in another report, the greatest space in this report is allocated to tactical organization for combat and fires and fire plans. In general, the corps was the highest echelon of command exercising tactical control of field artillery. Therefore considerable emphasis is placed on the corps artillery organization for combat. Although few corps artillery commanders, either directly or through the corps commander, interfered with the functioning of the organic division artillery, their influence was felt. The attachments to divisions, the assignment of reinforcing missions, the missions assigned to general support artillery and many other parts of the corps artillery organization for combat influenced liaison, communications, fire plans, division artillery organization, and artillery support in general. A study of the artillery support rendered in 15 specific operations, dealing particularly with the above named subjects, is included in Part Two. The discussion in Part Three is based on the 15 operations presented in Part Two, the after action reports of Third Army Artillery, the report of "Artillery in the Ardennes" from First Army Artillery Information Service, May 1945, and the reports of the artillery conferences of both the Third and Seventh Armies. Conclusions and recommendations are presented in Part Four.

CHAPTER 2

ROLE OF FIELD ARTILLERY AND DEFINITIONS

3. Role of Field Artillery. "Field artillery is a supporting arm. It contributes to the action of the entire

force by giving close and continuous fire support to infantry (cavalry) (armored) units and by giving depth to combat by counterbattery fire, fire on hostile reserves, fire to restrict movements in rear areas, and fire to disrupt command agencies."<sup>1</sup>

#### 4. Definitions.

a. Close Support. Field artillery close support is fire upon those hostile weapons which are holding up the immediate advance of the supported elements.

b. Flexibility of Field Artillery. The flexibility of field artillery has two major aspects, both leading to the delivery of massed artillery fire. First, the organization is such that units may be massed behind corps or divisions as desired and, second, the fire of many units may be shifted rapidly both laterally and in depth without changing positions.<sup>1</sup>

c. Tactical Organization for Combat. "The artillery of a command is organized for combat by attaching units where necessary and by assigning missions to the subordinate artillery units."<sup>1</sup> It may be more simply and probably more forcefully defined by quoting the Commanding General, XII Corps Artillery.<sup>2</sup> "Organization for combat means 'How do we fight'."

#### d. Types of Employment.

(1) Direct support artillery has the primary mission of supporting a subordinate unit of a command. Direct support artillery is not attached to the supported unit but remains under the control of the higher artillery commander. However, fire missions of a unit in direct support usually come directly from the supported unit, and the commander of the direct support unit is free to maneuver as necessary in order to furnish maximum aid to the supported unit.<sup>1</sup>

(2) "General-support artillery has the (primary) mission of supporting the command as a whole. It is held under the control of the artillery commander. It is an immediate reserve available to the force commander with which he can influence the action."<sup>1</sup>

(3) "An artillery unit with a reinforcing (secondary) mission receives calls for fire directly from the unit whose fires it is to reinforce."<sup>1</sup>

e. Fire Plans. Fire plans refer to all prearranged fires and include those to be fired on call as well as those to be fired on a time schedule.

# Bibliography

## Part One

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PART TWO

OPERATIONS

CHAPTER 1

ARTILLERY IN BEACH LANDINGS

NORMANDY, FRANCE

5. General.<sup>1</sup>

a. This is a study of the field artillery support rendered in Operation "NEPTUNE", the assault on the beaches of Normandy, France, on 6 June 1944, covering the artillery with the major United States assault force, First Army. During the period covered, 6-14 June 1944, only V and VII Corps were operational, but VIII and XIX Corps must be considered on the army level as they were in the follow-up echelon and therefore First Army had to plan for their supporting artillery.

b. First Army had the mission of assaulting Utah and Omaha beaches, capturing the port of Cherbourg, and advancing inland in conformity with the advance of the 2 Army (British). Anticipated enemy resistance is summarized as follows: (1) A rigid defense of the beach line, supported by mobile defense of the coast line with powerful armored and motorized reserves; (2) all available naval, air, and ground forces to be concentrated in the assault area; (3) supply situation assured by well diversified dumps with an estimated two-months' supply of fuel and rations and one year's supply of ammunition.

c. First Army planned to launch a simultaneous assault on beaches Utah and Omaha. The attack on Utah Beach was to be made by VII Corps with the 4th Infantry Division in the initial assault; the attack on Omaha Beach was to be made by V Corps with a composite division of the 1st and 29th Infantry Divisions in the initial assault, and the remainder of the divisions in the immediate follow-up. The 101st Airborne Division was to begin landing in rear of Utah Beach at H-5 hours on D-Day and was to assist the 4th Division in capturing its objective. The 82d Airborne Division was to land beginning at H-5 hours on D-Day in an area astride the Merderet River west of Ste. Mere-Eglise. Both airborne divisions were to be attached to VII Corps when it landed. Because of this attachment and the fact that VII Corps was responsible for the artillery support for both airborne divisions, they will be considered under VII Corps.

6. Organization for Combat.

a. First Army.<sup>1</sup> The artillery with First Army was initially allocated to V, VII, and XIX Corps, with army

keeping under its control a reserve consisting of one brigade headquarters, three group headquarters, three light battalions, and seven heavy battalions (three 155mm Gun SP, three 240mm How, one 8" Gun). It was anticipated that VIII Corps, when it became operational, would be supported by transfer of units from the other corps and by attachments from the army pool. The coordination necessary in an operation supported by naval gunfire, naval fire support craft, air bombardment, and artillery fire dictates that this be done by the senior headquarters. In order that maximum benefit be gained from this report, missions assigned and instructions issued are quoted in part from the Artillery and Naval Fire Support Plan prepared by First Army:

(1) "Missions.

- "a. Field Artillery -- As assigned by Division and Corps Commanders.
- "b. Naval Fire Support Ships -- To protect shipping from attack by surface forces and submarines, and to support by bombardment the initial amphibious and airborne landings and subsequent coast wise advance inland.
- "c. Fire Support Craft -- To furnish, during the approach to the beaches and prior to touchdown, area fire on strong points, and beach defenses, and to take part in the beach drenching."

(2) "Employment and Coordination of Field Artillery.

- "a. Upon the arrival of field artillery units ashore, the employment will be normal, except initially direct support units will be doubled whenever the availability of assigned craft will permit.\*\*\*
- "b. It is imperative that some medium and heavy artillery units be brought ashore early by both V and VII Corps in order to effectively execute counterbattery. In this connection, one battery of 155mm Guns M12 will be available to V Corps and one battery to VII Corps if pre-stowage discloses that these units can be transported.
- "c. Early artillery support will be provided by the V Corps for the Ranger units operating on the right of the Corps sector.
- "d. Liaison." (See paragraph 7)

- "e. VII Corps will prescribe a limiting line on a flexible time schedule common to both the 4th Infantry Division Artillery and the 101st Airborne Division Artillery based upon the range capabilities of the organic and attached artillery of these divisions in order to prevent firing into our own troops.
- "f. VII Corps will make definite plans to reinforce the division artillery of both the 101st and 82d Airborne Divisions by fire from positions by the heavier caliber weapons and by attachment of 105mm How M7 units.
- "g. At the earliest opportunity, based upon the range capabilities of weapons, the V and VII Corps will become mutually supporting. Initially, the use of the Army Artillery Officer's Radio Net will afford a means of communication between adjacent Corps Artillery Commanders for the accomplishment of this additional support. The V Corps will have a similar requirement with respect to the British Corps on the right of the British Second Army sector. These two major British units will be provided with suitable radio sets to permit operation in the First Army Artillery Officer's Radio Net for the same purpose as cited above.
- "h. As suitable terrestrial observation will be limited in the early stages of the operation, plans should be made to bring in a limited number of organic artillery Air CP's as soon as landing strips are available ashore, in order to adjust both artillery and naval gunfire. Small aircraft carriers, specially constructed decks for take off on LST's, and partially dismantled aircraft loaded on naval craft are the only feasible means for initial transportation." (See Study No. 66 "Organic Field Artillery Air Observation", The General Board.)
- "i. Upon completion of the requirement for spotting of naval gun fire by high performance aircraft,\*\*\* a limited number of such aircraft should be available to adjust long range artillery fire. Such missions will be arranged by the Corps Artillery Commanders through the Corps Air Support Party."

b. V Corps.<sup>1, 2.</sup> The corps consisted of the 1st, 29th, and 2d Infantry Divisions. The assault of Omaha Beach was effected with the 1st Division (less 26th Regimental Combat Team) reinforced by the 116th Regimental Combat Team of the 29th Division and with the remainder of both divisions plus certain corps troops in the immediate follow-up. The corps set up its initial artillery organization for combat as follows:

(1) Attachments to

1st Division:

Two 105mm howitzer battalions, self-propelled.  
One 155mm howitzer battalion.  
One 155mm gun battery (D / 2 only).

29th Division:

One 155mm howitzer battalion.  
One 155mm gun battery.

2d Division:

One 155mm howitzer battalion.

(2) General support, reinforcing fires of

1st Division:

One field artillery group  
Two 155mm gun battalions (less one battery each).

2d Division:

One 90mm antiaircraft artillery gun battalion (Secondary role as field artillery).

(3) General support

One field artillery group

One 4.5" gun battalion.  
One 8" howitzer battalion.

One field artillery group

One 155mm howitzer battalion.

The light self-propelled battalions landed in the assault waves and covered the landing by direct fire from landing craft. By the night of D / 2 the V Corps Artillery Fire Direction Center was in operation and four battalions were ashore -- two medium and two heavy; the two medium battalions were attached, one to each of the 1st and 29th Divisions, and a battery from each of the two 155mm gun battalions was attached to the same divisions. On D / 3 the 2d Division was committed, supported by a medium battalion and an antiaircraft 90mm gun battalion. From D / 5 to D / 8 two groups, with three medium battalions and one heavy battalion, came ashore and were placed in general support of V Corps. When XIX Corps became operational on 14 June, the 29th Division was released from V Corps and attached to XIX Corps; one group consisting of one medium battalion and one 155mm gun battalion was also attached to XIX Corps. Another group headquarters was lent to 30th

Division, of XIX Corps, to act as division artillery headquarters and headquarters battery.

c. VII Corps.<sup>1, 3</sup>. The Corps consisted of the 4th, 9th, and 90th Infantry Divisions with the 82d and 101st Airborne Divisions attached after landing. The 4th Division assaulted Utah Beach followed by the 90th Division on D / 1 and the 9th Division on D / 4. The two airborne divisions were committed by dropping under control of First Army and were immediately attached to VII Corps to protect its south flank. The 4th Division Artillery Headquarters acted as Corps Artillery Headquarters from D to D / 8. VII Corps set up its organization for combat as follows:

(1) Attachments to

4th Division:

One 105mm howitzer battalion, self-propelled (landing only).  
One 155mm gun battery.  
One observation detachment.

9th Division:

One 155mm howitzer battalion.

90th Division:

One 155mm gun battalion (less one battery).

82d Airborne Division:

One 105mm howitzer battalion, self-propelled.

101st Airborne Division:

One 105mm howitzer battalion, self-propelled (after landing with 4th Division).

(2) General support

One field artillery group  
Three 155mm howitzer battalions.

One field artillery group  
One 4.5" gun battalion.  
One 8" howitzer battalion.

One field artillery group  
One 155mm gun battalion.

Additional missions were assigned by the corps as follows:

- (1) 4th Division to be prepared to support 82d Airborne Division, on call, with such fires as may be practicable;
- (2) 105mm self-propelled howitzers of the 4th Division, including attached battalion, to approach the beach in their prescribed positions in waves; to fire on targets of opportunity on call from artillery forward observers or, by direct laying, on order of the senior artillery officer in the craft;
- (3) VII Corps Artillery to be prepared to reinforce fires of 82d and 101st Airborne Divisions, from positions, with medium and heavy artillery to the limit of

effective range; (4) antiaircraft artillery to be prepared to fire against ground targets in addition to primary mission. The Corps Artillery Commander coordinated fires of the Naval Task Force supporting the landing of VII Corps, from 6 June to 26 June 1944.

d. Division Artillery.

- (1) V Corps. The organization for combat of division artillery under V Corps is considered in some detail because of the nature of the operation and the difficulties arising on landing. The 1st Infantry Division, which had exchanged one combat team with the 29th Infantry Division, was supported as follows: One light battalion in direct support of each regiment, one additional self-propelled light battalion supporting each of the two initially assaulting regiments, one medium battalion in general support. By the evening of D / 1 all artillery units were ashore; one direct-support battalion had lost six howitzers and another had lost 11 in landing -- these two units were combined, as regards weapons, into one seven-howitzer battalion. Between D / 2 and D / 4 the attached units landed, including one field artillery group consisting of one medium and one heavy (155mm gun) battalion. From D / 4 the organization for combat, 1st Division Artillery, was: Two infantry regiments in line, each directly supported by a light battalion with one direct-support battalion being reinforced by two light battalions and a medium (155mm How) battalion, and the other direct-support battalion being reinforced by a medium (155mm How) battalion.<sup>4</sup> The 29th Infantry Division in the follow-up, with one combat team from the 1st Division, lost 19 of its 48 organic howitzers. By D / 5 the organization for combat was normal with a light battalion directly supporting each of the two committed infantry regiments and a light self-propelled battalion, a medium (155mm How) battalion, and a light battalion (attached from 30th Division) in general support.<sup>5</sup> The 2d Infantry Division launched its first attack on D / 3 with only two light battalions and one medium (155mm How) battery ashore. The light battalions directly supported the two infantry regiments committed, and the single medium battery was in general support. By daylight on D / 6 division artillery was operational. At this time, there were two regiments plus a battalion of infantry committed, and the artillery disposed as follows: A light battalion

supporting each regiment, a light battalion supporting the infantry battalion and also reinforcing one direct-support battalion, and the medium battalion in general support.<sup>6</sup>

- (2) VII Corps. In the 4th Division, the VII Corps assault force, each infantry regiment was supported by a light battalion with the medium battalion and the 155mm gun battery in general support. The light self-propelled battalion firing from landing craft was attached to the 101st Airborne Division after landing. All artillery units were ashore by the night of D / 2.<sup>7</sup> The 90th Division Artillery, which began unloading on the evening of D / 2, immediately supported the 82d Airborne Division. On D / 4 the division attacked with two infantry regiments, each being supported by a light battalion with the medium battalion in general support. (One combat team was attached to the 4th Division.)<sup>10</sup> The 9th Division, making its first attack on D / 8, had one infantry regiment with two light battalions in direct support and a medium battalion reinforcing the fires of the light battalions (one combat team was not under division control at this time).<sup>12</sup> The 101st Airborne Division dropped one parachute artillery battalion which lost all but one of its howitzers, but reorganized with captured guns. The two glider artillery battalions, crossing by boat, lost some of their weapons. This shortage of artillery caused an additional light self-propelled battalion to be attached to the division on D / 2. The division then supported each regiment with a light (75mm How) battalion, with a light self-propelled battalion reinforcing the fires of one glider artillery battalion, and with a light self-propelled battalion in general support.<sup>8</sup> The 82d Airborne Division initially supported each regiment with a light (75mm How) battalion and had a light self-propelled battalion in general support. On D / 2 a second light self-propelled battalion was attached for general support, and three battalions of the 90th Division Artillery rendered general support until D / 4 when they reverted to 90th Division.<sup>9</sup>

e. Summary. A summary of the artillery support during the assault and advance inland shows that the two assault corps received exactly the same non-divisional artillery allocation from First Army. On the basis of number of artillery pieces, including division artillery, V Corps had 276 while VII Corps had 348. It is difficult to

summarize guns per division since divisions landed at different times; however, considering the period in which all divisions were committed, V Corps averaged 92 guns per division and VII Corps, 70. On D + 4 the First Army beach-head was approximately 40 miles wide inland, giving a density of artillery support of roughly only one gun per 100 yards of front. The average number of guns organic or attached to a division was 75 in V Corps and 55 in VII Corps. In the divisions of V Corps each infantry regiment (on an average throughout the corps) was supported by 21 guns of organic or attached artillery; in VII Corps the number was 18. Based on the preceding figures, averaged for both V and VII Corps, each division was supported by 3.5 light battalions, two medium battalions, and .75 heavy battalions.

7. Liaison.<sup>1</sup> In general, liaison was as prescribed in First Army Standing Operating Procedure which calls for liaison from right to left for division artilleries and corps artilleries. Liaison from corps artillery to division artillery, and within division artillery, was as prescribed in published doctrine. In addition, liaison was established by the 4th Division with the 101st Airborne Division prior to embarkation from the United Kingdom and was maintained as long as the 101st Airborne Division was operating inland in front of the assault division. An alternate means of communication was provided to insure coordination of fires of major units. An additional means of communication, for coordination of fires and for transmittal of intelligence information, was the Army Artillery Officer's Radio Net. This net, using SCR 193 radio sets, was initiated by the Artillery Officer, First Army, as a means of rapid communication between Corps Artillery Commanders and the Army Artillery Officer. Although approved within the theater, this procedure was not standardized in published doctrine. 2 Army (British) and its right corps were provided with suitable radio sets to permit operation within this net.

8. Ammunition Allocations.<sup>1</sup> First Army allocations of ammunition to V and VII Corps followed the anticipated rates of expenditures as shown below:

<u>DAY</u>	<u>Omaha Beach (V Corps)</u>	<u>Utah Beach (VII Corps)</u>
D	2/3 U/F per day	1 U/F per day
D + 1, D + 2	1 U/F per day	2/3 U/F per day
D + 3, to D + 5	2/3 U/F per day	2/3 U/F per day
D + 6 to D + 8	1/2 U/F per day	1/2 U/F per day
D + 9 and thereafter	1/3 U/F per day	1/3 U/F per day

9. Analysis of Fires and Ammunition Expenditures.

a. Fires. The initial fires were from naval craft, self-propelled artillery loaded on landing craft, and DUKW-loaded 105mm howitzers.

- (1) The initial artillery fires from the landing craft could not be completely observed. It is certain that they all contributed effectively to the beach

drenching.<sup>13</sup> The following is an extract from Annex 8 to First Army Report of Operations:

"The soundness of the decision that initial direct support artillery be self-propelled was proven beyond any question of doubt. Attached armored field artillery battalions of the 1st and 29th Infantry Division, and the organic self-propelled artillery of the 4th Infantry Division Artillery, landed with small losses and delivered supporting fires as early as H plus 90 minutes. The weapons crossed beach obstacles without serious difficulty. During the initial and most critical stages of the 'Neptune' Operation this was the only field artillery ashore. Two separate field artillery battalions, self-propelled, landed on VII Corps Beach, made early contact with, were attached to, and thereafter functioned as the artillery of the 82d and 101st Airborne Divisions."

- (2) The Western Naval Task Force<sup>1</sup> supported the assault, follow-up, and build-up of the First Army. Initially, the heavier gunfire support ships (battleships and cruisers) participated in the pre-arranged bombardment of coast defense batteries. When these were silenced, the ships continued to furnish general support to First Army within their capabilities of range. Destroyers were assigned to deliver close support fire for the initial assault including fire on strong points, beach defenses, and flanks of beaches, and participation in the beach drenching during the approach to the beaches of the assault wave of troops. High-angle fire, fire with reduced charge, and enfilade fire from the flanks were utilized in order to reduce ricochets when firing on the beach and the area between the beach and the drop zone of the 101st Airborne Division. For adjusting the naval gun fire three squadrons of high performance aircraft were made available from H-40 minutes until H + 4 hours. In addition, 27 Naval Shore Fire Control Parties, each with three observers, operated with the 101st Airborne Division and in conjunction with similar parties operating with the seaborne landings. Naval gunfire liaison officers were attached to division artillery headquarters and to each direct support field artillery battalion of assault divisions to coordinate naval gunfire and artillery support.
- (3) Naval Support Craft<sup>2</sup> were of various types. Landing craft, gun (light), armed with two

4.7-inch naval guns were stationed on flanks of assault waves and engaged beach defenses by direct fire. Landing craft, tank (rocket), armed with multiple rocket projectors were stationed with assault waves to provide high explosive drenching fire on area targets when first boat wave was about 600 yards off shore. Landing craft, support, armed with machine guns, mortars, and smoke generators were posted on the flanks of leading waves and conducted fire on beach defenses as ordered. Landing craft, support, armed with multiple rocket projectors provided high explosive drenching fires on beaches from 1,000 yards off shore until troops reached beach. Landing craft, tank, transporting self-propelled 105mm howitzers of organic or attached artillery battalions took positions in their assigned boat wave to carry out the mission of direct support artillery and supported the attack by such direct and indirect fires as could be effectively delivered while afloat. The excessive range dispersion of the weapon required that artillery forward observers placed in leading boat waves to conduct indirect fire be equipped with communications adequate to insure that firing ceased when leading boat wave was 1,000 yards from beach.

b. Ammunition Expenditures.<sup>14</sup> Because the number of guns in action varied so much during the period 6-14 June, the ammunition expenditures are shown by day along with the number of guns in action. Available records do not permit a breakdown of the ammunition expenditures below the army level.

<u>Date</u>	<u>75mm How</u>		<u>105mm How</u>	
	<u>No. Guns In Action</u>	<u>Total Rounds Expended</u>	<u>No. Guns In Action</u>	<u>Total Rounds Expended</u>
6 June	2	45	119	1,747
7 June	5	134	155	5,995
8 June	5	585	157	6,625
9 June	36	1,087	191	10,084
10 June	48	3,331	191	9,642
11 June	48	4,403	252	24,403
12 June	48	3,473	252	27,398
13 June	48	4,205	306	13,785
14 June	48	4,883	330	22,117
	<b>Total Rounds</b>	<b>22,146</b>	<b>Total Rounds</b>	<b>121,796</b>

(Chart continued on next page)

155mm How155mm Gun M1

Date	155mm How		155mm Gun M1	
	No. Guns In Action	Total Rounds Expended	No. Guns In Action	Total Rounds Expended
6 June	24	320	--	---
7 June	60	290	--	---
8 June	60	125	--	---
9 June	84	2,021	28	332
10 June	84	2,623	28	221
11 June	84	5,190	28	150
12 June	84	3,667	28	598
13 June	84	3,467	36	692
14 June	108	<u>5,584</u>	36	<u>867</u>
Total Rounds		23,287	Total Rounds 2,860	

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## Chapter 1

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5. After Action Report, 29th Infantry Division Artillery, June 1944.
6. After Action Report, 2d Infantry Division Artillery, June 1944.
7. After Action Report, 4th Infantry Division Artillery, June 1944.
8. After Action Report, 101st Airborne Division Artillery, June 1944.
9. After Action Report, 82d Airborne Division Artillery, June 1944.
10. After Action Report, 90th Infantry Division Artillery, June 1944.
11. After Action Report, 90th Infantry Division, June 1944.
12. After Action Report, 9th Infantry Division, June 1944.
13. First United States Army Report of Operations, 20 October 1943 to 1 August 1944, Annex No. 8.
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## CHAPTER 2

### ARTILLERY IN THE PENETRATION OF AN ORGANIZED POSITION

#### NORMANDY, FRANCE

##### 10. General.

a. A study of the artillery in Operation "COBRA", the operation which resulted in the breakthrough west of St. Lo, France, in July, 1944, presents a good example of the allocation of available artillery and ammunition, an organization for combat, and liaison maintained. The operation does not present a good picture of adequate artillery support because of the shortage of ammunition, and consequently air bombardment was substituted to a great extent for artillery fire. Air power was given the mission of disrupting communications and paralyzing the enemy's immediate rear, of dispersing his local reserves, and of materially reducing his will to fight. All these missions are normally assigned to artillery.

b. It was estimated that enemy troops on the VII Corps front numbered approximately 7,000 and it was anticipated that the enemy would be forced to maintain a gradual withdrawal to organized positions.<sup>1</sup>

c. A consideration of the different corps involved will show the artillery organization and support for a penetration, a direct pressure force for an encirclement, and an attack of an organized position. VII Corps was organized for a penetration, VIII Corps for the direct pressure force, and V and XIX Corps for an attack against an organized position. The operation was planned in three phases. The first phase was to be the breakthrough, preceded by an intense aerial bombardment by medium and heavy bombers and by heavy artillery fire. The efforts of the corps making the breakthrough were to be further assisted by fire and strong pressure on the part of the flanking corps. The second phase was to be the exploitation of the breakthrough, effected by moving two armored divisions and one motorized infantry division through the gap. The third phase was called the Consolidation Phase of the plan. In this phase the three flanking corps increased their pressure on the enemy, forced him to withdraw, and exploited every advantage gained from his state of disorganization.

##### 11. Organization for Combat.

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a. First Army. Organization for combat on the army level consisted of attaching non-divisional artillery to the Corps and in assigning missions to the corps artilleries to assist VII Corps in making the penetration. All available non-divisional artillery was allocated to the four corps; army kept none under its control. First Army instructed VIII and XIX Corps to be able to mass the bulk of their fires in a certain area so that they could be used to assist VII Corps. Army also instructed V, VIII, and XIX Corps Artilleries to coordinate with the air bombardment and the artillery preparation of VII Corps on enemy artillery and antiaircraft positions,

and to institute counter-flak patrols with artillery liaison aircraft while friendly bombers were overhead.

1

b. VII Corps. The Corps had the 4th, 9th, and 30th Infantry Divisions committed, with the 1st Infantry Division (temporarily motorized) and the 2d and 3d Armored Divisions in reserve prepared to pass through the gap as soon as the penetration was effected. VII Corps tank destroyer and antiaircraft artillery units were placed under operational control of corps artillery for the assignment of all missions. The organization for combat was as follows:

(1) Attachments to

9th Division:

Two 105mm howitzer battalions.  
One 3" tank destroyer battalion  
(self-propelled).

1st Division:

Two 3" tank destroyer battalions  
(one self-propelled, one towed).

30th Division:

One 105mm howitzer battalion.  
One 3" tank destroyer battalion  
(towed).

2d Armored Division:

Two 105mm howitzer battalions  
(self-propelled).  
One 3" tank destroyer battalion  
(self-propelled).

3d Armored Division:

Two 105mm howitzer battalions  
(self-propelled).  
One 3" tank destroyer battalion  
(self-propelled).

(2) General support, reinforcing fires of

9th Division:

3d Armored Division Artillery (five  
105mm howitzer battalions, self-  
propelled; during preparation only).  
One field artillery group  
Two 155mm howitzer battalions.

30th Division:

One field artillery group  
One 4.5" gun battalion.  
Two 155mm howitzer battalions.

(3) General support, controlling all fires during penetration phase

One field artillery brigade  
One field artillery group  
Three 240mm howitzer battalions.  
One field artillery group

Two 155mm gun battalions.  
One 8" howitzer battalion.  
One field artillery group  
Three 155mm gun battalions, self-propelled.

2

c. VIII Corps. The Corps consisted of the 8th, 79th, 83d, and 90th Infantry Divisions committed and the 4th Armored Division in reserve. No attachments of non-divisional artillery were made to the divisions. One group headquarters in general support was designated as an emergency fire direction center for corps artillery. The Corps set up its organization for combat as follows:

(1) General support, reinforcing fires of

83d Division:

Two 105mm howitzer battalions, self-propelled (4th Armored Division Artillery).

One 155mm howitzer battalion.

90th Division:

One 105mm howitzer battalion, self-propelled (of the 4th Armored Division Artillery).

8th and 90th Divisions:

One field artillery group

Two 155mm howitzer battalions.

One 90mm gun battalion (antiaircraft).

79th Division:

One field artillery group

One 155mm howitzer battalion.

(2) General support

One field artillery group

Three 155mm gun battalions.

One 8" howitzer battalion.

One field artillery group

One 155mm gun battalion, self-propelled.

(One 155mm howitzer battalion assigned reinforcing mission to 83d Division).

3

d. XIX Corps. The Corps initially consisted of the 35th Infantry Division committed and the 29th Infantry Division in reserve. The Corps was to attack on army order; initially the mission of the Corps Artillery was to support the attack of VII Corps. The organization for combat was as follows:

(1) Attachments to

35th Division:

29th Division Artillery.

(2) General support, reinforcing fires of

35th Division:

- One field artillery group
- Three 155mm howitzer battalions.
- One 155mm gun battalion.

29th Division (when committed):

- One field artillery group
- One 4.5" gun battalion.
- One 155mm howitzer battalion.
- One 155mm gun battalion.
- One 8" howitzer battalion.

(3) General support

- One 8" gun battalion (less one battery).
- One 90mm gun battalion (antiaircraft).

In order to conserve ammunition and to insure the maximum support to VII Corps, all firing except emergency firing by division artillery was under Corps control.

4

e. V Corps. The Corps had the 2d and 5th Infantry Divisions committed, but planned to attack with only the 2d Division while the 5th Division, on the left, was to conform with the advance of the 2d Division. The Corps attached no non-divisional artillery to divisions. The organization for combat was as follows:

(1) General support, reinforcing fires of

2d Division:

- One 105mm howitzer battalion (5th Division Artillery).
- One field artillery group
- Two 155mm howitzer battalions.

5th Division:

- One 155mm howitzer battalion.

(2) General support

- One field artillery group
- Two 155mm gun battalions.
- One 8" howitzer battalion.
- One 8" gun battery.

One field artillery group

- One 155mm howitzer battalion.
- One 4.5" gun battalion.
- (One 155mm howitzer battalion reinforcing fires of 5th Division).

The Corps Artillery coordinated the firing of the division artilleries, coordinated observation, and assigned all missions to tank destroyer units.

15

f. Division Artillery. On the division level there was what might be called a normal organization for combat for the division concerned. In all cases the

usual light battalion supported the same infantry regiment. However, the division artillery commanders varied considerably in the assignment of reinforcing missions to the general support battalions both light and medium. Some artillery commanders assigned reinforcing missions to all general support battalions, while other assigned some general support battalions the mission of reinforcing the fires of a direct support battalion, and still others assigned no reinforcing missions. It is noted that in the two reserve armored divisions of VII Corps one division artillery assigned direct support missions to two battalions and retained three in general support only, but the other division artillery assigned direct support missions to all five battalions.

g. Summary. A summary of the operation shows that of a total of 564 non-divisional artillery pieces available to First Army, VII Corps received 258, VIII Corps received 108, XIX Corps received 100, and V Corps received 98. In VII Corps, the penetrating force, there was an average of 5.67 light, 2.67 medium, and three heavy battalions in position firing per division committed. The greatest weight of artillery fell behind the 9th Division where there were, not including Corps general support battalions, 3.3 light and one medium battalions per infantry regiment. In VIII Corps, the direct-pressure force, there were 3.75 light, two medium, and 1.25 heavy battalions per division committed. In XIX Corps this ratio was six light, seven medium, and 3.67 heavy battalions per division committed; this was high, but the artillery was used initially to assist VII Corps and was readily available when XIX Corps attacked. In V Corps there were three light, 3.5 medium, and 1.17 heavy battalions per division committed. At the point of breakthrough by VII Corps, the assault front was 6,000 yards which gave a density of one artillery piece, firing, per 14 yards of front.

18

12. Liaison. Liaison was maintained as prescribed by First Army Standing Operating Procedure which calls for liaison from right to left, across army and corps boundaries, from corps artillery to corps artillery and from division artillery to division artillery. Liaison was maintained from corps artillery to division artillery and within the division as called for in published Field Manuals. In addition to this normal liaison, to insure better support for the penetrating force, VII Corps exchanged liaison officers with VIII and XIX Corps, and the two flank divisions of the Corps exchanged liaison with the flank division of VIII and XIX Corps. Wire communication, supplemented by radio, was employed between liaison officers.

18

13. Ammunition Allocations. First Army allocated ammunition to the separate corps for a five-day period. VII Corps received the greatest share of the available amounts. The allocation by number of rounds was as follows:

(See chart on following page)

Type	V Corps	VII Corps	VIII Corps	XIX Corps
105mm How	14,796	91,800	26,730	13,168
4.5" Gun	1,308	3,300	-----	1,684
155mm How	9,984	31,876	10,752	9,385
155mm Gun	2,520	8,580	4,272	3,884
8" How	300	960	384	327
8" Gun	96	---	---	212
240mm How	---	1,782	---	---
90mm Gun	---	---	736	584

All corps made sub-allocations to their divisions except XIX Corps. In this Corps all firing was under Corps control until the Corps attacked, and the Corps did not attack during the period considered. All corps allocated the ammunition for reinforcing units to the division concerned.

#### 14. Analysis of Fire Plans and Ammunition Expenditures.

##### a. Fire Plans.

- (1) In this operation aerial bombardment was, to a great extent, substituted for the artillery preparation. The Army plan<sup>19</sup> called for an intense aerial bombardment by fighter-bombers, and medium and heavy bombers of an area in front of VII Corps approximately 2,500 yards deep and 6,000 yards wide. This area was also to be subjected to heavy artillery fire. However, it is not believed that the artillery fire as delivered could be considered as heavy. In this particular operation the army not only arranged for the aerial bombardment but also exercised considerable control over the fire plans as well as the fire possibilities of all units including the main effort corps. First Army, Report of Operations states: "Careful attention was given to the preparation of a field artillery and tank destroyer plan in connection with Operation 'COERA'. First Army Headquarters prescribed certain definite fires and capabilities for laying down fire, particularly on call, from the VII Corps. This plan included the use of smoke to mask observation from specific points favorable to the enemy. It was particular in its requirements that the corps not engaged in the breakthrough were to coordinate their artillery with the air bombardment and artillery preparation of the VII Corps. Both the VIII and XIX Corps on the flanks of the VII Corps were instructed that limitations on their fire would be prescribed by VII Corps." The aerial bombardment was made by 350 fighter-bombers, 396 medium bombers and 1,800 heavy bombers.

- (2) In VII Corps the separate division artilleries arranged their own preparation on the division front. The prearranged fire plan of Corps consisted of counter-battery fires only. 41 of these missions were fired by the Corps Artillery while seven were fired by XIX Corps Artillery and six by VIII Corps Artillery. A study of the division fire plans indicates that the usual fires on known enemy installations and the normal protective fires for the infantry were included. The division artillery fired from one-third to one-half their daily ammunition allowance on prearranged fires prior to H + 40 minutes. The corps and division artillery continued to support with call missions during the attack.

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- (3) In VIII Corps Artillery the fire plan consisted of 25 prearranged missions during the first hour of the attack followed by planned counterbattery fires and call missions as the attack progressed. A total of 268 missions was fired during the first day of the attack. For the attack on the second day the corps fired 37 prearranged missions, mainly counterbattery, and a total of 416 missions for the day. The divisions under the corps present a picture similar to those under VII Corps.

22

- (4) In XIX Corps the corps artillery fired only the seven counterbattery missions and certain call missions for VII Corps. The 35th Division Artillery fired a ten-minute preparation on the high ground to their south as a diversionary preparation in conjunction with VII Corps' attack. All targets for this preparation were selected by the infantry regimental commander.

- (5) V Corps, which did not attack until the second day, went much deeper into their ammunition allowance for the penetration. The corps artillery<sup>23</sup> limited its prearranged missions to counterbattery missions of which there were 61. The attack was then supported by observed and call missions and the corps artillery expended approximately 50 percent of its five-day ammunition allowance during the first day of the corps attack. The artillery of the two divisions planned their own preparations to include the fires of the reinforcing battalions. The 2d Division Artillery fired<sup>24</sup> approximately

one-half of its five-day ammunition allocation in the preparation and prior to H + 35 minutes. This fire plan included, in addition to the normal protective fires for the infantry, protective time fires to cover an assault by tanks. An effective height of burst of 30 yards for 105mm howitzer and 50 yards for 155mm howitzer was used. The 5th Division Artillery<sup>25</sup> was prepared to fire approximately 30 percent of its five-day ammunition allowance in the initial preparation to support the one regiment attacking. However, the actual expenditures were much less than expected as a great number of the missions were placed on call and never fired.

18

b. Ammunition Expenditures. The actual ammunition expenditures for the five-day period were as follows:

<u>Type</u>	<u>Rounds Expended</u>	<u>% Expended First Three Days</u>
105mm Howitzer	84,807	62
4.5" Gun	4,508	69
155mm Howitzer	33,084	89
155mm Gun	11,554	91
8" Howitzer	1,190	81
8" Gun	17	0
240mm Howitzer	987	100

c. The air support for this operation amounted to a substitution for at least a part of the artillery preparation. The operation was successful and only approximately 50 percent of the total allocated ammunition was expended. However, this does not indicate that the artillery support was adequate. A large percentage of the ammunition was expended to assist the infantry in the initial move forward, and many commanders considered this inadequate. The ammunition expenditures were light during the remainder of the period because: (1) The commanders were faced with the problem of making the allocation last five days; therefore all targets had to be very carefully considered and often attacked with insufficient fires in order that ammunition would be available for unforeseen enemy action; (2) the enemy opposition lessened appreciably on VII and VIII Corps front during the third day of the attack, and XIX Corps did not attack during the period. If ammunition had been unrestricted, all commanders would have fired considerably more, and the advance would have undoubtedly been faster and our own casualties probably much less.

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### CHAPTER 3

## ARTILLERY IN AN ATTACK OF AN ORGANIZED POSITION

### RHINELAND, GERMANY

#### 15. General.

a. This study shows the field artillery support rendered in Operation "CLIPPER"; the advance from the Siegfried Line to the Roer River, 16-30 November 1944, with respect to the artillery with Ninth Army. It illustrates how army shifted artillery from one corps to another and returned artillery to army control as the front of one corps expanded. It presents a picture of effective artillery support, in that, although ammunition was severely restricted, the number of available pieces was increased, and therefore targets were more profitably attacked by a larger number of rounds in the initial volley. In addition, the corps general support heavy battalions were used considerably for close support of the divisions.

b. Ninth Army was facing the best tank terrain leading into the Cologne Plain and therefore stubborn enemy resistance was expected.

c. Ninth Army launched the attack with the XIX Corps on 16 November while the XIII Corps continued to build up troops and was to attack with the same objective as soon as ready.

#### 16. Organization for Combat.

2,3.

a. Ninth Army. In setting up its organization for combat initially, the Army attached all of its non-divisional artillery to the two corps. On 24 November, as the front expanded, the army brigade became operational and supported the two corps with three heavy battalions taken from the XIX Corps. On 25 November the XIX Corps released to the XIII Corps one light, four medium, and three heavy battalions.

b. XIX Corps. The Corps consisted of the 29th and 30th Infantry Divisions and the 2d Armored Division (one combat command committed). The Corps made attachments and assigned supporting and reinforcing missions as follows:

##### (1) Attachments to

##### 2d Armored Division:

Two 105mm howitzer battalions,  
self-propelled.

##### 29th Division:

One 105mm howitzer battalion.  
One 155mm howitzer battalion.

##### 30th Division:

One 105mm howitzer battalion.  
One 155mm howitzer battalion.

(2) General support, reinforcing fires of

2d Armored Division:

One field artillery group  
Two 4.5" gun battalions.  
Two 155mm gun battalions, self-propelled.

29th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.  
One 8" howitzer battalion.

30th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.  
One 8" howitzer battalion.

(3) General support

One field artillery group  
Two 4.5" gun battalions.  
One 155mm howitzer battalion.

One field artillery group  
One 8" gun battalion.  
Two 240mm howitzer battalions.  
One 8" howitzer battalion.

The Corps planned and effected the displacement of the two general support groups to the northeast so that they would be in position for the group of mediums to pass to the XIII Corps and for the group of heavies to pass to the army brigade without loss of motion. Each group with a reinforcing mission and each battalion of those groups was required to establish observation posts and maintain liaison with the infantry in their sector. Each general-support group was limited to one observation post per group to avoid overcrowding the available points of observation. All groups with reinforcing missions received fire missions directly from the supported division artillery and also from the Corps fire direction center. The Corps had priority on the heavy battalions of these groups for counterbattery missions.

c. XIII Corps Prior to 25 November. The Corps had initially committed to action parts of two infantry divisions -- the 84th and 102d -- and a task force under the commander of the Corps cavalry group (Task Force "Biddle"). The 7th Armored Division was in reserve, but the Division Artillery operated as artillery for Task Force "Biddle". In setting up the organization for combat, the Corps attached certain units and assigned general support and reinforcing missions as follows:<sup>2</sup>,<sup>6</sup>

(1) Attachments to

84th Division:

One 105mm howitzer battalion.  
One 155mm howitzer battalion (attached 19 November from Task Force "Biddle").

Task Force "Biddle":  
7th Armored Division Artillery.  
One field artillery group  
One 4.5" gun battalion.  
Two 155mm howitzer battalions  
(one of these attached to 84th  
Division, 19 November).  
One 105mm howitzer battalion,  
self-propelled.

(2) General support, reinforcing fires of

102d Division:  
XIII Corps Artillery Headquarters  
Two 105mm howitzer battalions.  
Two 4.5" gun battalions.  
One 155mm howitzer battalion.

d: XIII Corps Subsequent to 25 November. By 25 November, when all shifts of artillery had been made, the Corps had the 84th and 102d Infantry Divisions committed and the 7th Armored Division in reserve. The Corps made attachments and assigned general support and reinforcing missions as follows:

(1) Attachments to

84th Division:  
Two 105mm howitzer battalions.  
One 155mm gun battery, self-propelled.

102d Division:  
One 105mm howitzer battalion.  
One 155mm gun battery, self-propelled.

(2) General support, reinforcing fires of

84th Division:  
One field artillery group  
One 4.5" gun battalion.  
Two 155mm howitzer battalions.  
One 8" howitzer battalion.

102d Division:  
One field artillery group  
One 155mm howitzer battalion.  
One 8" howitzer battalion.

(3) General support

One field artillery group  
Two 4.5" gun battalions.  
One 155mm howitzer battalion.  
One 105mm howitzer battalion, self-propelled.  
One 155mm gun battalion, self-propelled (less two firing batteries).

e. Division Artillery. In the XIX Corps, the two infantry divisions used a light battalion in direct

support of each of the three infantry regiments, with the remaining battalions in general support.<sup>8, 9.</sup> The 2d Armored Division Artillery supported one combat command in the line with a light battalion in direct support, a light battalion reinforcing the direct-support battalion, and three light battalions in general support.<sup>10</sup> In the XIII Corps, the 102d Infantry Division Artillery had one light battalion in direct support of each regiment, and the remainder in general support.<sup>11</sup> The 84th Division Artillery supported two regiments with a light battalion in direct support of each, a light battalion reinforcing one direct-support battalion, a medium battalion reinforcing the other, and a medium battalion in general support. 7th Armored Division Artillery supported the 113th Cavalry Group with its three organic light battalions in direct support of elements of the group and the additional attachments in general support.<sup>13</sup>

f. Summary: A summary of the artillery support of the operation, after the transfer of artillery on 25 November, shows that the XIII Corps had five light, 4.5 medium, and one heavy battalions per division committed. The XIX Corps had 4.33 light, 4.33 medium, and 3.33 heavy battalions per division committed prior to 25 November. After release of units to the XIII Corps, this average was four light, three medium, and 1.33 heavy battalions per division committed. The army brigade reinforced the two corps artilleries with the fire of three heavy battalions.

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17. Liaison. In general, liaison followed published doctrine. Liaison was maintained between corps artillery headquarters and between division artillery headquarters from right to left across army and corps boundaries. Liaison was maintained from corps artillery headquarters to division artillery headquarters and from reinforcing groups to the reinforced division artillery headquarters. In the XIX Corps the liaison officer from the reinforcing group represented corps artillery at the division artillery. The 7th Armored Division Artillery maintained liaison with the 113th Cavalry Group. Liaison within divisions followed normal procedure.

3

18. Ammunition Allocations. In allocating ammunition to the two corps, army allocated for a two-day period (D and D + 1). On D + 1 army allocated for a three-day period and followed this with six-day periods. The reason for the short initial periods was to allow army to judge expenditures and to insure placing the ammunition where needed. Army allocated one unit of fire per day for D and D + 1. For the next three days the allocation was reduced to one-half of a unit of fire per day for all calibers except the 155mm gun, which was cut to one-third of a unit of fire. On 25 November an allocation was made allowing .15 unit of fire per day for five days and one-half unit of fire for one day. In sub-allocating ammunition, the corps kept part of the total allocation under corps control to be added to the divisions' allocation or to be fired by general support groups as required. (It is interesting to note that British artillery, in the same operation, planned an expenditure (for divisional artillery) of more than twice that allocated Ninth

Army units. Moreover, actual British expenditures in this operation materially exceeded planned expenditures.<sup>3</sup> (British operated north of Ninth Army.)

15, 16.

19. Analysis of Fires and Fire Plans. Both corps artillery commanders involved in this operation were concerned with obtaining sufficient heavy artillery ammunition for the initial stages of the operation. It was felt that the preponderance of fire should be employed in overrunning the forward enemy positions, then the troops, having secured maneuver room, could advance with less artillery support. The fire plans were prepared simultaneously by corps artillery and division artillery and then coordinated. The division artillery prepared the fires for the first 3,000 yards to the front and corps artillery the deeper fires. Coordination consisted of checking to insure that all essential points were covered by fire, and in corps artillery's agreeing to place heavy artillery on certain desired points within the first 3,000 yards of the front lines. The corps artillery assumed responsibility for all counterbattery fires. Fire plans contained the normal fires on known enemy installations, harassing and interdiction missions, and the protective fires for the infantry and armor. The artillery of both corps supported the attack with call missions and planned counterbattery missions after the preparation. A new method of attacking known strong points and towns was evolved by the XIX Corps Artillery and the divisions concerned. All such points were completely covered with a series of concentrations, these being assigned to specific battalions. When the division was certain that it would be ready to attack any strong point at a certain time, division artillery notified corps artillery fire direction center and a "Time On Target" was set up. One volley was fired by all battalions, landing at the prescribed time, and then the division artillery battalions maintained neutralization while the infantry or armor advanced. This one volley included the fire of eight inch howitzer and 240mm howitzer battalions when available. This method proved very satisfactory, and it is believed that it saved much time and many casualties.

17

20. Ammunition Expenditures.

a. Ammunition expenditures for the artillery with Ninth Army, for the period 16-30 November, were as follows:

Date	105 How	4.5" Gun	155 How	155 Gun	8" How	240 How	8" Gun
16	1,937	63	415	154	90	0	0
17	12,127	2,310	4,227	1,124	645	195	130
18	17,139	2,265	4,772	1,515	663	191	83
19	17,957	1,810	4,741	2,314	879	150	116
20	14,426	1,485	2,825	1,329	653	113	64
21	15,064	2,101	3,714	958	533	75	27
22	17,401	1,377	4,709	1,256	439	65	24
23	15,034	1,544	3,782	1,172	405	137	50
24	11,458	813	3,164	928	517	30	18
25	11,900	1,576	4,327	1,257	426	26	2

(Continued on next page)

Date	105 How	4.5" Gun	155 How	155 Gun	8" How	240 How	8" Gun
26	5,503	474	1,514	161	240	11	19
27	10,761	1,177	2,015	929	178	0	0
28	5,927	577	1,268	499	212	5	21
29	6,885	1,084	2,081	315	380	8	4
30	<u>11,123</u>	<u>1,599</u>	<u>3,142</u>	<u>665</u>	<u>333</u>	<u>66</u>	<u>8</u>
Total	169,722	19,325	46,696	14,576	6,593	1,075	566

b. The ammunition expenditures shown above were taken from the Ninth Army daily expenditure reports, and a comparison with the available corps records shows that they are one day behind. Therefore, although the attack began on the 16th, the ammunition expenditures for the first day of attack are shown as of the 17th.

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#### CHAPTER 4

### ARTILLERY IN A PURSUIT

#### FRANCE AND BELGIUM

#### 21. General.

a. This part of the report shows the decentralization of the artillery in First Army during its pursuit from the Seine River to the Siegfried Line, 26 August to 13 September 1944. In this action, artillery firepower and artillery problems were, for the most part, in the hands of division artillery and direct support battalion commanders. Medium and even heavy artillery units found themselves marching and fighting in regimental combat team columns. The solution of First Army and two corps, the VII and XIX, to this problem of artillery in pursuit are considered. V Corps, although a part of First Army, is not included because of the nature of its assigned mission.

b. First Army was facing a shattered and disorganized enemy who, if pressed continually, would have no opportunity to organize the various defensive positions west of the Siegfried Line.

c. First Army, with VII and XIX Corps in pursuit, was to push the enemy back across France and Belgium giving him no time to take up strong positions west of the Siegfried Line.

#### 22. Organization for Combat.

a. First Army. Because of the situation and the desire to save all available transportation and gasoline, First Army issued orders that no artillery larger than the 155mm gun would be moved across the Seine River. Therefore First Army retained, under the control of the 32d Field Artillery Brigade, one eight inch gun battalion, four 240mm howitzer battalions, three eight inch howitzer battalions, and two group headquarters and headquarters batteries. The 32d Field Artillery Brigade formed truck companies with the organic transportation of these units and supported the advance by transporting infantry and supplies.<sup>1</sup> As the advance progressed during the first week of September, another group headquarters, two 155mm howitzer battalions, five 105mm howitzer battalions, three 4.5-inch gun battalions, and one 155mm gun battalion were released from the three corps and returned to army control.<sup>1</sup> The units under the 32d Brigade did not fire in support of the advance from positions east of the Seine River. They were, however, used to support the initial assault out of the bridgehead and supported the advance until the enemy was beyond maximum range from positions west of the river.<sup>3</sup>

b. VII Corps. The Corps Artillery Commander left most of the artillery attached to divisions. Corps Artillery, less attachments to divisions, consisted only of two group headquarters and headquarters batteries, plus four battalions of artillery; one 4.5-inch gun battalion, two 155mm gun battalions (less one firing battery each), and one 155mm howitzer battalion. It soon became apparent that the Corps Artillery mission of supporting the divisions was unnecessary until the situation became more stable. The units under Corps control were not called upon to fire, and the situation moved so rapidly that it was impossible for any Corps controlled unit to maintain any communication, other than radio. Also, the division light artillery and attached medium artillery was sufficient to support the action against any enemy resistance encountered. The battalions were moved to successive assembly areas in the Corps zone of advance prepared to occupy firing positions whenever the need should arise. Thus, the primary job of the Corps Artillery Commander became one of watching the enemy situation and keeping his artillery units within reach to assist in overcoming any stubborn enemy resistance. The balance of Corps Artillery was allocated to the divisions in the following manner:<sup>2</sup>

(1) Attachments to

1st Division:

Two 155mm howitzer battalions.  
One 155mm gun battery.

9th Division:

One 105mm howitzer battalion.  
One 155mm howitzer battalion.  
One 155mm gun battery.

3d Armored Division:

Two 105mm howitzer battalions,  
self-propelled.  
One 155mm gun battalion, self-propelled.

c. XIX Corps. Of the artillery allotted to XIX Corps, consisting of three light, five medium, and three heavy battalions, Corps retained control of two heavy battalions and four medium battalions. It was the original intention of the XIX Corps, in its initial organization for combat, that three groups would be formed, each one supporting one division of the Corps. Roughly, each group was to have two battalions of medium artillery and one battalion of heavy artillery. However, it was apparent by 1 September that Corps Artillery was not needed. Therefore, XIX Corps Artillery also formed truck companies to move infantry and supplies. Corps Artillery moved forward to assembly areas in the Corps route of advance and held itself in readiness in case it was called upon to fire.<sup>3</sup> The remainder of the artillery was distributed in the following manner:

(1) Attachments to

2d Armored Division:

Two 105mm howitzer battalions,  
self-propelled.  
One 4.5" gun battalion.  
One 155mm gun battalion, self-  
propelled.

30th Division:

One 105mm howitzer battalion.

d. Divisions. The divisions within the two corps distributed their artillery, organic and attached, as follows:

- (1) 1st Infantry Division -- each regimental combat team had in it one light battalion and one medium battalion. Division artillery retained control of the battery of 155mm guns for long range interdiction and harassing fires.<sup>5</sup>
- (2) 9th Infantry Division -- two regimental combat teams were supported by one light battalion and one medium battalion each. The third regimental combat team was supported by two light battalions. Division artillery retained control of the battery of 155mm guns.<sup>6</sup>
- (3) 3d Armored Division -- three light battalions supported combat command A, while two light battalions supported combat command B. The battalion of heavy guns traveled in column with one combat command in general support of the division.<sup>7</sup>
- (4) 2d Armored Division -- two light battalions were in support of combat command A, and two light battalions were in support of combat command B. One light battalion, one medium battalion, and one heavy battalion were in general support of the division.<sup>8</sup>
- (5) 30th Infantry Division -- each infantry regiment in this division had, in direct support, one light battalion, while one medium battalion and one light battalion were held by division artillery in general support.<sup>9</sup>
- (6) 79th Infantry Division -- this division left the XIX Corps on 5 September 1944. During its attachment it received no attached artillery, and each regiment was supported by one light battalion, with the one medium battalion in general support.<sup>3, 8.</sup>

e. Summary. Army supplied its corps with almost identical attachments, VII Corps receiving four light,

five medium, and four heavy battalions, XIX Corps receiving three light, five medium and three heavy battalions, while V Corps received three light, five medium and four heavy battalions. The corps artillery commanders of both the VII and XIX Corps were in agreement on the principle of attachments to divisions and the "leap-frogging" of corps artillery units through assembly areas in the corps zone. The division artillery commanders appeared to be almost in complete agreement concerning attaching the artillery to the regimental combat teams. The armored division of XIX corps received one more battalion than did the one in the VII Corps, but the infantry divisions of the VII Corps had considerably more medium and heavy artillery than did those of the XIX Corps. Investigation shows that in the VII Corps the artillery with divisions consisted of four light battalions, one and two-thirds medium battalions, and fifty-five hundredths of a heavy battalion per division. In the XIX Corps the artillery with divisions consisted of four light battalions, one medium battalion, and one-third of a heavy battalion per division. Within the division, artillery was usually given to regimental combat teams and traveled and fought in the regimental columns. Decentralization was the keynote for this rapid type of warfare where-in engagements came suddenly and were of short duration.

23. Liaison. Liaison, once the pursuit was in full swing, assumed very important proportions. Units constantly on the move found that a liberal exchange of liaison officers with radio as a primary means of communication was the best way of keeping all concerned posted on the situation. The number of liaison officers which artillery units sent to their supported organizations was greatly increased as the pursuit continued. Outstanding use was made of artillery observation planes in the matter of column control, reconnaissance, leading elements, reports, and liaison. In the XIX the artillery liaison planes were the only means of communication with the divisions during part of the drive from the Seine River to the Belgian border, since the advance of this corps became extremely rapid after leaving the Seine River bridgehead. Distances between command posts of all echelons became too great for the maintenance of adequate communication and liaison by normal means; therefore Corps Artillery liaison planes were used by the Corps to contact divisions, locate leading elements, and report any enemy activity observed. On the return of these planes the Corps Commander was given an accurate, current picture of the situation.<sup>2, 3, 4, 10.</sup>

24. Ammunition Allocations. Because of the rapid advance and the lack of well organized defensive action on the part of the enemy, ammunition expenditures were well below allowances. All units began the pursuit with a liberal load of ammunition and carried it most of the way. Consequently, ammunition allowances and expenditures played no important part in the operation.<sup>2, 3, 4.</sup>

#### 25. Analysis of Fire Plans and Ammunition Expenditures.

a. Fire Plans. The only "fire plans" as such were the prearranged missions assigned to the heavy artillery of the forward divisions to be fired as interdiction

fires during the night on points deep in enemy territory. During the day all fires were on call as the advance was slowed down or hampered by enemy resistance. 2, 3, 4.

b. Ammunition Expenditures. As a result of the rapid advance and the lack of organized enemy resistance, ammunition expenditures were light, much lighter than allowances, as has been pointed out in paragraph 24 above. The expenditures on the army level for the period 26 August to 13 September inclusive, are as follows:<sup>11</sup>

105mm Howitzer	124,588
4.5" Gun	1,273
155mm Howitzer	26,382
155mm Gun	9,384
8" Howitzer	2,006
240mm Howitzer	660
8" Gun	None

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#### Chapter 4

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3. After Action Report, XIX Corps Artillery, August and September, 1944.
4. After Action Report, V Corps Artillery, August and September, 1944.
5. Field Order No. 42, Headquarters 1st Infantry Division.
6. Field Order No. 24, Headquarters 9th Infantry Division.
7. After Action Report, 3d Armored Division Artillery, for August and September, 1944.
8. G-3 Periodic Reports, Headquarters XIX Corps, August and September, 1944.
9. After Action Reports, 30th Division, August and September, 1944.
10. XIX Corps Letter of Instructions dated September 5, 1944, stressing tremendous importance of radio communication in the present situation.
11. First Army Artillery Information Service, covering dates concerned.

## CHAPTER 5

### ARTILLERY IN A PURSUIT

#### FRANCE

#### 26. General.<sup>1,4.</sup>

a. This chapter shows how artillery support was rendered in the advance of XV Corps from Le Mans to Argentan, France, 8-17 August, 1944. This was a fast moving situation and decentralization was the key work for artillery support on both the corps and division level. The general mission of the Corps was to change its direction of attack from east to north and to assist in the entrapment of enemy forces in the Falaise area.

b. Enemy capabilities were estimated as follows:<sup>4</sup> "The enemy is capable of defending east of a line Angers-Lemans-Mayenne, while attempting to rush up reinforcements from S of the Loire River and possibly from the Pas De Calais Area, to build up a force to protect his exposed and extended W flank and rear from envelopment. The enemy is capable of withdrawing his forces from Le Mans-Sees Area to the N and E and reinforcing them with units from E of Seine and from S of Loire River. Immediately available as reinforcements in this area are the troops reported moving W and SW from Paris, the Tk ELms of 9 Pz Div and 11 Pz Div, and 331 Inf Div, the latter two reported moving but unlocated. Local counterattacks can be expected in the execution of this capability."

c. The scheme of attack and ensuing action were as follows:<sup>1</sup> "On the evening of 8 August, 1944, XV Corps occupied the Lemans with the 79th Infantry Division in the southern half of the city, the 90th Infantry Division in the northern half, and the 5th Armored Division in the eastern and northeastern outskirts of the town." The Commanding General, Third Army, issued oral orders on 9 August which directed XV Corps to change its direction of advance from east to north and capture Alencon. On the same day the 2 Armored Division (French), then enroute to the vicinity of Vitre, and the 80th Infantry Division moving east from Laval, were attached to the Corps: The attack of the XV Corps jumped off as planned at 0800, 10 August with the 5th Armored Division on the right (east), 2 Armored Division (French) on the left (west). The 79th Division, on the right, and 90th Division on the left, each followed closely behind the armored divisions. The 80th Infantry Division was protecting the Corps rear. The advance was rapid and by 14 August the 5th Armored Division was in the vicinity of Argentan, and the 90th Division occupied the high ground near Alencon. Late in the afternoon of 14 August the Commanding General, Third Army, directed XV Corps to march with half of its divisions to relieve the 5th Armored Division in the vicinity of Argentan. Corps ordered the 90th Division to extend the line to the east from Argentan, while the 79th Division on the south and the 5th Armored Division on the north were directed to march rapidly east on Dreux, prepared to cross the Eure River and advance to the Seine.

## 27. Organization for Combat.

a. XV Corps Prior to 14 August.<sup>1,2</sup> Due to the nature of the operation, Corps Artillery was decentralized to a large degree. In setting up the organization for combat, the Corps attached all of its light and medium battalions and two of its five heavy battalions to divisions. The Corps Artillery Commander's ideas and reasons for this organization for combat are shown in the following quotation: "The attachments of Corps Artillery to the armored divisions and to the infantry divisions following the armor provided a readily available artillery weapon for the repulse of German units attempting to escape from the Falaise pocket in an easterly direction; and in addition provided artillery means to repel attacks against the right flank of the Corps should such develop.... The provisions of a group headquarters with the 2d French Armored Division made available to them additional communications and control personnel. This assistance was deemed necessary because of the language difficulties involved and the unfamiliarity of personnel on with another."<sup>1</sup> The organization as shown below remained in effect until the Corps mission was changed on 14 August. The organization for combat was as follows:

### (1) Attachments to:

- 2 Armored Division (French):
  - One field artillery group.
    - One 105mm howitzer battalion.
    - One 155mm gun battalion.
- 5th Armored Division:
  - One 105mm howitzer battalion.
  - One 155mm howitzer battalion.
- 79th Division:
  - One 155mm howitzer battalion.
  - One observation battery.
- 90th Division:
  - One field artillery group
    - One 105mm howitzer battalion.
    - Two 155mm howitzer battalions.
  - One field artillery group
    - One 155mm gun battalion.
    - One 8" howitzer battalion.
    - One observation battery.

### (2) General support:

- One field artillery group
  - Two 155mm gun battalions.
  - One 240mm howitzer battalion.
- One observation battalion (less two observation batteries).

b. XV Corps Subsequent to 14 August.<sup>1,2</sup> The ideas of the Corps Artillery Commander concerning the new organization for combat are shown in the following quotation: "When the plan for the march of the 79th Infantry Division and 5th Armored Division on Dreux became apparent, Corps Artillery reorganization was begun to accomplish two ends: (1) to continue the coordinated employment with 90th Infantry Division and 2d French Armored Division of the long range artillery fire upon German escape routes in the gap beyond the Orne River (the restraining line of

the XV Corps), and (2) to provide Corps Artillery support for the advance upon Dreux."<sup>1</sup> Attachments and missions assigned were as follows:<sup>1</sup> Note: One 155mm howitzer battalion, XX Corps Artillery, was attached to the 80th Division Artillery after the operation began.

(1) Attachments to:

2 Armored Division (French):

One field artillery group  
One 105mm howitzer battalion.  
One 155mm howitzer battalion.

5th Armored Division:

One 105mm howitzer battalion.  
One 155mm howitzer battalion.

79th Division:

One field artillery group  
One 105mm howitzer battalion.  
Two 155mm howitzer battalions.  
One observation battery.

90th Division:

One 155mm gun battalion.  
One observation battery.

(2) General support:

One field artillery group  
One 155mm howitzer battalion.  
One 155mm gun battalion.  
One 8" howitzer battalion.  
One observation battalion (less two observation batteries).

c. Division Artillery. As the Corps began its attack from Le Mans each armored division had two light battalions supporting each of the two combat commands, with a medium (155mm howitzer) battalion in general support. The 79th and 90th Divisions were in Regimental Combat Team formation, with one combat team of each division motorized.<sup>2</sup> The 79th Division used two medium battalions in general support, while the 90th Division had its medium battalion as additional direct support for its motorized combat team, two light battalions in direct support of the second combat team, and one light battalion in direct support of the rear (reserve) combat team. The two groups attached to the 90th Division were in general support.<sup>3</sup> The 80th Division, protecting the left flank and rear of the Corps, supported one combat team with a light battalion, a second combat team with a light and a medium battalion, and the third combat team with an organic light battalion and a medium battalion attached from XX Corps Artillery.<sup>6</sup>

d. Summary. A summary of the artillery with the Corps during the initial phase of the pursuit shows that, of a total of 408 artillery pieces, 5th Armored Division had 84; 2 Armored Division (French) had 78, 79th Division had 60, 90th Division had 108, and 30 were under Corps control. The 80th Division had 60 pieces (including 12 from XX Corps Artillery not included in XV Corps total). The two infantry and two armored divisions actively engaged in the pursuit were backed by a total of 15 light, seven

medium, and five heavy battalions. The two infantry divisions in the pursuit were directly supported by an average of 3.5 light, 2.5 medium, and one heavy battalions, and each of the two armored divisions was directly supported by an average of four light and one medium battalions.

28. Liaison. In general, liaison followed normal Third Army Standing Operating Procedure and published doctrine. A corps artillery staff officer was sent to the artillery headquarters of the 2 Corps (Canadian) on the north of the Falaise "pocket" to assist in coordinating fires, and a Canadian officer was posted at XV Corps Artillery command post.<sup>1</sup>

29. Analysis of Fires and Fire Plans.<sup>1</sup> Due to the nature of the operation, a rapidly moving situation, there were no preparation and no prearranged fires, as such. A maximum of decentralization was practiced, with a view to keeping heavy artillery forward with the divisions where its longer range could interdict areas and routes of communication in, and leading out of, the Falaise "pocket". "The fluid nature of the situation, namely the absence of hostile coordinated defense in strength and the rapidity of movement desired, indicated the advisability of attaching the bulk of the artillery to the divisions. Through decentralization rather than through the exercise of centralized control under Corps, could Corps Artillery best render the close support required in this rapidly moving situation."<sup>1</sup>

30. Amunition Expenditures.<sup>5</sup> Amunition expenditures for the artillery with XV Corps, by weekly periods of the operation, were as follows:

	<u>6-13 Aug</u>	<u>13-20 Aug</u>
105mm Howitzer	10,398	20,799
155mm Howitzer	301	2,835
155mm Gun	58	2,119
8" Howitzer	12	213
240mm Howitzer	5	55

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### Chapter 5

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5. Ordnance Report, Third Army, August 1944.

6. G-3 Journal, 80th Infantry Division, August 1944.

## CHAPTER 6

### ARTILLERY IN A RIVER CROSSING

#### ROER RIVER, GERMANY

1, 2, 3.

#### 31. General.

a. The field artillery support rendered in Operation "GRENADE" is an excellent example of adequate artillery support for the assault of a strongly defended river line. This operation was the crossing of the Roer River and the advance to the Rhine River, in Germany, by the Ninth Army. The operation began on 23 February 1945, and was made simultaneously with an attack by the First Army on the south flank and the 2 Army (British) on the north flank.

b. The following enemy capabilities were listed at the time: "To continue the defense along the entire length of the present line, utilizing the West Wall, the Roer River defenses, and every terrain feature and fortified village as far as possible and employing a minimum of infantry forces while attempting to accumulate reserves of men, armor, and supplies. To retire under pressure to the Rhine, particularly south of Remagen, and to wage vigorous defense against an Allied crossing of that river."<sup>3</sup>

c. The scheme of attack for Ninth Army called for the XIX and XIII Corps to cross the Roer River initially, with the XVI Corps clearing the remaining resistance on the west bank in its zone. The VII Corps (First Army) protected the right (south) flank and 2 Army (British), the left (north) flank of Ninth Army. Ninth Army was then to expand the bridgehead, clear the Cologne Plain, and seize the west bank of the Rhine River. Ninth Army effected the assault crossing with the XIX Corps on the right (south) and the XIII Corps in the center. The XVI Corps, on the left (north), made a demonstration in its zone and crossed the river after the bridgehead had been secured in its zone by the XIII Corps.

#### 32. Organization for Combat.

a. The Ninth Army allocated all of its non-divisional artillery to the three corps except one brigade headquarters, two group headquarters, and four heavy battalions. The division artillery of the army reserve division, the 95th Infantry Division, was allocated to the XIII Corps for use in supporting the river crossing. The Army brigade supported the XIII and XIX Corps.

2, 5.

b: XIX Corps. The Corps consisted, initially, of the 29th, 30th, and 83d Infantry Divisions and the 2d Armored Division. The assault of the river line was made with two infantry divisions abreast, the 29th and 30th, and followed up with the armored division and remaining infantry division. During the assault of the river line no artillery was kept in reserve. The 83d Division Artillery was attached to the 29th Division, and the 2d Armored Division Artillery, with two attached armored battalions, was attached to the 30th Division; these division artilleries reverted to division control when they were out of

range from positions west of the Roer River. All light battalions and one medium battalion were also attached to the assault divisions. The complete organization for combat was:

(1) Attachments to

29th Division:

83d Division Artillery.  
One 105mm howitzer battalion.  
One 4.2" chemical mortar battalion  
(less one company).

30th Division:

2d Armored Division Artillery:  
Two 105mm howitzer battalions, self-propelled.  
One 105mm howitzer battalion.  
One 155mm howitzer battalion.  
One 4.2" chemical mortar company.

(2) General support, reinforcing fires of

29th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.  
One 8" howitzer battalion.

30th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.  
One 8" howitzer battalion.

(3) General support

One field artillery group  
One 4.5" gun battalion.  
One 155mm howitzer battalion.  
One 155mm gun battalion, self-propelled.  
One 3" gun tank destroyer battalion.  
One 90mm gun tank destroyer battalion.  
One field artillery group headquarters.

Note: The chemical mortar battalion referred to above had been trained in the tactics and technique of field artillery.

c. XIII Corps.<sup>6,7,8.</sup> The Corps consisted of the 84th and 102d Infantry Divisions and the 5th Armored Division. The XIII Corps attacked with two infantry divisions abreast, the 102d Infantry Division on the right employing two regiments abreast, each in a column of battalions, and the 84th Infantry Division on the left crossing with one regiment in a column of battalions. In setting up the organization for combat, the Corps attached all light battalions to divisions, and kept all non-divisional medium and heavy battalions under Corps control. The organization for combat was:

(1) Attachments to

84th Division:

95th Division Artillery  
One 105mm howitzer battalion.  
One 3" gun tank destroyer battalion.

102d Division:

5th Armored Division Artillery.  
One 105mm howitzer battalion, self-propelled.  
One 105mm howitzer battalion.  
One 3" gun tank destroyer battalion.  
Two 90mm gun tank destroyer battalions.

(2) General support, reinforcing fires of

84th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 8" howitzer battalion.

102d Division:

One field artillery group  
Three 155mm howitzer battalions.

(3) General support

One field artillery group  
One 4.5" gun battalion.  
Three 155mm gun battalions.

d. XVI Corps.<sup>1,4</sup> The Corps consisted, initially, of the 35th, 75th, and 79th Infantry Divisions and the 8th Armored Division. This Corps, which was on the left (north) flank of Ninth Army, participated in the artillery preparation on 23 February and effected a demonstration in its zone. Also, the Corps cleared the remaining area west of the Roer River. The 35th Division captured Hilfarth, made untenable for the enemy by the northward advance of the XIII Corps, crossed the Roer, and secured substantial bridgeheads. The 35th Division and 8th Armored Division then struck northeast to the Rhine. In setting up the organization for combat to support this action, the Corps attached all of its non-divisional light and one of its medium battalions to divisions; the 79th Division Artillery was attached to Corps Artillery for operations. The complete organization for combat was:

(1) Attachments to

35th Division:

One 105mm howitzer battalion (armed with British 25-pounders)  
One 105mm howitzer battalion.  
One 155mm howitzer battalion.  
One 90mm gun tank destroyer battalion.

8th Armored Division:

One 105mm howitzer battalion (armed with British 25-pounders)  
One 76mm gun tank destroyer battalion.

- (2) General support
- One field artillery group
    - One 4.5" gun battalion.
    - One 155mm gun battalion.
  - One field artillery group
    - One 4.5" gun battalion.
    - One 155mm howitzer battalion.
  - One field artillery group
    - One 155mm gun battalion.
  - 79th Division Artillery.
  - One 90mm gun tank destroyer battalion.

e. Division Artillery. The artillery organization for combat of the different division artilleries will be discussed under the heading of the corps to which they were attached.

- (1) XIX Corps. For the initial assault of the Roer River the 29th Division Artillery supported the two regiments in line with one light battalion in direct support of each regiment, with two light battalions reinforcing one direct-support battalion and one light battalion reinforcing the other direct-support battalion. Two light and two medium battalions were in general support.<sup>7</sup> The tank destroyer battalion with the Division participated in the pre-arranged fires of the Division Artillery. After the 83d Division Artillery was released, the Division was supported by four light and one medium battalions, organic and attached, and the Corps reinforcing group. The 30th Division Artillery supported the two attacking regiments with two light battalions in direct support of one regiment, and a light and a medium battalion in direct support of the other regiment. Six light battalions (of which five were armored battalions) and one medium battalion were in general support.<sup>12</sup> The tank destroyer battalion with the Division participated in the prearranged fires under the Division Artillery. When the 83d Division was committed the Division Artillery supported the two regiments in line with a light battalion in direct support of each and a light and medium battalion in general support.<sup>11</sup> When the 2d Armored Division was committed, two light battalions were placed in direct support of each of the two combat commands and one light battalion was retained in general support.<sup>9</sup>
- (2) XIII Corps. To support three regiments in column, the 84th Division Artillery placed a light battalion in direct support of each infantry regiment, with an additional light battalion reinforcing the fires of the leading direct-support

battalion, and with three light and two medium battalions in general support.<sup>6</sup> The 102d Division Artillery supported the two regiments in line with a group of two light battalions (controlled by one battalion headquarters) in direct support of each regiment, a light battalion (105mm howitzer; self-propelled) reinforcing each group, and two light battalions (105mm howitzer, self-propelled) and one medium battalion in general support.

- (3) XVI Corps maintained a holding position until the bridgehead had been expanded. The 35th Division Artillery supported each of three regiments in line with a light battalion, with one light and one medium battalion reinforcing each of two direct-support battalions. The 75th Division Artillery directly supported each regiment with a light battalion, with the medium battalion in general support. When committed, the 8th Armored Division supported each of combat commands "A", "B", and Reserve with one light battalion, with one light battalion in general support.

f. Summary. 16

- (1) A summary of the artillery support during the operation shows that of 498 non-divisional artillery pieces available to Ninth Army, the XIX Corps received 204, XIII Corps received 162, XVI Corps received 108, and 24 remained under Army control. Considering all of the artillery with each Corps, the XIX Corps had 402 pieces, XIII Corps had 360, and XVI Corps had 264. In addition to this artillery, each Corps employed four tank destroyer battalions as field artillery to support the initial assault and protect the bridgehead. This added 144 pieces to the artillery with each corps. The army brigade reinforced the fires of the XIII and XIX Corps Artillery with four heavy battalions.
- (2) To support the operation, the Ninth Army had, including organic division artillery, 3.8 light battalions, 2.2 medium battalions, and 1.2 heavy battalions per division.
- (3) Including division, corps and army artillery, each of the two assault divisions of the XIX Corps was supported by an average of eight light, five medium and 2.5 heavy battalions. The two assault divisions of the XIII Corps were each supported by 7.5 light battalions,

4.5 medium battalions, and two heavy battalions, excluding army support of four heavy battalions.

33. Liaison.<sup>2</sup> Liaison was maintained from right to left between corps artillery headquarters across Army boundaries with the exception that the XIII and XIX Corps exchanged liaison officers. Division artillery maintained liaison from right to left across Corps and Army boundaries. To insure better coordination of fire, lateral telephone lines were laid between artillery headquarters. Reinforcing groups maintained liaison with the supported division artillery and in the XIX Corps these officers from the groups represented corps artillery also.

34. Ammunition Allocations. Ninth Army made two ammunition allocations for the operation. The first was made to cover the period 23-27 February inclusive and the second to cover the period 28 February to 5 March. Allocation were sufficient to allow adequate artillery support.

a. The allocations to the XIII and XIX Corps for 23-27 February are shown below. The allocation to XVI Corps is not available at this time but it was sufficient to allow the corps to participate in a diversionary preparation in conjunction with the attack of the XIII and XIX Corps and to support their own attacks during the period.<sup>5</sup>

Type	U/F	Number of Rounds	
		XIII Corps	XIX Corps
105mm Howitzer	7	178,500	194,250
155mm Howitzer	8	57,600	64,800
155mm Gun	8	14,400	14,400
4.5" Gun	5	4,500	4,500
8" Howitzer	7.5	4,500	9,000

The 34th Field Artillery Brigade was allocated five U/F for the three 240mm howitzer battalions and the one 8-inch gun battalion reinforcing the fires of the XIII and XIX Corps Artillery. It was expected that all of this allocation would be used in the first two or three days to support the bridgehead across the Roer River.

b. For the period 28 February to 5 March, Ninth Army made the following allocations:<sup>17</sup>

	XIII Corps	XVI Corps	XIX Corps	34th FA Brigade
105mm Howitzer	65,300	23,100	71,000	0
25 Pounder	0	10,000	0	0
4.5" Gun	2,220	2,220	2,220	0
155mm Howitzer	16,260	4,090	18,380	0
155mm Gun	4,400	1,390	4,440	0
8" Howitzer	1,500	0	3,000	0
240mm Howitzer	0	0	0	1,125
105mm Howitzer (White Phosphorus)	3,060	1,080	3,300	0
8" Gun	0	0	0	525
155mm Howitzer (White Phosphorus)	1,440	360	1,620	0
155mm Gun (White Phosphorus)	100	50	100	0

### 35. Analysis of Fires and Fire Plans.

a. XIII Corps.<sup>6</sup> The Corps Artillery carried out a harassing and interdiction program during the period 11-23 February. Targets for this program were selected each day from latest photo interpretation, aerial reconnaissance, and prisoner of war interrogation reports. Targets included enemy command posts; billets, assembly areas, concentration areas, kitchens, supply depots, and communication centers. This program was believed necessary to prevent the improvement of the enemy defensive positions east of the Roer River. The XIII Corps' attack at 0330 on 23 February was preceded by a 45-minute preparation by the artillery with the Corps. The preparation included all known enemy installations, defensive works, command posts, artillery positions, and observation posts. The corps artillery groups, by coordinating their moves with division artillery, were able to render maximum support. By keeping the corps artillery under centralized control, the fire of many battalions could be massed on call to support the attack of either division or to neutralize any threat to the advance. (Note: Annex 1 to the XIII Corps After Action Report, which covered the artillery plan, is not available.)

b. XVI Corps.<sup>14,15</sup> Non-divisional artillery with the XVI Corps participated in the preparation for the attack on 23 February by the XIII and XIX Corps. Division artilleries fired as follows:

- (1) 8th Armored Division Artillery participated in the preparation fires from 0245 to 0330, 23 February, with harassing and interdiction fire from 0330 to 0730 and observed fire from 0730 to 1000. A total of 2,587 rounds were fired.<sup>15</sup>
- (2) The 75th Division Artillery fired a total of 2,561 rounds in a diversionary preparation and in fires to assist the attack to the Roer River.<sup>14</sup>

c. XIX Corps.<sup>5</sup> On 23 February Corps Artillery supported the attack of the 29th and 30th Divisions by firing a 45-minute preparation, hitting enemy batteries, assembly areas, communication centers, towns, and areas requested by divisions. Schedule of fires after H-hour and up to H + 200 minutes included continued neutralization of enemy batteries and fire on towns. The purpose of the preparation was to harass enemy assembly areas, disrupt communications, and prevent movements of troops and equipment. Targets were picked with this purpose in mind. Scheduled fires also included fire on towns and other strong points that would be attacked during the day. Tank destroyers participated in the scheduled missions, firing enfilade fire on main routes of approach to deny their use to the enemy. Corps Artillery fired 135 missions from H - 45 minutes to H + 200 minutes and expended 6,768 rounds. The preparation of the Corps Artillery was in conjunction with and superimposed upon division artillery fires. In preparing the fires division artillery prepared all fires within 3,000 yards of the front lines and Corps Artillery prepared all deeper fires.

The fires were then coordinated to assure that all targets were covered. In addition, the Corps Artillery assigned missions to the 240mm howitzer and 8-inch howitzers on close targets as requested by division artillery. The 240mm howitzers were assigned targets within 800 yards of the front and the 8-inch howitzers within 400 yards. From H - 45 minutes to H / 200 minutes, the 30th Division Artillery fired approximately one unit of fire from all organic and attached artillery, and the firing by the 29th Division Artillery was almost as heavy. In addition, the tank destroyers of both divisions fired neutralization and interdiction fires prepared by the division artillery. When the attack jumped off at H-hour, enemy artillery was reported as being extremely light. This lack of enemy artillery fire is believed to be due to a large extent to the disruption of communications and the counterbattery program included in the scheduled fires. During the period, from H - 30 to H / 200, Corps Artillery fired on a total of 47 suspected and confirmed enemy battery locations. Fire was repeated once or twice on all positions.

### 36. Ammunition Expenditures.

a. Total Ammunition Expenditures, Ninth Army, 22 February - 4 March 1945:

<u>Date</u>	<u>105 H</u>	<u>4.5" G</u>	<u>155 H</u>	<u>155 G</u>	<u>8" H</u>	<u>240 H</u>	<u>8" G</u>
22 Feb*	37,515	1,625	14,686	2,950	1,573	371	283
23 Feb	58,352	1,902	22,634	4,633	2,547	479	271
24 Feb	34,173	2,446	13,770	4,254	2,256	525	213

Total 22-27 February inclusive:

<u>105 H</u>	<u>4.5" G</u>	<u>155 H</u>	<u>155 G</u>	<u>8" H</u>	<u>240 H</u>	<u>8" G</u>
208,763	10,877	83,733	25,658	11,114	2,045	1,241

\*Although the attack took place 23 February, expenditures for all of the preparation and some of the attack fires are shown on 22 February. This is because the period for computation was 0600 to 0600.

b. During the period 22-24 February, inclusive, which included the first two days of the attack, a large percentage of the total ammunition for the operation was expended, this being especially true in the heavier weapons. Tabulated below are these percentages.

<u>Caliber</u>	<u>Ammunition Expended</u>		<u>%</u>
	<u>22-24 Feb (incl)</u>	<u>22 Feb-4 Mar (incl)</u>	
105mm Howitzer	130,040	287,967	45.2
4.5" Gun	5,973	15,632	38.2
155mm Howitzer	51,090	105,735	48.3
155mm Gun	11,837	32,916	36.0
8" Howitzer	6,376	12,860	49.6
8" Gun	767	1,241	61.8
240mm Howitzer	1,375	2,096	65.6

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ARTILLERY IN A RIVER CROSSING

ROER RIVER, GERMANY

37. General.

a. This part of the study shows the field artillery support rendered in the VII Corps' crossing of the Roer River and the securing of bridgeheads, 23-24 February 1945. Ammunition was severely rationed in First Army and almost unlimited in Ninth Army. Therefore an evaluation of artillery support in this type operation can be made by a comparison of the VII Corps with the corps of the Ninth Army on its left flank in the same operation.<sup>1</sup>

b. Since any crossing of the Roer River in the Duren area would open the way to a drive to Cologne and the Rhine, stubborn enemy resistance was expected.<sup>1</sup>

c. The VII Corps launched the attack with the 8th Infantry Division on the right and the 104th Infantry Division on the left, each employing two regiments in the assault. The 3d Armored Division, the 99th Infantry Division and the 4th Cavalry Group were in reserve.<sup>1</sup>

38. Organization for Combat.

a. VII Corps. Corps had available to it at this time, the following non-divisional artillery: Three light battalions, six medium battalions, four heavy battalions consisting of one battalion of 8-inch howitzers and three battalions of 155mm guns, and three group headquarters. In addition, one group of two heavy battalions from the army brigade supported the Corps effort. The III and V Corps Artillery were also to support the VII Corps assault. The organization for combat was as follows:<sup>2</sup>

(1) Attachments to

104th Division:

- One 105mm howitzer battalion:
- One 105mm howitzer battalion, self-propelled.
- One 155mm howitzer battalion.

8th Division:

- One 105mm howitzer battalion.
- One 155mm howitzer battalion.

(2) General support

- One field artillery brigade
- One field artillery group
  - One 240mm howitzer battalion.
  - One 8" gun battalion.
- One field artillery group
  - Two 155mm howitzer battalions.
  - One 155mm gun battalion.
- One field artillery group

One 4.5" gun battalion.  
One 155mm howitzer battalion.  
One 155mm gun battalion, self-propelled.  
One field artillery group  
One 8" howitzer battalion.

b. 104th Infantry Division. Organic and attached artillery was organized to support the two regiments in the attack as follows: One regiment was directly supported by one light battalion with a second light battalion reinforcing its fires, and the other was directly supported by one light battalion with two light battalions (one of them self-propelled) reinforcing its fires. The two medium battalions were in general support.<sup>3</sup>

c. 8th Infantry Division. There were attached to this division one light and one medium battalion. The artillery was disposed as follows: One light battalion in direct support of each of the two attacking regiments, with another light battalion reinforcing the fires of each direct support battalion. The two medium battalions were in general support.<sup>4</sup>

d. Summary. The corps attacked with four regiments abreast, with each assault regiment being supported by an average of 2.25 light battalions and one medium battalion at the division level, and one medium battalion and one heavy battalion at corps level.

39. Liaison. Liaison was normal. Artillery communications were primarily by wire with no special problems to be overcome.

40. Ammunition Allocations. At the time of the Roer River crossing, ammunition was stringently rationed in First Army. In an attempt to build a reserve the VII Corps had saved as much ammunition as possible during February. The Corps was reasonably successful in this attempt, but still considered itself too low in ammunition to fire a great many battalion or multiple battalion concentrations. This fact is emphasized in the fire plans by the abnormal number of battery concentrations fired. The rationing in effect at this time was as follows:<sup>5</sup>

105mm Howitzer	- 29 rounds per gun per day
4.5" Gun	- 20 rounds per gun per day
155mm Howitzer	- 19 rounds per gun per day
155mm Gun	- 22 rounds per gun per day
8" Howitzer	- 18 rounds per gun per day
8" Gun	- 12.3 rounds per gun per day
240mm Howitzer	- 35 rounds per gun per day

#### 41. Analysis of Fire Plans and Ammunition Expenditures.

a. Fire Plans. V Corps Artillery, in coordination with the VII and III Corps Artillery, fired a ten minute diversionary preparation on 21 February in order to cause the enemy to begin his counterpreparation, thus revealing his mortar and artillery positions. A total of 22 new locations of enemy batteries and mortar positions were made as a result of this preparation. This deception was repeated for 15 minutes on 22 February. The 45 minute

artillery preparation for the Corps attack started at 0245 hours 23 February and included a few heavy concentrations on known enemy batteries and village strong points, fires on enemy frontlines, command posts, and supply dumps, and interdiction fires on enemy communication centers. The fires on communication centers were continued after H hour. All available weapons, including assault howitzers, tanks, tank destroyers, and antiaircraft guns took part in the preparation. Corps and division artilleries fired more than 36,000 rounds in the 24 hour period up to 1200 hours.<sup>2</sup> "The 116th AAA (90mm gun) Battalion aided in the preparation and subsequent counterbattery fire on the corps front. The fires of the 90mm guns were placed on the enemy batteries about 10 minutes after a time on target had landed in order to catch the clean-up squads and enemy personnel coming out of shelters."<sup>2</sup> The 8th Division's fire plan embraced a total of 591 on-call fires in its two-regiment sector, with the method of fire being one battery two volleys per minute for five minutes. There were 236 concentrations in the preparation from H-45 minutes to H + 35 minutes, with the light battalions firing one battery four volleys per minute for three minutes, and the medium battalions firing one battery two volleys per minute for three minutes on each. The 1st Division aided the 8th Division in the preparation and subsequent fires with a total of 2001 rounds of 105mm howitzer ammunition and 676 rounds of 155mm howitzer ammunition.<sup>4</sup> The 104th Division fired 286 concentrations in the preparation, 141 of which were in one regimental zone and 145 in the second. This division's support of its attacking regiments was the heaviest on the corps front, one regiment being backed by 24 light guns and the other being backed by 42 light guns.<sup>3</sup> Corps artillery fired 130 concentrations in the preparation, 63 of which were refired at intervals, some for as long as 14 hours, as part of the corps harassing program. The methods of fire varied from multiple battalion concentrations to battery volleys, with the greater proportion of the missions being battery missions.<sup>6</sup> This emphasis on battery missions was caused by ammunition restrictions and was not the desire of the artillery commanders within the corps. As part of the VII Corps attack, a 155mm gun (self-propelled) battalion was assigned the mission of destroying a water tower located in Duren. The enemy was thought to be using the tower as an observation post. Two M-12's (155mm Gun, self-propelled), were assigned the mission. The tower was estimated to be approximately 100 feet high and was constructed of reinforced concrete. Positions were reconnoitered as close to the Roer River as possible and were selected just outside Rolsdorf near the Eschweiler-Duren highway, and about 600 yards from the river. It was desired to open fire at first light but the river haze and smoke prevented observation. At about 1000 hours an air OP was able to begin adjustment and several hits were obtained. An hour later ground observation was possible and the tower was taken under direct fire. The observation platform was first neutralized. The tower was then attacked at the base by both guns, one firing high and the other low. A total of 130 rounds of high explosive and one round smoke, white phosphorus, were fired (about 90% hits) before the tower collapsed. Corps had also placed a total of 12 teams at the bridge sites, for reporting enemy shelling, azimuths, etc., to aid in counterbattery against enemy

artillery firing at those points. These teams had direct communications with Corps Artillery Headquarters. No report is available on the effectiveness of these teams.

b. Ammunition Expenditures. Ammunition expenditures for the 23d and 24th of February were relatively heavy. On the 25th, the attack began to move away from the river area, the bridgehead were secure, and the mission of forcing the river crossing was completed. Consequently, ammunition expenditures for the 23d and 24th only will be considered.

- (1) On 23 February the 104th Division expended 18,000 rounds of 105mm ammunition and 2,500 rounds of 155mm ammunition. The 8th Division expended 4,037 rounds of 105mm ammunition; and 1,012 rounds of 155mm ammunition, while corps expended 6,721 rounds of all calibers. The corps expenditure for the 45 minute preparation, by caliber, was as follows: 588 rounds of 4.5-inch gun; 1,660 rounds of 155mm howitzer, 1,174 rounds of 155mm gun; 336 rounds of 8-inch howitzer, 288 rounds of 90mm gun; 78 rounds of 8-inch gun; 66 rounds of 240mm howitzer.<sup>2</sup>
- (2) On 24 February the 104th Division fired 15,540 rounds of 105mm ammunition and 2,806 rounds of 155mm howitzer. The 8th Division fired 4,902 105mm rounds and 1,447 155mm howitzer rounds. Corps artillery fired 5,799 rounds of all calibers.<sup>2</sup>

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## CHAPTER 8

### ARTILLERY IN A RIVER CROSSING

#### RHINE RIVER, GERMANY

42. General.<sup>1,2.</sup>

a. This is a study of the field artillery support rendered in Operation "FLASHPOINT", the crossing of the Rhine River, Germany, on 24 March, 1945, with respect to the artillery with Ninth Army. The mission of the operation was to effect an assault crossing of the defended Rhine River, establish and expand a bridgehead, and use this bridgehead as a base for continued operations into central Germany.

b. Enemy situation and capabilities were estimated as follows:<sup>1</sup> "Intelligence sources had identified three infantry divisions holding the eastern bank of the Rhine, totalling some 7,000 men, three Volksgrenadier divisions of 7,250 men, one parachute division of 4,500, and Division Hamburg, 2,500 men. Miscellaneous elements brought the estimated total of enemy forces to 23,750. Some 21,500 reserves were considered as likely to appear; the 190 Volksgrenadier Division and the 116 Panzer Division were later identified with a total strength of 6,500 men. The enemy had stretched his forces along the Ninth Army front, approximately 50 miles, extending from Wesel on the north to Worringen on the south. A complete defense of the entire river line was impossible, but the Germans had organized cores of resistance to protect their vital areas. The richest prize was the Ruhr industrial area. Its Rhine River front was bounded on the north by Duisberg and on the south by Dusseldorf."

c. Ninth Army scheme of attack was as follows:<sup>3</sup> The XVI Corps was to make the assault crossing with the 30th and 79th Infantry Divisions and expand the bridgehead with the 35th and 75th Infantry Divisions and the 8th Armored Division. The XIX Corps and XIII Corps were to pass through the bridgehead, expand it to the northeast and attack east. The XVIII Airborne Corps was to make an air drop northeast of Wesel with the 6 Airborne Division (British) and US 17th Airborne Division, the latter to pass to control of the XIX Corps when that Corps passed through the bridgehead.

d. At 0200, 24 March, the 30th Infantry Division launched its attack after an hour's artillery preparation. After a similar preparation, the 79th Infantry Division jumped off at 0300 hours. At 1000 hours the 17th Airborne Division and 6 Airborne Division (British) made drops east of Wesel. By the end of the day both infantry divisions had all their infantry battalions across the river. The attack was heavily supported by artillery. The crossings were quickly made and the casualties were extremely light.

#### 43. Organization for Combat.

a. Ninth Army.<sup>1</sup> In setting up its organization for combat, Army allocated all its non-divisional artillery to the three Corps. To support the assault of the river line the entire XIX Corps Artillery (less one 8-inch howitzer battalion and one field artillery observation battalion) was attached to XVI Corps. This was done to prevent breaking up the organization of that Corps Artillery and so that it could be readily available as the XIX Corps passed through the bridgehead.

b. XVI Corps.<sup>4</sup> In setting up the organization for combat the Corps Artillery employed its own fire direction center in the zone of the 79th Division and the XIX Corps Artillery Fire Direction Center in the zone of the 30th Division. The 75th Division Artillery supported the defensive position of its Division and fired in support of the 30th and 79th Divisions in the preparation. The complete organization for combat was as follows:

(1) Attachments to

30th Division:

35th Division Artillery.  
One 105mm howitzer battalion:  
One 105mm howitzer battalion, self-propelled.  
One 155mm howitzer battalion.

79th Division:

8th Armored Division Artillery.  
One 105mm howitzer battalion:  
One 105mm howitzer battalion, self-propelled.  
One 155mm howitzer battalion.

75th Division:

Two 105mm howitzer battalions:  
Two 105mm howitzer battalions, self-propelled.  
One 105mm howitzer battalion (armed with British 25 pounders).  
One tank destroyer company, 3-inch gun.

(2) General support, reinforcing fires of

30th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.  
One 8" howitzer battalion.

79th Division:

Two 155mm howitzer battalions.

(3) General support

One field artillery brigade  
One field artillery group  
Two 240mm howitzer battalions.  
One 8" gun battalion.  
One field artillery group  
One 4.5" gun battalion.  
Two 155mm howitzer battalions (reinforcing fires of 79th Division).  
One 8" howitzer battalion.  
One field artillery group  
One 155mm gun battalion.  
Two 8" howitzer battalions.  
One field artillery group  
One 4.5" gun battalion.  
Two 155mm howitzer battalions.

One field artillery group  
One 4.5" gun battalion.  
One 155mm gun battalion.  
One 240mm howitzer battalion.  
One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.  
One 8" howitzer battalion.

c. XIII and XIX Corps.<sup>5,6</sup> The organization for combat is not considered in this report because it is of little importance to the river crossing. It does not assume importance until the Corps were committed through the XVI Corps bridgehead, and this study does not continue beyond the establishment of the bridgehead. The XIII Corps Artillery did fire in support of the XVI Corps crossing from positions in their own sector. The Corps employed the 84th Division Artillery, one 4.5-inch gun battalion, three 155mm howitzer battalions, two 155mm gun battalions and one 8-inch howitzer battalion in delivering this support.

d. Division Artillery. There was no standard organization for combat of division artillery; this varied according to mission, attachments, and normal procedure. Only those divisions' artillery under the XVI Corps at the time of the river crossing will be considered. The 30th Division Artillery supported three regiments with a light battalion in direct support of each, with a light battalion reinforcing the fires of each of the direct-support battalions behind the two leading regiments, and with two medium battalions and the 35th Division Artillery in general support.<sup>7</sup> The 79th Division Artillery supported two attacking regiments with a group of two light battalions, under one battalion headquarters, behind each regiment; in general support were the 8th Armored Division Artillery, two medium battalions, and a group of two light battalions, under one battalion headquarters. The latter two battalions were prepared to revert to direct support of the third infantry regiment on order.<sup>8</sup> The 75th Division Artillery had three missions, executed as follows: Supporting the defense of the sector and firing a demonstration preparation were two light and one medium battalions; participating in preparation of 30th Division Artillery were three light battalions; and participating in preparation of 79th Division Artillery were two light battalions.<sup>9</sup>

e. Summary.<sup>14</sup> The assault of the river line was supported by a total of 798 guns under field artillery control. This figure does not include tank destroyer and antiaircraft guns firing as artillery but does include 132 artillery pieces of the XIII Corps which fired in support of the crossing. Excluding general support artillery, the 30th Division was supported by 11 light, five medium, and two heavy battalions, and the 79th Division was supported by 10 light, and four medium battalions. Including the general support battalions the two infantry divisions were supported by 24 light, 17 medium, and 13 heavy battalions under XVI Corps. This was reinforced by an additional three light, five medium, and three heavy battalions of the XIII Corps.

44. Liaison. In general, liaison followed published doctrine and Ninth Army Standing Operating Procedure, which prescribed liaison from right to left for the division artillery in line. Reinforcing groups provided liaison officers to reinforced division artillery; these officers also represented corps artillery. In the XIX Corps Artillery, after it reverted to Corps control, all groups maintained liaison with Corps Artillery Headquarters and with Ninth Army Traffic Control Section, prepared to motorize the 83d Infantry Division.

#### 45. Ammunition Allocations.

a. Ninth Army. For the build-up period 16-24 March, Ninth Army made the following ammunition allocation to XVI Corps: 15

105mm Howitzer	14,400 HE
	1,150 WP
25-Pounder	1,440
4.5" Gun	1,440
155mm Howitzer	2,880 HE
	380 WP
155mm Gun	960
8" Howitzer	1,200

For the period 25-28 March, the allocation was as follows:

105mm Howitzer	294,400 HE
	14,700 WP
25-Pounder	No restrictions
4.5" Gun	21,600
155mm Howitzer	100,800 HE
	1,000 WP
155mm Gun	19,200 HE
	300 WP
8" Howitzer	24,000

For the period 29-31 March, there were no restrictions.

46. Analysis of Fires and Fire Plans. The assault crossing was supported by a heavy artillery preparation and by almost continuous firing throughout the entire first day. The Corps Artillery fired all requested missions and in the absence of any such requests fired any mission that was felt to be beneficial at the time. This was done to maintain the volume of fire in the enemy territory, to disrupt his communications and to deny him use of roads and areas. The Corps Artillery fired in support of the British crossing at Wesel prior to the preparation of the XVI Corps. The following quotations are included to give a picture of the preparation and fires to support the attack:

"On 23 March definite information was received from the British, designating the area upon which the 119th FA Group would fire just previous to 2400. This area was broken down into twelve (12) concentrations; a battery of each of the battalions was placed thereon." 18

"At 2230, 119th FA Group commenced firing the preparation requested by the British on Wesel A2240.

This fire was continued until 2245 at the rate of one round per gun per minute. Subsequent reports by the British indicated that our fire was well placed and assisted materially when the commandos entered Wesel A2240 during the night."18

"Opn FLASHPOINT opens. A sixty minute artillery preparation preceded the attack of the 30 Inf Div at 0200 hours, and another sixty minute preparation was fired prior to the attack of the 79 Inf Div at 0300 hours. Enemy batteries and installations, main traffic junctions and special targets were included in the preparation. A schedule of pre-arranged fires was maintained for three hours immediately subsequent to the preparation. 864 Bn concentrations were fired by Corps Arty during the preparation and scheduled fires, of which 175 were on enemy batteries. All weapons of Corps Arty from 155 H to 240 H, participated in the program. Participating \*\*\* were 54 Bns of Arty, including the Arty of 5 Divisions. 144 TD weapons participated in the preparation and scheduled fires in their secondary role. From 0930 to 1330 24 March, 10 Bns of Corps Arty, under operation of XIX Corps Arty, and \*\*\* (two) AAA Gun Bns fired a counterflak program to assist the air-drop operation. 26 flak battery positions were covered, with a total expenditure of approximately 1850 rounds."15

"On 24 March, commencing at 0100, the XIX Corps Artillery battalions commenced firing through the one-hour preparation as called for by the Fire Plan. These fires were placed on carefully selected areas to disrupt communications, on CP's and likely assembly areas, and on all enemy batteries that had been located. Scheduled fire called for missions up to H / 210. After this time, it was left up to Corps Fire Direction Center to fire whatever missions might be requested by the 30th Division, or, in the absence of any such requests, whatever missions they felt would be beneficial at that time. Subsequent reports by the 30th Division indicate that the assault battalions had no difficulty whatsoever in crossing the river."\*\*\*18

"It was announced that the airborne operations would take place as planned. This called for a P-hour which was set as 1000 hours. At this time, the planes and gliders would come over the area and make their drops. Corps Artillery therefore commenced firing, at 0930, on all hostile flak installations which had been located by Photo Interpretation and from other sources. Subsequent reports show that, out of over 4,000 planes participating in the operation, none were shot down by enemy flak in our sector. Corps Artillery continued firing during the afternoon and through the night on call missions by the 30th Division and other missions, which Fire Direction Center determined, as the attack progressed."18

"Arty with XIII Corps sptd the crossing of the Rhine River by XVI Corps. 84 Inf Div, 196 and 202 FA Groups took part in the preparation and fired other scheduled fires and on call missions throughout the period. Particular attention was paid to routes of communication in order to prevent reinforcement of enemy troops on XVI Corps front or movement out of the zone."19

47. Ammunition Expenditures. The ammunition expenditures for the period by Ninth Army are shown below. These figures are used because almost every gun in the army was supporting the assault by the XVI Corps and later, the expansion of the bridgehead.

<u>Date</u>	<u>105 H</u>	<u>25 Pdr*</u>	<u>4.5" G</u>	<u>155 H</u>	<u>155 G</u>	<u>8" H</u>	<u>8" G</u>	<u>240 H</u>
22 Mar	4,618	139	320	963	431	160	101	42
23	68,737	56	5,451	27,620	11,317	7,191	515	1,302
24	41,410	27	1,960	15,833	11,479	2,985	345	555
25	20,175	2,686	776	6,666	5,079	1,803	291	351
26	25,854	1,855	2,246	9,916	4,629	1,270	240	393
27	23,707	3,500	2,091	9,121	1,988	1,078	132	348
28	16,061	2,809	1,815	7,831	1,251	1,139	156	335
29	13,535	161	355	4,223	397	1,292	6	129
30	21,039		1,896	4,854	673	1,175	11	49
31	<u>14,287</u>	<u>662</u>	<u>961</u>	<u>2,970</u>	<u>522</u>	<u>628</u>	<u>3</u>	<u>34</u>
Total	249,423	11,895	17,871	89,997	37,766	18,721	1,800	3,538

\*Expenditures shown are from After Action Report, XVI Corps, April 1945.

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20. Ammunition Expenditures, Ninth Army.

## CHAPTER 9

### ARTILLERY IN A RIVER CROSSING

#### RHINE RIVER, GERMANY

##### 48. General.

a. This is a study of the field artillery support rendered in the opposed crossing of the Rhine River, Germany, from 22-29 March 1945, with respect to the artillery with the XV Corps. "On 22 March 1945, the XV Corps, having completed its breakthrough of the Siegfried Line and its rout of the German forces west of the Rhine, moved to assembly areas on the Rhine plain west of the river and began reconnaissance for crossing sites. At that time the combat elements of the Corps consisted of 6th Armored Division, 3d, 45th, and 63d Infantry Divisions, 106th Cavalry Group (of two squadrons), and three groups and fourteen battalions of Corps Artillery, together with various antiaircraft, tank destroyer, and separate tank battalions."<sup>1</sup>

b. The enemy situation and capabilities were summarized as follows: "No diagnosis of the enemy strength opposing XV Corps on the far bank of the Rhine was possible. The utter confusion in which the German First and Seventh Armies had retreated before the west bank assaults of the US Seventh and Third Armies precluded any intelligent surmise of the units to oppose the bridgehead. It was probable that the Germans did not at this time know their own order of battle. Remnants of 22 divisions were believed to have escaped across the river in the XV Corps zone, but the effective strength of the divisions could not be estimated. However, it was believed that the average strength to oppose the initial assault would not be more than 50 men per river front kilometer. Based on experience at Strasbourg and Colmar, it was believed that the enemy had no large guns permanently emplaced east of the Rhine and that the only enemy artillery support would come from organic division and corps artillery."<sup>2</sup>

c: "On 23 March the 6th Armored Division was relieved from XV Corps and the 44th Infantry Division was attached. During the night 23-24 March the two assault divisions began their forward displacement in their respective zones, the 3d Infantry Division between Ludwigshaven and Worms, and the 45th Infantry Division extending northward to Hamm. The 44th and 63d Infantry Divisions were directed to be prepared to move to covered assembly areas approximately 35 kilometers west of the Rhine. At 0230 26 March the 3d Infantry Division, attacking with two regiments abreast, crossed the Rhine after a 30 minute artillery preparation. The 45th Infantry Division also attacked with four battalions abreast at 0230, but without artillery preparation. By midnight 26-27 March the XV Corps bridgehead east of the Rhine was 23 kilometers wide and 12 kilometers deep. On 27 March the expansion of the bridgehead continued against moderate enemy resistance. The 44th Infantry Division crossed the Rhine by motors . . . . ., relieving the southernmost elements of the 3d Infantry Division then facing Mannheim. The 106th Cavalry Group crossed the Rhine by 1500 27 March, and moved to cover the advance of the 3d and 45th Infantry Divisions."<sup>1</sup> Because of the weak enemy resistance no sound comparison can be made as to the desirability of a preparation.

49. Organization for Combat.

1, 6.

a. XV Corps. The Corps effected the river crossing with the 3d, 44th, 45th, and 63d Infantry Divisions. "In anticipation of the need of providing continuous artillery support during the period in which the assault infantry division artillery was preparing for the crossing in Dukw's, the 44th Infantry Division Artillery was able to take over the direct support missions during the time that the 3d Infantry Division Artillery was loading on Dukw's and crossing the river. The 63d Infantry Division Artillery was attached to the 45th Infantry Division for the same purpose."<sup>1</sup> In setting up its organization for combat, XV Corps made the following allotments:<sup>6</sup>

(1) Attachments to

3d Division:

- 44th Division Artillery.
- Two 105mm howitzer battalions.
- One tank destroyer battalion.
- One 4.2" chemical mortar battalion.

45th Division:

- 63d Division Artillery.
- Two 105mm howitzer battalions.
- One 105mm howitzer battalion, self-propelled.
- One tank destroyer battalion.
- One 4.2" chemical mortar battalion.

(2) General support, reinforcing fires of

3d Division:

- One field artillery group
- One 4.5" gun battalion.
- Three 155mm howitzer battalions,

45th Division:

One field artillery group  
Four 155mm howitzer battalions.

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion, self-propelled.

(3) General support

One field artillery group  
Two 155mm gun battalions.  
One 8" howitzer battalion.  
One 240mm howitzer battalion.

One field artillery group  
Two 155mm gun battalions.  
One 8" howitzer battalion.  
One 240mm howitzer battalion.

One field artillery group  
One 155mm gun battalion.  
One 8" howitzer battalion.  
One 8" gun battalion.

One field artillery group  
One 155mm howitzer battalion.  
One 155mm gun battalion.  
One 8" howitzer battalion.

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b. 3d Infantry Division. For the river crossing, the division had two regiments committed initially. One regiment was directly supported by an organic light battalion, whose fires were reinforced by two light battalions and one medium battalion plus one battalion of the 44th Division Artillery. The other regiment was directly supported by an organic light battalion, whose fires were reinforced by one light battalion plus two light battalions of the 44th Division Artillery. The medium battalion of the 44th Division Artillery was in general support. By agreement; one direct support battalion could call directly for fires, in its zone, from one medium battalion of the reinforcing group of Corps Artillery.

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c. 45th Infantry Division. Two regiments effected the assault crossing. One regiment was directly supported by two light battalions, whose fires were reinforced by two light and one medium battalions. The other regiment was directly supported by one light battalion, whose fires were reinforced by one light battalion plus the three light and one medium battalions of the 63d Division Artillery.

5, 7, 8.

d. Summary. A summary of the artillery with the Corps during the initial phase of the assault shows that the Corps had a total of 540 artillery pieces. This was distributed so that the 3d Division Artillery with attached 44th Division Artillery, received 120; the 45th Division Artillery with attached 63d Division Artillery, received 138; and 282 remained under Corps control. Considering the two assault divisions, analysis shows that in

the 3d Infantry Division, each attacking regiment was supported by 60 guns; organic or attached, while in the 45th Infantry Division, each regiment was supported by 69. Based on the foregoing figures, averaged for the two assault divisions, each division was supported by 8.5 light and two medium battalions, organic or attached. Considering all artillery with the Corps, each assault division was supported by an average of eight and one-half light, seven and one-half medium and seven heavy battalions.

50. Ammunition Allocations. The only available ammunition figures for the operation concerned the 3d Infantry Division Artillery:

"Ammunition

- (a) Minimum totals to be on hand in each battalion:

105mm Howitzer M2 -- 4,500  
105mm Howitzer M7 -- 5,400  
155mm Howitzer -- 2,000

- (b) Totals in 3d Division Artillery dump:

105mm Howitzer -- 10,000 rounds  
155mm Howitzer -- 2,000 rounds

- (c) Distribution of totals on hand in battalion:

105mm Howitzer -- 300 rounds at each gun; remainder in battalion dump and battalion ammunition train.

155mm Howitzer -- 500 rounds in each firing battery; remainder in battalion dump and battalion ammunition train."<sup>7</sup>

7, 8.

51. Liaison. The liaison followed published doctrine and Seventh Army Standing Operating Procedure. In addition, the left direct support battalion of the 3d Division Artillery maintained liaison with the right direct support battalion of the 45th Division Artillery. The 44th Division Artillery maintained liaison with the 3d Division Artillery. In the 45th Division Artillery all reinforcing battalions, as well as individual battalions of the reinforcing groups, maintained liaison with the direct support battalions, while one direct support battalion effected liaison with the other across division boundaries. The reinforcing and general support groups effected liaison with the appropriate division artillery.

9

52. Analysis of Fires and Fire Plans. The artillery fires to support the river crossing included a 30-minute preparation on known enemy installations and towns, a counterbattery phase beginning at H-hour, and an extensive road harassing program. In addition to the fire of division artillery, Corps Artillery fired a total of 511

missions in support of the river crossing. A radar station was established to observe ground targets, and every activity observed in this manner was fired on by Corps Artillery. Excellent results were reported as one field artillery group alone fired 42 such missions.<sup>9</sup> Another special artillery mission employed in this operation is explained in the following quotation: "As the construction of the bridge progressed, the Corps Engineer anticipated possible damage to the bridge through the release by the Germans of heavy river barges laden with wood to float down against the bridges and their protecting booms. In coordination with the Engineer, the Corps Artillery reconnoitered, selected, and occupied individual positions for twelve self-propelled 155mm guns, M12, of the 991st FA Battalion, with a view to employing direct fire against any barges set adrift by the enemy. Also coordinated with the employment of these self-propelled guns were searchlights of a battery of the 353d AAA (Slt) Battalion to furnish illumination of the river to facilitate fires."<sup>1</sup> The 45th Division fired no preparation and supported the attack with normal field artillery fires.

10

53. Ammunition Expenditures. Total ammunition expenditures for the artillery with XV Corps, during the period 22-31 March, were as follows: (The breakdown into type is not available)

<u>Date</u>	<u>XV Corps Artillery</u>	<u>Division Artillery</u>	<u>Total</u>
22 Mar	0	0	0
23	0	0	0
24	9	85	94
25	9,044	1,224	10,268
26	6,135	11,050	17,185
27	804	3,689	4,493
28	5,597	3,560	9,157
29	2,187	7,637	9,824
30	<u>3,395</u>	<u>5,198</u>	<u>8,593</u>
Total	27,171	32,443	59,614

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## CHAPTER 10

### ARTILLERY IN A DEFENSIVE SITUATION

#### RHINELAND, GERMANY

1, 2.

#### 54. General.

a. This is a study of the field artillery support of the defense of the Roer River sector, in Rhineland, Germany, from 23 December 1944 to 16 January 1945 by Ninth Army. This operation was one of the few purely defensive situations undertaken by US forces on the continent. Although the ammunition was closely rationed, it gives an excellent picture of the effective employment of field artillery to support such a defense.

b. On 16 December, the enemy had launched a powerful coordinated offensive in the Ardennes Forest, in the sector of First Army, and it was considered at this time that he was capable of making a strong attack towards Maastricht from his Roer bridgehead with the intention of sweeping down the Maas River to effect a junction with his forces striking north from the Ardennes. This double envelopment, if successful, would isolate nearly all the combat units of the First and Ninth Armies.

c. To assist First Army in its repulse of the attack, Ninth Army was assigned the mission of defending a new and enlarged sector, while releasing to First Army such troops as were required. The defense was initiated in the sectors of the XIII and XIX Corps and expanded to the south to include the sector formerly held by the VII Corps of First Army. During the period 16-23 December the Ninth Army went through a constant changing of troops as many units were made available to First Army for the Ardennes Campaign, and as others were shifted into the new defensive sector. However, by 23 December all units were in place, or plans had been made to move them into their final defensive positions. The XVI Corps of Ninth Army was not operational.

#### 55. Organization for Combat.

3, 4, 5.

a. Ninth Army. Prior to 23 December the Army brigade had been under Army control directing the fires of three heavy battalions. However, on 23 December the brigade headquarters was attached to XIII Corps Artillery and the battalions to either XIII or XIX Corps. These attachments placed all non-divisional artillery under the two Corps.

6, 7, 8.

b. XIII Corps: The Corps had two infantry divisions in line, the 29th and 102d. To support the defense, the Corps Artillery organized for combat as shown below:

(1) Attachments to

29th Division:  
Two 105mm howitzer battalions.

102d Division:  
Three 105mm howitzer battalions.

(2) General support

One field artillery brigade  
One 240mm howitzer battalion.  
One 8" gun battalion.

One field artillery group  
Two 4.5" gun battalions.  
One 155mm howitzer battalion.  
One 155mm gun battalion, self-propelled.

One field artillery group  
One 155mm howitzer battalion.  
One 155mm gun battalion.

One field artillery group  
One 4.5" gun battalion.  
One 155mm howitzer battalion.  
One 8" howitzer battalion.

One field artillery group  
Two 155mm howitzer battalions.  
One 8" howitzer battalion.

6

c. XIII Corps Counterattack Plan. The proposed organization for combat to support a possible counterattack by Ninth Army Reserve (5th Armored Division and 43 Infantry Division (British)) is shown below. This organization did not become operative.

(1) Attachments to

29th Division:  
Two 105mm howitzer battalions.

102d Division:  
Three 105mm howitzer battalions.

(2) General support, reinforcing fires of

5th Armored Division:  
One field artillery group  
Two 155mm howitzer battalions.  
One 8" howitzer battalion.

43 Division (British):  
One field artillery group  
One 4.5" gun battalion.

One 155mm howitzer battalion.  
One 8" howitzer battalion.

(3) General support

One field artillery brigade  
One 240mm howitzer battalion.  
One 8" gun battalion.

One field artillery group  
One 155mm howitzer battalion.  
One 155mm gun battalion.

One field artillery group  
Two 4.5" gun battalions.  
One 155mm howitzer battalion.  
One 155mm gun battalion, self-propelled.

Note: Both the 29th and 102d Division Artillery were prepared to support, with a minimum of three battalions, a counterattack by either 5th Armored Division or 43 Infantry Division (British), or both, or to release on Corps order, a maximum of two light battalions.

12, 13, 14.

d. XIX Corps. The Corps planned a defense in depth with the 104th, 8th and 78th Infantry Divisions in line from left to right. In setting up the organization for combat, the Corps attached all of its light battalions to divisions, but kept all non-divisional medium and heavy battalions under Corps control. During this period the 78th Infantry Division launched several limited objective attacks. Because of the extreme width of the front and the mission of the 78th Division, the XIX Corps Artillery group reinforcing the fires of that division acted in the capacity of a corps fire direction center. The group staff and communications personnel were augmented to make this possible. Of the two Corps Artillery fire direction centers in operation, the one supporting the 8th and 104th Divisions were solely defensive, while the one supporting the 78th Division executed attack fires in support of attacks by that division, which also had a defensive mission. The organization for combat was:

(1) Attachments to

8th Division:  
Two 105mm howitzer battalions.

78th Division:  
One 105mm howitzer battalion  
(V Corps Artillery).

104th Division:  
One 105mm howitzer battalion.

(2) General support, reinforcing fires of

8th Division:

One field artillery group  
Two 4.5" gun battalions;  
One 155mm gun battalion, self-propelled.

78th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.  
One 8" howitzer battalion.

One field artillery group (V Corps Artillery)

Two 155mm howitzer battalions.  
One 8" howitzer battalion.

104th Division:

One field artillery group  
Two 155mm howitzer battalions.  
One 155mm gun battalion.

(3) General support:

One 240mm howitzer battalion.  
One field artillery observation battalion (augmented first by one observation battery, later by a complete battalion).

Note (1): The V Corps Artillery units shown above were used by XIX Corps Artillery by mutual agreement of corps artillery commanders concerned. The XIX Corps Artillery had one field artillery group in reserve and personnel of the group were used to augment personnel in the two fire direction centers.

Note (2): Although the 83d Infantry Division was attached to the XIX Corps at this time, it is not mentioned because it was released without participating in these defensive preparations.

11, 17.

e. Division Artillery. On the division artillery level, there was no standard procedure in assigning missions to artillery. Attached battalions were usually assigned the mission of reinforcing the fires of direct support battalions.<sup>12, 18.</sup> One variation was noted: The 102d Division Artillery supported two regiments with groups of two light battalions under one battalion headquarters and supported the third regiment and a cavalry group with one light battalion each. The medium battalion was in general support.<sup>16</sup>

f. Summary. The distribution of artillery gave 204 non-divisional pieces to the XIII and 186 to the XIX Corps. To balance this ratio, the XIX Corps had the use of one group of V Corps Artillery, consisting of two medium battalions and one heavy battalion, in addition to one light battalion from V Corps attached to the 78th Division Artillery. In the XIII Corps, divisions in the line were supported by an average of 78 guns, organic and attached; and in the XIX Corps, the number was 66. A further breakdown shows that, in the XIII Corps, an infantry

regiment in the line was backed by 32 guns, organic and attached; and in the XIX Corps, by 25 guns. For the over-all operation, averaging all divisions committed in both Corps, a division was supported by 4.6 light battalions and one medium battalion, organic or attached.

6

56. Liaison. In general, liaison was effected as prescribed in published doctrine and in the Ninth Army Standing Operating Procedure. In addition, 29th and 102d Division Artillery were prepared to establish liaison with either or both of the divisions in army reserve, should they be committed. The XIII Corps Artillery effected liaison with the artillery headquarters of 12 Corps (British), 5, 19.

57. Ammunition Allocations. The Commanding General, 12th Army Group, specified the "desired rate of expenditure" of ammunition by artillery units:

105mm Howitzer	60 rds/gun/day
4.5-inch Gun	30
155mm Howitzer	40
155mm Gun	25
8-inch Howitzer	25
240mm Howitzer	15
8-inch Gun	12

At the beginning of the defensive period, the basis of allocation was 1/10 unit of fire per day. At the end of December the basis had changed to 2/10 unit of fire for XIX Corps, and 1/10 unit of fire for XIII Corps. Allocation to XIII Corps by rounds is not available, but Ninth Army made the following allocation to XIX Corps for two periods:

	<u>20-26 Dec</u>	<u>1-7 Jan</u>
105mm Howitzer	9,900	41,136
4.5-inch Gun	1,080	3,445
155mm Howitzer	2,700	14,826
155mm Gun	1,080	3,551
8-inch Howitzer	360	1,100
240mm Howitzer	-----	285

58. Analysis of Fire Plans and Ammunition Expenditures.

a. Fire Plans. Corps fire plans were as follows:

8

- (1) XIII Corps Artillery. Defensive fire plans were made covering the Corps sector. These plans included concentrations to reinforce division artillery barrages in support of the final protective lines as well as in support of switch positions of the 29th and 102d Divisions, and concentrations to harass and break up troop formations before they could reach the main line of resistance. All concentrations were assigned by letter and/or number to battalions capable of firing them. This necessitated the correction of the fire plans each

time a battalion was relieved, attached, or its fire possibilities changed. Close liaison was maintained between XIII Corps Artillery and the artillery headquarters of the 12 Corps (British) to assist in coordination of fires. Overlapping defensive fires were arranged and coordinated across the boundary; this permitted either Corps to call for pre-arranged fires to reinforce its defensive fires in the event of an attack near the boundary. Similar coordination was effected with the XIX Corps Artillery on the right. The XIII Corps Artillery also continued a program to harass and interdict command posts, military-occupied buildings, and main supply routes. Profitable targets were selected daily to be fired on during the next 24-hour period; this selection was based on a careful study of enemy activities from G-2 information, interrogation of prisoners, tactical reconnaissance, and photo interpretation.

13

- (2) XIX Corps Artillery. During the period all types of artillery ammunition were rationed and the allocations were extremely small. However, because of the natural barriers in front of the 104th and 8th Divisions and the fact that the preponderance of enemy troops was engaged in the Ardennes, German patrolling was not aggressive. This condition led to a saving of the ammunition generally expended in breaking up patrols. Too, nearly all troops were protected from enemy artillery fire, justifying a less active counterbattery policy on the part of the XIX Corps Artillery. This also effected an ammunition saving. The Corps Artillery was prepared to assist division artillery on all defensive fires. All harassing and interdiction missions were very carefully selected and coordinated between Corps and Division Artillery. These missions were normally fired with two or three battalions massed on the target and were never fired with less than a one-battalion concentration. One division artillery did fire some one and two-round harassing fires which it selected on its own front. The following principle was used in counterbattery fires: Unless some unit was suffering from enemy artillery fire, no counterbattery fire was returned until the offending battery was definitely located, then it was engaged aggressively. It was felt that every effort should be made to save ammunition

for the repulse of the enemy offensive in the Ardennes Forest and for the allied offensive to follow. Each corps artillery battalion had two alternate prepared positions from which to support a counterattack by Ninth Army reserves against any enemy offensive in the area, and concentrations were assigned to support a retrograde movement. During the period of operation, 23 December 1944 to 16 January 1945, artillery with the Corps fired 12,742 missions including 866 counterbattery missions. Division artilleries fired 1,175 close support, 6,781 harassing and interdiction, and 1,920 miscellaneous missions.

b. Ammunition Expenditures.<sup>4</sup> The ammunition expenditures for the artillery with Ninth Army, by type, are shown in the following table:

	<u>23 Dec-16 Jan</u>
105mm Howitzer	114,682
4.5-inch Gun	11,427
155mm Howitzer	40,315
155mm Gun	14,013
8-inch Howitzer	5,213
8-inch Gun	340
240mm Howitzer	1,373

The above expenditures do not represent what might be considered a true picture of ammunition required for this type operation. Primarily, ammunition expenditures were very much restricted in order to save for the counteroffensive in the Ardennes, and for the resumption of the allied offensives along the entire front; secondarily, a large percentage of the ammunition expended by XIX Corps was used in supporting the attacks of the 78th Division and in interdicting enemy routes leading into the Ardennes sector.

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## CHAPTER 11

### ARTILLERY IN A RETROGRADE MOVEMENT

#### ALSACE, FRANCE

##### 59. General.

a. This study presents the field artillery support rendered during the withdrawal in the Vosges Mountains, Alsace, France, 2-20 January 1945, with respect to the artillery with Seventh Army. Seventh Army was at this time holding an 84-mile front; the VI Corps held positions on the right from the Rhine River to Bitche; a task force of the 14th Armored Division held the center, on a front of about 10 miles in the Low Vosges; and the XV Corps held positions on the left to within a few miles of Zweilbrücken. The 36th Infantry Division was in Army reserve. On 21 December 6th Army Group decided to yield ground rather than endanger the security of its forces.

b. "On 29 December, Seventh Army G-2 estimated that the Germans would launch a series of limited objective attacks for the purpose of keeping Seventh Army under sufficient pressure to prevent it from sending troops north against the Ardennes salient, or, as the next probability, they would attack south from the Bitche-Sarrequeimines area with 5 to 8 divisions, to seize the Saverne and Ingwiller passes; fan out to destroy the Seventh Army in the Rhine Valley, and recapture Alsace."

c. On 28 December, 6th Army Group planned for a withdrawal to successive defensive positions, envisioning a main defense line along the eastern slope of the Vosges. On 2 January, Seventh Army instructed VI Corps to complete its withdrawal to the main Vosges positions by 5 January, prepared to delay on three specified lines on Army order. The final position was to be selected so as to keep the enemy beyond medium artillery range of the Saverne and Holsheim passes.

## 60. Organization for Combat.

1

a. Seventh Army. At the beginning of the retrograde phase, Seventh Army consisted of the VI and XV Corps, with the XXI Corps becoming operational on 13 January. In setting up the organization for combat, Army allocated all of its non-divisional artillery to the VI and XV Corps, keeping none under Army control. The XXI Corps, when it became operational, was supported by attachments from the other Corps.

3

b. VI Corps. The situation before the beginning of the withdrawal was as follows: The VI Corps held positions on the right from the Rhine to Bitche with the 79th and 45th Infantry Divisions in the line and the 14th Armored Division (-) in reserve. On the VI Corps left flank, holding a front of about ten miles in the Low Vosges, was Task Force Hudelson. This task force had been formed by VI Corps, and consisted of Combat Command "R", 14th Armored Division (less one tank battalion), one company of tank destroyers, one company of 4.2-inch chemical mortars, and one cavalry squadron. Task Force Herren and Task Force Linden came under VI Corps control at the beginning of the withdrawal. These units were the infantry elements of the 63d and 42d Infantry Divisions respectively, whose supporting troops had not yet arrived in the army area. It was necessary for Corps to furnish all artillery support for these units. The Corps Artillery organized for combat as follows: 2, 5, 6.

- (1) Acting as artillery for Task Forces Herren and Linden:

- One field artillery brigade (actually under corps artillery control)
- Three 105mm howitzer battalions, self-propelled.
- One 4.5" gun battalion.
- One 155mm howitzer battalion.

- (2) General support, reinforcing fires of

79th Division:  
One 155mm howitzer battalion.

45th Division:  
One field artillery group  
Two 155mm howitzer battalions;  
One 155mm gun battalion.  
One 8" howitzer battalion.  
(Note: This group also supported  
Task Force Hudelson.)

(3) General support

One field artillery group  
One 155mm gun battalion.  
One 8" howitzer battalion.  
(One 155mm howitzer battalion with  
mission of reinforcing the fires  
of the 79th Division.)

One field artillery group  
One 240mm howitzer battalion.  
One 8" gun battalion (less one  
firing battery).  
3, 8.

c. XV Corps. The Corps consisted of the  
44th, 100th, and 103d Infantry Divisions committed, with  
the 12th Armored Division in reserve. The initial artil-  
lery organization for combat was as follows:

(1) Attachments to

100th Division:  
One 105mm howitzer battalion.

44th Division:  
One 105mm howitzer battalion;  
One 105mm howitzer battalion, self-  
propelled.

106th Cavalry Group:  
Two 105mm howitzer battalions,  
self-propelled.

103d Division:  
One 105mm howitzer battalion, self-  
propelled.

(2) General support, reinforcing fires of

100th Division:  
One field artillery group  
One 4.5" gun battalion.  
One 155mm howitzer battalion.

44th Division:  
One field artillery group  
Two 155mm howitzer battalions.

(3) General support

One field artillery group  
One 4.5" gun battalion.  
One 8" howitzer battalion.  
One 240mm howitzer battalion.

One field artillery group  
One 155mm gun battalion.  
Two 8" howitzer battalions.  
One 240mm howitzer battalion.  
One 8" gun battery.

4

d. XII Corps. On 13 January the XII Corps became operational and assumed control of the 103d Infantry Division and the 106th Cavalry Group (from XV Corps), and the infantry elements of the 63d Infantry Division. Of the artillery listed below, one group headquarters and two light self-propelled battalions came from the VI Corps; one light battalion came from the 36th Division in Army reserve; all other units came from XV Corps. The Corps artillery organized for combat as follows:

(1) Direct support of

Infantry elements of 63d Division:  
One field artillery group  
One 105mm howitzer battalion.  
Two 105mm howitzer battalions,  
self-propelled.

(2) General support, reinforcing fires of

103d Division:  
One 4.5" gun battalion.

(3) General support

One field artillery group  
One 155mm gun battalion.  
One 8" howitzer battalion.  
One 240mm howitzer battalion.  
One 8" gun battery.  
(One 4.5" gun battalion with reinforcing mission for 103d Division.)

e. Division Artillery. In the VI Corps the divisions universally followed the practice of directly supporting each infantry regiment with a light battalion, with the medium battalion in general support. Corps retained control of all additional reinforcing units.<sup>2</sup> The XV Corps attached light battalions to all divisions in the line.<sup>3</sup> In the XII Corps the divisions, and cavalry units fighting as infantry, had one light battalion in direct support of each regiment or similar unit. Corps made no attachments to divisions.<sup>4</sup> Brigade headquarters acted as division artillery headquarters for Task Forces Herren and Linden since these two forces had no organic artillery organization. Problems of liaison, communications, protective fires, and protection of boundaries by artillery fire were all successfully handled by the brigade under corps control.

f. Summary. A summary of artillery support shows that prior to XII Corps' becoming operational,

infantry regiments in the VI Corps were each supported by an average of one light battalion, .58 medium battalion, and .47 heavy battalion. The reserve division artillery was not continually committed. In the XV Corps an infantry regiment or cavalry group was supported by 1.5 light battalions, .8 medium battalion and .63 heavy battalion. After the arrival of XXI Corps, the army average per infantry regiment or cavalry group was one light battalion, .58 medium battalion, and .54 heavy battalion.

61. Ammunition Allocations. During this period, particularly in the first eight days of January, when the German attacks were strong and determined, ammunition was called for and fired as it was needed. There were no restrictions on ammunition at that time. However, on 16 January very stringent rationing was begun and remained in effect for the rest of the period. Each corps was allowed the following amounts expressed in rounds per gun per day:

	4 XXI Corps	2,3. VI and XV Corps
105mm Howitzer	25	27
155mm Howitzer	15	15
4.5-inch Gun	23.3	0
155mm Gun	13	6.75
8-inch Howitzer	5.5	3.3
240mm Howitzer	4.5	0
8-inch Gun	12	0

62. Liaison. Liaison was normal with nothing out of the ordinary except that a very elaborate wire net was built up at this time to insure the maintenance of communications. 2, 3, 4.

63. Analysis of Fire Plans and Ammunition Expenditures. 2, 3, 4.

a. Fire Plans. Artillery played a major role in the withdrawal and following engagements to maintain selected positions or to restore the Main Line of Resistance after enemy penetrations. Extensive harassing and interdiction fires were fired during this period in an attempt to limit the enemy's freedom of movement. Elaborate defensive fire plans were drawn up by the artillery of every echelon prior to withdrawal to and occupation of a rearward line. These prearranged fires proved invaluable in the repulsing of German attacks. Nightly interdiction schedules were sent by Corps to each subordinate unit. This coordinated interdiction program covered the entire German position and materially restricted his use of the roads. The coordinates of all bridges, bridge sites, and defiles were carefully determined by survey before the withdrawal. Those points of importance were then kept under artillery fire. Radar was used to patrol roads in enemy rear areas and to seek out enemy patrols probing our lines. Once discovered by radar, road targets or patrols were taken under artillery fire. Artillery air and ground observation posts were used for checking enemy movements. The task forces in the VI Corps during this period had no organic artillery available; therefore their artillery support came from Corps battalions. Liaison, observation, prearranged fires, and the like, were all successfully handled by Corps units.

b. Ammunition Expenditures. Ammunition expenditures did not, unfortunately, vary as enemy activity varied. Rather, it varied as it was available. Drains on European ammunition stocks were very heavy in the north at this time; transportation was bad, and roads were frozen and slick. These reasons accounted for a strict ammunition rationing for Seventh Army beginning on 16 January. Below are listed ammunition expenditures for VI and XV Corps for the period in question. XXI Corps ammunition expenditures are not available at this time.

VI CORPS AMMUNITION EXPENDITURE FOR MONTH OF JANUARY 1945 <sup>2</sup>

	<u>105 How</u>	<u>155 How</u>	<u>4.5" Gun</u>	<u>155 Gun</u>	<u>8" How</u>	<u>240 How</u>	<u>8" Gun</u>
1 Jan	3,529	978	231	489	237	31	0
2	4,607	1,669	355	584	211	18	0
3	3,516	1,149	182	673	272	0	0
4	5,349	1,421	45	320	58	0	0
5	8,849	1,407	155	591	167	0	0
6	8,975	1,010	999	963	404	25	0
7	8,662	1,148	489	792	280	24	0
8	9,627	3,487	453	723	433	128	0
9	9,513	2,821	1,137	508	293	35	0
10	13,526	3,195	0	708	498	20	0
11	14,148	2,979	0	1,003	317	42	0
12	12,991	2,817	0	1,053	386	22	20
13	10,858	2,775	0	712	452	29	0
14	10,372	2,653	0	672	389	18	0
15 *	12,199	3,550	0	568	298	23	0
16	16,823	2,632	0	448	166	3	30
17	14,643	1,861	0	419	154	12	13
18	12,018	1,285	0	340	97	4	36
19	11,122	1,467	0	554	174	9	0
20	<u>6,830</u>	<u>1,195</u>	<u>0</u>	<u>322</u>	<u>131</u>	<u>16</u>	<u>4</u>
Total	198,162	41,499	4,046	12,442	5,417	459	103

\*On 15 January the following rationing went into effect: 240 H - 0; 8-inch H-40 Rds/Bn; 155 G-80 Rds/Bn; 155 H-180 Rds/Bn; 105 H-350 Rds/Bn.

XV CORPS AMMUNITION EXPENDITURE FOR MONTH OF JANUARY 1945 <sup>3</sup>

<u>Date</u>	<u>Total Rounds</u>	<u>Total Rounds</u>	<u>90mm</u>	<u>Captured</u>	<u>Total</u>
	<u>Fired by</u>	<u>Fired by</u>		<u>Weapons</u>	
	<u>Div Arty</u>	<u>Corps Arty</u>			
1 Jan	12,905	3,874	470	28	17,277
2	15,077	3,404	126	138	18,745
3	16,898	3,802	464	51	21,215
4	11,813	3,746	239	140	15,938
5	7,809	2,292	1,101	0	11,202
6	10,125	4,107	274	0	14,506
7	6,563	3,403	665	0	10,631
8	10,731	2,466	489	0	13,686
9	9,733	3,208	1,077	4	14,022
10	6,246	2,593	819	0	9,658
11	4,394	1,650	365	0	6,409
12	4,627	1,163	285	0	6,075
13	3,361	897	353	23	4,634
14	4,777	1,525	386	14	6,702
15	3,660	1,060	224	0	4,944

XV CORPS AMMUNITION EXPENDITURE FOR MONTH OF JANUARY 1945<sup>3</sup> (CONTD)

Date	Total Rounds Fired by Div Arty	Total Rounds Fired by Corps Arty	90mm	Captured Weapons	Total
16 Jan	3,781	881	389	0	5,051
17	1,777	242	0	0	2,019
18	1,619	446	0	0	2,065
19	1,482	449	165	0	2,096
20	<u>1,417</u>	<u>408</u>	<u>95</u>	<u>0</u>	<u>1,920</u>
	138,895	41,616	7,986	398	188,895

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Chapter 11

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4. After Action Report, XII Corps, January 1945.
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7. Field Order No. 9, Headquarters 45th Division Artillery, 20 January 1945.
8. Field Order No. 17, Headquarters XV Corps, 12 January 1945.

CHAPTER 12

ARTILLERY IN AN ATTACK OF A FORTIFIED LOCALITY

CHERBOURG, FRANCE

64. General. 1,2.

a. The field artillery support rendered in the assault of Cherbourg, France, from 22 June to 26 June, 1944, is included primarily to bring out the results of special fire missions against pillboxes, strong points and coastal guns; however, most of these coastal guns could not be traversed and fired inland. Our critical shortage of ammunition prevented the free use of artillery; therefore, air bombardment and naval gun fire were employed as a substitute for field artillery whenever possible, and in general, artillery fires were limited to call missions and special direct fire missions.

b. The plan of the VII Corps was to make a coordinated attack with the 9th, 79th, and 4th Infantry

Divisions abreast. The coordinated attack to capture Cherbourg jumped off on the 22d, although the Naval Bombardment Force could not render support initially.

#### 65. Organization for Combat.

a. VII Corps.<sup>4</sup> To support the attack the Corps decentralized the artillery to a great extent by attaching all battalions except heavy battalions to divisions. The organization for combat was:

##### (1) Attachments to:

###### 9th Division:

- One field artillery group
- One 4.5" gun battalion.
- One 155mm howitzer battalion.

###### 79th Division:

- Two 155mm howitzer battalions.

##### (2) General support

- Two 155mm gun battalions.
- One 8" howitzer battalion.

b. Division Artillery. The 4th Division Artillery with no attachments placed the three organic light battalions in direct support of the two attacking regiments and kept the medium battalion in general support.<sup>3</sup> With two regiments in the attack, the 9th Division Artillery had one light battalion in support of each, while the organic and attached medium battalions each reinforced the fires of one of the light battalions. The remaining light battalion and the 4.5" gun battalion were in general support.<sup>5</sup> The 79th Division Artillery formed two groups under the command of the direct-support battalion commander, placing one in direct support of each infantry regiment committed. One of the groups consisted of one light and two medium battalions, and the other consisted of two light and one medium battalions.<sup>6</sup>

c. Summary. A summary shows that there were three light battalions, two and one-third medium battalions, and one heavy battalion per division. On 25 June, the beginning of the final assault on the city, the corps front extended 6.6 miles; this gave an average of one gun per 54 yards of front. Within the divisions there were, per regiment committed, 24 guns in the 4th Division and 36 guns in both the 9th and 79th Divisions.

66. Liaison.<sup>1,2</sup> Liaison was maintained between division artilleries from right to left, and the corps artillery maintained liaison with division artillery. In addition, close liaison was maintained between the VII Corps and Ninth Air Force, including conferences between the Commanding Generals. No senior naval liaison officer was present at the VII Corps Artillery command post; it was felt by the Corps Artillery Commander that "it is as essential to have a senior naval officer with the corps as to have a ground liaison officer with the navy; this officer is necessary both in the planning and execution of the operations."<sup>2</sup> The Corps Artillery did have a senior liaison officer with the navy.

## 67. Analysis of Fires.

a. Artillery Fires.<sup>1,2.</sup> The critical shortage of ammunition allowed only two-thirds of a unit of fire per day for this attack on a fortified area. This shortage made it impracticable for the artillery to fire a preparation, and fires had to be limited to call missions on specific targets and certain direct fire missions. "Due to the tremendous air support and to the poor handling of German Artillery the ammunition supply proved adequate."<sup>2</sup> The following are comments on direct fire missions by a board of officers representing the Artillery Officer, 1st US Army Group:

- "(1) One battery of 155mm ML guns was used in a direct fire role against Fort Central and Fort de L'Ouest. The 155mm shells with the T-105 fuze (anti-concrete) easily shattered the 5-foot masonry walls on the old French Forts. On Fort Central one or two rounds hit a control tower made of new high-grade German concrete. The walls were  $3\frac{1}{2}$  feet thick and were reinforced by steel. The reinforcement consisted of  $3/8$ " steel rods, criss-crossing horizontally and vertically at 3" intervals and spaced from the outer wall 3", 11", and 21". In addition there was a vertical row of  $3/4$ " steel rods 3" from the inside wall. The officer who fired at the Fort stated he saw only one round hit this tower; however the board's examination of the tower indicated a probability that two rounds had hit, space between centers being approximately 3 feet. Although the shell, or shells, had hit the wall at an angle of about  $45^\circ$ , they had opened a crater 3 feet deep in the concrete and had definitely fractured the wall driving the inner surface inward approximately a foot. Another round striking this crater in the outer surface would have penetrated the tower. It is the opinion of the board that direct fire from the 155mm gun forced the surrender of Fort de L'Ouest and of Fort Central.
- "(2) A different technique using direct fire was employed at Fort du Roule. Fort du Roule contained six 105mm guns in the mouth of tunnels. These embrasures were protected from air attack or indirect artillery fire by approximately sixty feet of solid rock. 105mm howitzers and smaller weapons were used in direct fire against these embrasures. Promiscuous firing by a large number of small weapons not under central control made observation poor and prevented the adjustment of any individual weapon.

However, although none of the guns of the Fort were destroyed, they were neutralized. Had Fort du Roule not surrendered, the direct fire on the embrasures could have caused the eventual destruction of the Fort's guns.

"(3) Whereas the T-105 fuze with the 155mm shell proved itself on Fort Central and Fort de l'Ouest, the 3" shot knocked out temporary structures,\* but had little effect on the main Forts. This is not a criticism of the use of 3" shot against embrasures, but is a criticism of its use against solid masonry or concrete.

"(4) Some indirect fire was employed against Fort Central in the belief that it had an open center court. Fort Central had complete overhead concrete or masonry cover. The results of the indirect fire were negligible."

\* The 3" shot was solid shot fired by tank destroyer guns against light masonry structure; it had no effect on solid reinforced-concrete structures.

b. Naval Fire Support.<sup>2</sup> The final assault on Cherbourg was supported by naval gunfire from a force consisting of three US battleships, two US heavy cruisers (8-inch guns) and two British cruisers (6-inch guns), together with destroyers and corvettes. This force was at Portsmouth at the time of the decision to assault Cherbourg, and was therefore unable to support the attack until 25 June. Beginning at noon, the navy delivered heavy fire for about three hours. By this time (25 June) the ground forces had approached the city so closely that many of the most profitable targets could not be engaged for fear of shelling our own troops. In firing on coastal targets the first rounds were put in the water and the observer crept up on the target; this minimized the possibility of hitting our own troops. Each division made available one cub plane for observation of naval fires. These were adjusted by normal field artillery methods, with the naval liaison officer at division artillery converting sensings to naval commands. The air observation was more effective than that of the ground observers. An unusual feature of this observation was that rounds fell between the observer and the guns.

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5. Field Order No. 2, 9th Infantry Division, June 1944.

6. After Action Report, 79th Infantry Division, June 1944.

### CHAPTER 13

## ARTILLERY IN AN ATTACK OF A FORTIFIED LOCALITY

### BREST, FRANCE

#### 68. General.

a. A study of the artillery in the Brest Campaign shows how one corps, VIII Corps, organized for combat and planned and delivered fires to support an attack on a wide front, through a strongly fortified area.

b. Originally, VIII Corps had the following non-divisional artillery available for the operation: Five group headquarters, one observation battalion, two light battalions, four medium battalions, and nine heavy battalions. This artillery was supplemented after the beginning of the attack by two medium battalions, one heavy battalion, one observation battalion, and one field artillery brigade headquarters.

69. Organization for Combat. The Corps consisted of the 2d, 8th, and 29th Infantry Divisions. In setting up its organization for combat, the Corps Artillery assigned missions as follows:

(1) Attachments to:

2d Division:

One 105mm howitzer battalion.

Task Force "B":

One field artillery group

One 105mm howitzer battalion, self-propelled.

One 155mm howitzer battalion.

One 155mm gun battalion.

(2) General support, reinforcing fires of

2d Division:

One 155mm howitzer battalion.

8th Division:

One field artillery group

One 155mm howitzer battalion.

One 155mm gun battalion, self-propelled.

29th Division:

- One field artillery group
- One 4.5" gun battalion.
- One 155mm howitzer battalion.
- One 155mm gun battalion, self-propelled.

(3) General support:

- One field artillery group
- One 155mm gun battalion.
- One 8" howitzer battalion.
- One 240mm howitzer battalion.
- One 8" gun battalion.
- One field artillery group
- One 4.5" gun battalion.
- One 8" howitzer battalion.
- One 240mm howitzer battalion.
- One 8" gun battalion.
- One field artillery brigade headquarters.

70. Liaison. Liaison and communications were well handled in this operation. Wire was the principal means of communication, but the Corps Artillery Commander's radio net was used extensively and effectively to call for prearranged fires. Normal liaison was maintained between artillery units and between artillery and infantry units. However, during special missions calling for fire very close to friendly troops, the infantry and artillery exchanged liaison officers.

71. Ammunition Allocations. The original plan for the supply of artillery ammunition for the Brest operation called for a reserve in the ammunition supply points of three units of fire, which was to be maintained until the operation was completed. This plan was disapproved, and a plan covering a definite period was required. A request for a ten-day period was submitted and called for the following amount of artillery ammunition expressed in number of rounds:

105mm Howitzer	228,000
155mm Howitzer	64,800
155mm Gun M1	19,200
155mm Gun M12	9,600
4.5-inch Gun	14,400
8-inch Howitzer	6,000
240mm Howitzer	1,500
8-inch Gun	2,100

This estimate was based on the availability of ammunition, availability of transportation, and on the premise that additional ammunition would be available when necessary.<sup>1</sup>

72. Analysis of Fire Plans and Ammunition Expenditures.

a. Fire Plans. Corps fire plans for the support of the attack of Brest fell generally under four headings:

- (1) Counterbattery and Counterflak Fires.  
In all Corps Artillery fire plans, counterbattery was given priority over

all other missions, and sufficient time and ammunition were allocated to cover all known enemy artillery with an intense volume of fire. These were fired as rapidly as possible using all available artillery. Neutralization was maintained with intermittent fire in reduced volume. In conjunction with the initial assault on the enemy positions on 25 August, a bombardment by the Air Corps was scheduled. At the request of the Air Corps, an intensive counterflak program was fired on all known hostile antiaircraft locations. Locations were determined from various intelligence sources, including defense maps, photo interpretation, and Military Intelligence interpreters. The unobserved fire on hostile antiaircraft positions was supplemented by observed missions conducted by air observation posts flying counterflak patrol. Immediate fire was placed on any batteries observed to be active. The result of these counterflak measures was that flak, which was heavy when Corps Artillery first arrived in the area, was comparatively light thereafter.

- (2) Supporting Fires to Deepen the Fires of Division Artillery During Attacks. The first step in preparing all fire plans was to determine the ammunition needed for counterbattery, and to establish a reserve for emergency missions and desired reinforcing fires for the divisions. This remaining reserve of ammunition was budgeted over the time to be covered by the scheduled fires. The fires, other than counterbattery, in support of the attack of a division were scheduled on request from division artillery.
- (3) Fires to Soften Up and Destroy Enemy Installations Prior to Attack by Foot Troops. When a division was ready to assault an area, division artillery called for the prearranged fires in that area by code word through corps artillery fire direction center. At the same time the volume of fire was specified on each concentration. Units were able to spread the fire over a period if desired. This form of fire plan met with universal approval from all concerned.
- (4) Harassing and Interdiction Fires. In the early stages of the operation, harassing fires were directed at specific targets such as defended areas, command

posts; known battery locations, supply dumps, and all roads leading to these installations. In the latter stages, when the area occupied by the enemy was reduced to the city of Brest and vicinity, harassing missions were assigned by giving each unit an area with instructions to cover all roads and all known targets in that area. Points believed by intelligence personnel to be particularly profitable targets for harassing fire were singled out for special attention. Most of the bunkers and defense installations were well stocked with food, ammunition, and other supplies, and in many cases water, so that there was little or no need for the defenders to move out of the bunkers. This rendered harassing and interdiction fires less effective.

b. Ammunition Expenditures. The ammunition expenditures for the Brest operation were as follows:

<u>Weapon</u>	<u>No Guns</u>	<u>Rds/Gun/Day</u>	<u>Total Rds</u>
105mm Howitzer	138	78	270,493
155mm Howitzer	84	43	91,547
155mm Gun M1	24	31	18,618
155mm Gun M12	24	15	9,955
4.5-inch Gun	24	25	14,861
8-inch Howitzer	24	19	11,528
240mm Howitzer	12	11	3,153
8-inch Gun	12	6	1,608

During this operation there was a total of 2,349 T-105 anti-concrete fuzes used by the artillery of the Corps. These fuzes were used in the following proportion:

<u>Weapon</u>	<u>No of Fuzes</u>	<u>% of Total</u>
105mm Howitzer	88	3.4
155mm Howitzer	343	14.3
155mm Gun M1	148	6.4
155mm Gun M12	551	23.5
4.5-inch Gun	247	10.6
8-inch Howitzer	643	27.5
240mm Howitzer	230	10.0
8-inch Gun	<u>99</u>	<u>4.3</u>
Total	2,349	100.0

The ammunition expenditure figures do not give a true picture as to the requirements needed per day, because of an insufficient supply in the ammunition supply point. This was particularly true with smoke, white phosphorus, for all calibers, which was needed after penetration had been effected on pillboxes and other concrete inclosures. This type of smoke was found to be one of the most effective means of driving personnel out of all types of structures because of its incendiary action.

1. Report on the Artillery with VIII Corps in the Reduction of Brest.

CHAPTER 14

ARTILLERY IN AN ATTACK OF A FORTIFIED LOCALITY

METZ, FRANCE

73. General.

a. A study of the XX Corps operation which resulted in the capture of the fortress city of Metz, France, 8-22 November 1944, reveals not only the artillery support employed, but also the various deceptive practices utilized to prevent German appreciation of American intentions.

b. Enemy capabilities were estimated as follows:  
 \*\*\* The enemy force on the Moselle will probably not be increased over 30,000 prior to our attack. It is not likely that the German stand will be of the last-ditch variety, but he will surely attempt to accomplish maximum delay as he falls back, using Fortress Metz and other fortifications, old and new, for all they are worth.\*\*\*<sup>2</sup>

c. An outline of the general plan for the operation follows. The 5th Infantry Division was to attack east from its Moselle bridgehead the morning of 8 November with the intention of by-passing the fixed forts, turning north into Metz and preventing the escape to the east and southeast of the Metz garrison. That afternoon the 95th Infantry Division was to make a demonstration of crossing the Moselle River near Uckange, creating the impression of a major attack there and in the Maizières Les Metz area. Vigorous pressure was to be maintained on the enemy, and any withdrawal by him was to be followed up rapidly. The 90th Infantry Division was to cross the Moselle in the Malling - Koenigsmaker - Cattenom area during the darkness of the early morning hours 9 November continuing the attack south through the Maginot Line to Metz, thus preventing the escape of the Metz garrison to the east and northeast. On Corps order the 10th Armored Division was to pass through and attack to the east of the 90th Division, preventing any escape of the Metz garrison to the east or northeast; it was intended that one combat command should attack to the Saar River in the Merzig - Saarlautern area, and seize and hold intact any bridges over the Saar.

74. Organization for Combat.

a. XX Corps.<sup>2</sup> The Corps Artillery for the Metz operation consisted of two corps artillery headquarters (XX and III), one observation battalion reinforced, six group headquarters, five light battalions, six medium battalions, 6 2/3 heavy battalions, and a

In

battalion of 14 captured enemy guns. In addition, two battalions of the 83d Division Artillery and two battalions of VIII Corps Artillery were available to support the 90th Division's crossing of the Moselle River. The organization for combat was as follows:

(1) Attachments to:

5th Division:

One 105mm howitzer battalion.

90th Division:

One 105mm howitzer battalion.

(2) General support, reinforcing fires of

5th Division:

One field artillery group

Two 155mm howitzer battalions.

One 4.5" gun battalion.

One 155mm gun battery, self-propelled.

90th Division:

One field artillery group

Two 155mm howitzer battalions.

One battalion of captured 105mm  
gun-howitzers.

95th Division:

One field artillery group

One 105mm howitzer battalion.

One 155mm howitzer battalion.

10th Armored Division (after crossing  
Moselle River):

One field artillery group

Two 105mm howitzer battalions, self-  
propelled.

One 155mm gun battalion, self-pro-  
pelled (less one battery).

(3) General support:

III Corps Artillery headquarters and  
headquarters battery (zone of 5th  
Division)

One field artillery group

One 8" howitzer battalion.

One 240mm howitzer battalion.

One 8" gun battery.

Seven captured 155mm howitzers.

One observation battery.

One field artillery group (zone of  
90th and 10th Armored Division)

One 155mm gun battalion.

One 8" howitzer battalion.

One 240mm howitzer battalion.

One 8" gun battery.

b. 90th Infantry Division.<sup>3</sup> This division artillery furnished direct support to regiments in the assault with two light battalions per regiment. All other battalions were in general support.

c. 5th Infantry Division.<sup>6</sup> One regiment was directly supported by two light battalions; and the other two regiments were each supported by one light battalion, with a medium battalion reinforcing the fires of each direct-support battalion. One medium battalion was in general support.

d. 10th Armored Division.<sup>4</sup> Initially the artillery of the division was in support of the attack of the 90th Division. When the 10th Armored Division was committed, Combat Command "A" was directly supported by four light armored battalions and one battalion of 155mm guns, self-propelled (less one firing battery); and Combat Command "B" was directly supported by one light armored battalion.

e. 95th Infantry Division.<sup>5</sup> Each of the three regiments had one light battalion in direct support, and one light and two medium battalions were in general support.

NOTE: Battalions of the group reinforcing the fires of a division artillery were also assigned missions of reinforcing the fires of an organic division artillery battalion.

75. Liaison.<sup>1</sup> Liaison followed normal Third Army Standing Operating Procedure and published field artillery doctrine. The only phases worthy of additional note is that special attention was given to communications between field artillery, fighter cover and air support groups.

76. Ammunition Allocations. "Ammunition had been carefully hoarded since the middle of October for this attack. No firing of American artillery ammunition had been permitted except in case of strong enemy attacks or against severe enemy artillery fires. Maximum use was made of anti-aircraft artillery, tank destroyers and captured weapons to replace field artillery fire."<sup>1</sup> The allocations for the initial phases of the attack were as follows:

	105 How	4.5" Gun	155 How	155 Gun	8" How	8" Gun	240 How
Unit of Fire	(125)	(75)	(75)	(50)	(50)	(35)	(25)
1st Day	1	2	1	2	1	1	1/2
2d Day	1	2	1/2	1	1/2	1	1/2
After 2d Day	3/8	1/2	1/4	1	1/4	3/8	1/4

Authority to expend in excess of the above amounts had to be obtained from the Commanding General, XX Corps Artillery.<sup>2</sup>

#### 77. Analysis of Fire Plans and Ammunition Expenditures.

a. Fire Plans. The 5th Infantry Division jumped off after an intense preparation. From H-30 minutes to H hour, the artillery fired on enemy front lines and strong points, and interdicted critical areas and routes. Corps artillery concentrated on enemy command

posts, communication centers, and concentration areas. From H hour to H + 60 minutes, division artillery fired on-call fires, smoked enemy observation posts, and neutralized strong points and enemy forward defenses. Corps artillery attacked known enemy batteries with an initial minimum concentration of three battalions per enemy battery. In the 90th Division zone, no preparation was fired before H hour. At H hour, division artillery concentrated on entrenchments, automatic weapons, mortars, and close-in barrages in support of the initial bridgehead, while Corps artillery laid fire on casemates, forts, pillboxes, known enemy batteries, and long range interdiction targets. In the 95th Division zone, no fires were executed before H hour, and thereafter the same type targets were taken under fire by division and corps artillery as in the 90th Division zone. Direct fire was to be provided by self-propelled 155mm guns, and subject to approval of the XX Corps Artillery Commander, 8-inch guns would be made available for the same purpose. Adequate provisions were specified for the security of these weapons while engaged on such a mission.

b. Ammunition Expenditures. Ammunition expenditures were naturally influenced by the rationing program which had been established. The following table shows the expenditures from 8 November to 22 November, the length of the period under discussion.

	105 H	155 H	155 G M1	155 G M12	4.5" G	8" H	8"G	240H
Average Rds/Day/ Calibre	6,972	1,976	293	44	341	186	14	35
Total Rds/ Operation/ Calibre	97,627	26,664	4,102	616	4,774	2,604	196	490

The total ammunition expenditure for the two week operation was 137,073 rounds of all calibres.<sup>1</sup>

78. Deceptive Practices. "Prior to the regroupment and moving of XX Corps Artillery to the new assembly and position areas for the attack, most of Corps Artillery had been in position in the zones of the 95th and 5th Infantry Divisions. The larger part of the Corps Artillery already supporting the 5th Division was to remain in the 5th Division zone. The bulk of the movement was from the 95th Division zone into the 90th Division zone and into the 90th Division assembly zone. Therefore counter intelligence measures in the 95th Division zone were of paramount importance. For this purpose, the 23d Special Troops (European Theater of Operations United States Army), with dummy "rubber" guns and chemical powders to simulate gun flashes, was employed to good advantage. As the Corps Artillery was withdrawn from the 95th Infantry Division area under cover of darkness, the 23d Special Troops simultaneously moved in and occupied the same positions. Gun positions, camouflage, traffic and communications, all the evidence of the pre-existing artillery picture were maintained. Flashes were fired simultaneously with the firing of one group of corps artillery remaining to reinforce the 95th Infantry Division. It is believed that by

these deceptive measures the changes and movements were made without any detection by the enemy. Prior to the attack, the greatest care was exercised to preserve secrecy of the night movements into assembly areas and from there to final position areas. Civilian traffic was strictly controlled. The artillery remaining in old position areas increased their rate of fire to maintain the same volume of fire that normally had been executed. Radios and air OP's were left in old position areas to maintain normal traffic and patrol. The reconnaissance and survey of the new positions were carefully restricted. All vehicle markings and shoulder patches were changed to correspond with those of the 3d Cavalry Group, which had been operating for several weeks in the area selected for the 90th Infantry Division attack. Registrations were restricted to one gun per battalion on the afternoon before the attack. These registrations were covered by simultaneous fire from the Fort Guentrange guns and the guns of two battalions which had been in position, firing for the past several weeks, in support of the 3d Cavalry Group."1

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## CHAPTER 15

### ARTILLERY IN AN ATTACK OF A LINE OF PERMANENT FORTIFICATIONS

#### SIEGFRIED LINE, GERMANY

#### 79. General.

a. This chapter covers the artillery as allocated by First Army and as employed by two corps, the XIX and VII Corps, in breaching the Siegfried Line which lay at the end of the Army's pursuit across France; Belgian and Holland. The V Corps, a part of First Army, is not considered since its action was similar to that of VII Corps.

b. From the G-2 estimate; "Any penetration on the front of First U. S. Army toward Cologne or Dusseldorf would constitute one of the most serious threats

to the whole Rhineland position. Hence strong enemy resistance is to be expected including artillery, air, and counterattacks.<sup>1</sup> As First Army approached the line of defense, these defenses were not completely manned, and those troops present were not of the enemy's best. Therefore, the decision was made to assault the line at the earliest possible moment.

c. The scheme of attack was to penetrate the line with three corps, XIX Corps on the left, VII Corps in the center, and V Corps on the right and then to continue the advance towards Dusseldorf, Cologne, and Coblenz.<sup>1,2,3</sup> As this plan was carried out, only one division, the 30th was forced to make a coordinated effort to fight its way through the outer defenses of the Siegfried Line. All other units moved with comparative ease, as they passed through before the enemy could get his troops properly organized. Although this penetration did not prove to be as serious a task as it might have been, many bitter battles were fought as all First Army units warded off determined German counterattacks and continued to advance through the secondary defenses. Even with the drastic restrictions on ammunition expenditures, artillery played a major role in breaching the Siegfried Line and in warding off enemy counterattacks. Artillery was employed, in both direct and indirect fire, with considerable success against the individual pillboxes.

#### 80. Organization for Combat.

a. First Army.<sup>4</sup> At the time of attack, many heavy artillery units were on supply missions, transporting ammunition, gasoline, and other materials. This situation was caused by our rapid advance from the Seine River to the Siegfried Line, and those heavy artillery units not employed had been withdrawn. Consequently, some First Army artillery units took no part in the drive through the Siegfried Line. Of the available artillery, First Army kept for supply purposes one brigade headquarters; one observation battalion, three group headquarters, five light battalions, four medium battalions, and five heavy battalions. The remainder of the non-divisional units were allocated to the three Corps. Those units on supply and trucking missions did not fire in support of the initial assault; however, they were moved up as soon as possible and were employed, either attached to one of the Corps or under Army control.

b. XIX Corps. At the time the penetration of the Siegfried Line was effected, XIX Corps found itself in an unusual situation. The 30th Infantry Division was facing the Siegfried Line, the 2d Armored Division had been relieved and was in reserve, the 29th Infantry Division and the 13th Cavalry Group were facing north defending from the Siegfried Line west to the Maas River, and the 7th Armored Division was attacking north and north-east in an entirely different zone. The Corps planned to make the penetration with the 30th Division and to follow closely with the 2d Armored Division to exploit any breakthrough that might be achieved. The Corps Artillery was organized for combat as follows:<sup>1,9</sup>

(1) Attachments to:

7th Armored Division:  
One 4.5" gun battalion.

30th Division:  
Two 105mm howitzer battalions, self-propelled.  
One 155mm howitzer battalion.  
One 155mm gun battalion, self-propelled.  
One 4.2" chemical mortar battalion.  
One 3" tank destroyer company

(2) Direct support of

30th Division:  
One field artillery group  
Two 155mm howitzer battalions.

(3) General support, reinforcing fires of

30th Division:  
2d Armored Division Artillery  
One field artillery group  
One 155mm howitzer battalion.  
Two 155mm gun battalions.

29th Division:  
One field artillery group  
One 4.5" gun battalion.  
One 155mm gun battalion.  
One 3" howitzer battalion.

c. VII Corps. The Corps arrived at the Siegfried Line with two infantry divisions and one armored division abreast. The Corps artillery had been decentralized during the pursuit, and as it approached the Siegfried Line the only changes made were to increase the attachments of heavy artillery to the 1st and 9th Infantry Divisions. Organization for combat was as follows:<sup>2, 12.</sup>

(1) Attachments to:

1st Division:  
Two 155mm howitzer battalions.  
One 155mm gun battalion.

9th Division:  
One 155mm howitzer battalion.  
One 155mm gun battalion.  
One 155mm gun battery, self-propelled.

3d Armored Division:  
One 105mm howitzer battalion, self-propelled.  
One 155mm gun battalion, self-propelled (less one battery).

4th Cavalry Group:  
One 105mm howitzer battalion, self-propelled.

(2) General support:

Three field artillery group headquarters.

One 8" howitzer battalion.

One 240mm howitzer battalion.

d. Division Artillery.

- (1) XIX Corps. In the 30th Infantry Division, the three organic light battalions were placed in direct support of the three infantry regiments. The two attached light armored battalions were in general support, and each reinforced the fires of an organic light battalion. The chemical mortar battalion and the tank destroyer company reinforced the fires of the same two organic light battalions. The two medium battalions and one heavy battalion were in general support; the heavy battalion (155mm gun, self-propelled) was prepared to deliver direct fire on enemy fortifications as needed.<sup>5</sup> The 2d Armored Division was a follow-up force; initially its three organic light armored battalions were supporting the 30th Division. When the 2d Armored Division advanced, one light battalion was in direct support of Combat Command "A" and two were supporting Combat Command "B".<sup>6</sup>
- (2) VII Corps. In the 9th Infantry Division, each infantry regiment had a light battalion in direct support. The two regiments making the main effort also had one medium battalion in direct support of each. The 155mm gun battalion and the 155mm gun (self-propelled) battery were in general support, with the latter on call for direct fire missions against fortifications.<sup>13</sup> In the 3d Armored Division, there were two light armored battalions in direct support of each of the two main effort combat commands; the 155mm gun (self-propelled) battalion, less one battery, was in general support.<sup>14</sup> In the 1st Infantry Division each infantry regiment had one light battalion in direct support, while the regiment making the main effort had, in addition, a medium battalion in direct support. Two medium battalions and one heavy battalion were in general support of the division.<sup>15</sup>

e. Summary. Of a total of 540 non-divisional artillery pieces with First Army, XIX Corps received 168, VII Corps received 126, and V Corps received 102, while 144 initially remained under army control. In the XIX Corps, the 30th Division, making the penetration, was

supported by 16 field artillery battalions (including 2d Armored Division artillery). In the VII Corps, where the artillery was almost completely decentralized, each division committed was supported by an average of three and two-thirds light battalions, one and two-third medium battalions, and one and two-third heavy battalions. In the XIX Corps, the 30th Division assaulted on a two-regiment front of 1,200 yards; this gave density of artillery support of one gun per 9.5 yards of front.

81. Liaison. Liaison was maintained as prescribed in First Army Standing Operating Procedure which calls for liaison from right to left, across army and corps boundaries, from corps artillery to corps artillery and from division artillery to division artillery. Liaison was also maintained from corps artillery to division artillery. In addition each reinforcing group of the XIX Corps artillery maintained liaison with the reinforced division artillery. All direct fire units maintained communication with the infantry units in the area. Within the divisions liaison was maintained as called for in published field manuals.

82. Ammunition Allocations. The ammunition available to XIX Corps for the operation is as follows:<sup>8</sup>

105mm Howitzer	25,200
155mm Howitzer	3,648
155mm Gun	4,140
8-inch Howitzer	312
4.5-inch Gun	1,800

The XIX Corps Artillery Commander insisted that the ammunition as allocated was insufficient for an operation of this type. Attempts were made to secure an increase in the allocation but available ammunition would not permit. The allocations to the VII Corps are not available at this time.

### 83. Analysis of Fires and Fire Plans.

a. In the time preceding the 30th Division's attack, one battery of 155mm guns (self-propelled) was assigned the mission of destroying pillboxes by direct fire or close indirect fire. This battery succeeded in neutralizing some of the visible pillboxes in the division zone prior to the attack, and the entire battalion continued this mission during the attack. Within the limits of available ammunition, the division artillery, joined by Corps artillery, prevented a substantial enemy build-up in the zone of attack by extensive fires throughout the day and by interdiction fires at night. On night fires, Corps artillery undertook the deep interdiction fires with the division artillery largely confined to close-in interdiction, the two being closely coordinated. Attached tank destroyers were used extensively by division artillery on interdiction missions, this being necessary because of the restriction on expenditure of artillery ammunition. Attention was diverted from the zone of attack by diversionsary fires.

b. The prearranged fire plan for the XIX Corps included an air strike from H-120 minutes to H-hour and artillery fires from H-150 minutes to H + 67 minutes.

The Corps artillery fires were divided into three phases: (1) Counterflak, (2) counterbattery, and (3) neutralization of areas. Prior to H-hour the division planned only to mark targets for the air strike and to cut the enemy defensive wire. The majority of the division artillery prearranged fires were to begin at H-hour.<sup>9</sup>

c. The first fires began at H-150 when the destruction of the barbed-wire defenses was carried out by the chemical mortar battalion. The 4.2-inch mortar was found to be admirably suited for the purpose as the blast effect of the projectile was sufficient to sever the wire. The counterflak followed, during which 39 enemy antiaircraft installations were fired upon by Corps artillery units with almost complete success. No antiaircraft fire was observed, whereas on former days there had been considerable antiaircraft activity in this sector.<sup>9</sup> From H-120 to H-hour the division artillery marked targets for the air strike. Beginning at H-hour the division artillery began its prearranged fires and the Corps artillery entered on its second phase fires, that of counterbattery. The Corps artillery fired on 40 enemy batteries from H-hour to H + 30 minutes. During the third phase of the Corps artillery fire plan, neutralization of areas, there were 27 prearranged concentrations to be fired from H + 30 to H + 67 minutes. The artillery fire during this period had to be intensified because of the lack of effectiveness of the air strike. "Only four groups of mediums dropped any bombs on the target area. The other five groups made wrong approaches and could not be corrected by ground contact. Consequently the medium bombing was almost a total failure, as all ground observers agreed."<sup>9</sup> The Corps artillery commander assigned these additional missions to the reinforcing and general support groups to cover that portion of the target area not covered by the bombing. In addition to the 4.2-inch mortar barrages and other fires, the 30th Division artillery had 399 concentrations prepared to be fired on call. In the VII Corps there were no detailed fire plans, since the Corps carried through the Siegfried Line with the impetus of its pursuit.

d. The effectiveness of the artillery fire is discussed in detail, by both infantry and artillery officers, in the document "Breaching the Siegfried Line", published by XIX Corps. This discussion is too long to be included here. From the over-all artillery picture the following quotation is interesting: "The major contribution of the artillery fire was to drive external defenders (of pillboxes) inside, and to force defenders inside to come out and surrender after direct hits were scored."<sup>9</sup> Extracts from the reports of firing of one 155mm gun (self-propelled) battalion concerning effects of direct fire against fortifications, with conclusions drawn, are to be found in "Breaching the Siegfried Line", XIX Corps.

84. Ammunition Expenditures. The only ammunition expenditures available are those of the XIX Corps artillery from 26 September to 3 October 1944:

105mm Howitzer	30;865
155mm Howitzer	10;946
155mm Gun	2;776
4.5-inch Gun	1,273
8-inch Howitzer	449
3-inch Gun	651

Artillery ammunition was severely rationed and at no time, in the XIX Corps, was the support rendered indicative of the support desired. Therefore, although the Corps' expenditures greatly exceed the allocation, no conclusions should be drawn as to the amounts of ammunition required for an operation of this type.<sup>16</sup>

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PART THREE

DISCUSSION

CHAPTER 1

EFFECT OF FIELD ARTILLERY SUPPORT ON OPERATIONS

85. General.

a. This limited study of operations emphasizes again the age old principle that firepower and maneuver are the fundamental elements of combat. The application of firepower precedes successful maneuver and its ultimate purpose is to completely destroy or so neutralize the enemy that the maneuvering elements can take objectives without loss of life or injury to our personnel. On rare occasions the ultimate has been reached in this war, frequently approached, at times disregarded. Fire destroys the enemy's communications, forces him to abandon his observation and weapons, prevents movement of units on or into the battlefield and inflicts casualties. Movement covered by fire, smoke, or darkness, permits closing with the enemy and results in his capture or destruction. The advantages of movement covered by fire are obvious in that fire is much easier to control as to location and intensity. Field artillery forms a major portion of the firepower available to a commander.

b. When ammunition was plentiful and massed artillery fires were employed to a maximum, operations were carried to a speedy end with relatively low casualties. It may be well to look at some of the characteristics of good artillery support in order to understand better its importance and effectiveness. It is necessary to understand the merit of close integration of infantry and armor movements with heavy, accurate, and effective artillery fire and to distinguish between poorly planned fires and properly timed, properly placed artillery fire which is planned for, and in conjunction with, the movement of friendly troops. Proper artillery support also includes corps and army artillery superimposed upon and placed just beyond the fire of the division artillery; this, if properly placed and properly timed, is of the utmost value in assisting the movement of combat elements. This includes the very important mission of neutralizing enemy artillery, but it should be borne in mind that the employment of the heavy calibers should not be restricted to that function. The heavier calibers accomplish at greater ranges in the battle zone what the lighter calibers of the division artillery perform for the immediate front. Neither should be neglected, as both insure fewer casualties and a more rapid advance.

c. During combat in the European Theater massed

artillery fire was used successfully for both destruction and neutralization, and many times it was the only reserve in the hands of a commander to meet unexpected enemy action. The flexibility of field artillery and the fact that it was available and could be employed 24 hours a day was a deciding factor in the success of many operations. The nature of the organization and the standardization of training, especially at lower levels, allowed units to be shifted from the support of one unit to the support of another with little or no loss in efficiency. This flexibility of movement gave the commanders a powerful reserve as units could be massed to support main efforts. Hasty changes in position or direction of fire were frequently made to meet unexpected enemy action. Another form of flexibility, the ability to mass quickly and accurately the fires of many artillery battalions on a single target, frequently influenced the action on the battlefield.

d. In Part Two the artillery support as rendered in fifteen specific operations was presented, and no attempt was made to show how much this support contributed to the success of the operation. It is obvious, however, that the success of all operations was greatly effected by artillery support. As classified in FM 6-20, these operations represent nine different types. The remaining paragraphs of this chapter each deal with one of the type operations in which some of the contributions of artillery support are pointed out, and the success of certain operations is compared with the success of others of the same type.

86. Beach Landing.<sup>1</sup> The assault of a hostile beach, as exemplified by Operation Neptune, was an operation of the most difficult order. The landings on the Normandy beaches were a tribute to the planning, rehearsal, and complete coordination of all allied troops and leaders concerned. From an artillery standpoint, however, this operation presented an unusual picture; necessarily, the attack was well under way before artillery could land and render effective support. The problem, then, was twofold: (1) How to bring artillery support into the action at the earliest possible moment; and (2) What to use as a substitute for artillery fire during the preparation and early stages of the assault. This latter problem was solved most effectively in Normandy by the employment of naval gunfire and aerial bombardment. The guns of the Western Naval Task Force were in position to render excellent support throughout the early stages of the assault, and to supplement the fire of the first field artillery units ashore. The fighter-bombers of the Ninth Air Force furnished air cover which was invaluable to the progress of ground troops on the Continent. The problem of placing artillery fire on targets at the earliest possible moment was a difficult one, and the solution cannot be said to have been completely successful. Light self-propelled battalions in position on, and firing from Landing Craft Tank; light towed battalions placed in landing craft and DUKW's in the assault waves; and parachute artillery battalions dropped inland were among the methods tried, but none was completely successful. However, the large number of howitzers lost due to the sinking of DUKW's and the loss of

all but one of the parachuted howitzers due to dropping in a swamp does not indicate that these methods could not be successfully used under other conditions. The fires of artillery from landing craft could not be completely observed but it is certain that they all contributed effectively to the beach drenching. The self-propelled artillery landed with small losses and delivered supporting fires as early as H plus 90 minutes. Once ashore, control and coordination were excellent, and the build-up of artillery units, and hence volume of supporting fires, proceeded very satisfactorily.

87. Penetration of an organized Position.<sup>2</sup> Only one such operation was studied. In this operation ammunition was extremely limited and air bombardment was substituted, in part, for artillery fire. The bulk of the artillery was massed behind the penetrating force and the artillery units of adjacent forces were prepared to fire in support of this penetrating force. The shortage of ammunition forced the artillery preparation to be reduced for corps artillery to a counterbattery and a counterflak phase and a minimum of supporting fires for division artillery. The counterflak fires were very successful in suppressing the enemy antiaircraft guns. The Corps on the flank of the main effort suffered more from the lack of artillery ammunition as they were forced to attack without the air bombardment. A large percentage of their ammunition was fired to support the initial move forward, and many commanders believed that even this was not sufficient. If ammunition had been unrestricted all commanders would have fired considerably more and the advance would have undoubtedly been faster and our own casualties less.

88. Attack of an Organized Position.<sup>2, 3.</sup> There are really two operations of this nature presented in Chapter 2. The First Army Operation which resulted in the breakthrough west of St Lo shows three corps in the attack of an organized position, although one corps was set up to make a penetration. The other operation shown was the Ninth Army advance from the Siegfried Line to the Roer River which was in reality a series of attacks against organized positions. In the first operation, especially on the front of V and VIII Corps, the artillery support was of primary importance in reducing enemy strong points and in covering the initial assault of both infantry and armored units as well as neutralization of enemy artillery. In the Ninth Army advance from the Siegfried Line to the Roer River, artillery fire in support of the movement of supported units was used to the maximum. Ammunition was still insufficient, but by skillful maneuvering and the conservation of fire power until the critical moment, objectives were taken with comparative ease and casualties were few. During this operation massed artillery fire was planned for all known enemy strong points and fired on call just prior to the assault of infantry or armored units. Artillery fire also played a major part in breaking up strong enemy counterattacks, one of which was of division strength.

89. Pursuit.<sup>4, 5.</sup> In the two pursuit operations studied, First Army and the XV Corps, artillery control was decentralized to division artillery commanders and

direct support battalion commanders. Corps artillery was, in all cases, moved through successive assembly areas so as to be available when needed. However, artillery support did not play a minor part even in these operations. It was available and was used to assist regiments and divisions in overcoming local enemy resistance, and therefore materially assisted in maintaining the speed of movement. The XV Corps employed one field artillery group of their heavy battalions as a reserve to be readily available in case of an attack on either flank. An interesting feature of the First Army pursuit across France and Belgium was the special uses made of field artillery liaison planes. They were used to maintain contact with forward elements, to transmit friendly and enemy intelligence, and were often the only means of communication with leading elements.

90. River Crossing. 6, 7, 8, 9.

a. The two operations receiving the greatest amount of artillery support were the Roer and Rhine River crossings by Ninth Army. Since the effects of massed artillery fire would be as valuable for any type operation, and since most of the fires delivered were not peculiar to a river crossing, they will be discussed in more detail. Two other river crossings were included to give a comparison.

b. For the Roer River crossing adequate artillery ammunition was available to support the divisions in the assault, in the follow-up and in the continuation of the attack to the Rhine River. The 45 minute preparation was short but intense, and was based on information compiled from all available sources. The prearranged fires did not stop at H-Four but continued until H plus 200 minutes, and during this time fire was continuous from both division and corps artillery. The success of this heavy artillery fire was obvious from the start. The enemy communications were disrupted, his movement into and out of the area was greatly hampered, and his troops were kept under cover until our infantry arrived. Practically no enemy artillery fire fell on the bridge sites, thousands of prisoners were taken, and the move to the Rhine was accomplished in an unexpectedly short time. The casualties of all assault divisions were extremely low. Throughout the entire operation the corps artillery of the three corps was kept well forward, and their fire was superimposed upon that of division artillery. Every effort was made to deny to the enemy the use of roads and essential assembly areas. As a result, entire enemy batteries were captured because they could not use the roads. Road interdiction was carried out by enfilade fire from tank destroyer units and by periodic heavy, two to four battalion concentrations.

c. The value of the heavy and almost continuous artillery fire in front of XIII and XIX Corps may be easily seen by a comparison with the attack made by VII Corps. The VII Corps attack was made in conjunction with, and just south of the Ninth Army attack, and in the face of the same caliber enemy troops defending the same type terrain. However, this corps, because of a very small ammunition allowance, was not able to approximate the volume of fire

placed in front of the Ninth Army. As a result, the river crossing was much more difficult, the bridging was greatly delayed by enemy artillery fire, and the initial movement forward was much slower.

d. The Ninth Army Rhine River crossing was another operation which was adequately supported by artillery fire, and furnishes another picture of the effectiveness of massed, almost continuous artillery fire. The one hour preparation was again short, but intense. However, heavy artillery fire continued throughout the first 24 hours and its effectiveness is attested to by the complete absence of enemy artillery fire on the bridge sites of one division and practically none on the bridge sites of the other. Furthermore, the advance of the infantry was exceptionally rapid; a great number of artillery pieces were overrun, and our casualties were extremely low. In one division, the 30th, the casualties were less than 200 for the first 24 hours of the operation. The fire plan and the continuing fires to support the attack were basically the same as for the Roer River crossing. An additional phase of the artillery support worthy of mention was the counterflak preparation fired just prior to the airborne landings. The preparation was most successful in this zone as very little enemy antiaircraft fire was observed while the landings were taking place.

e. The XV Corps Rhine River crossing was made by two divisions with only one firing an artillery preparation. Due to the light enemy resistance, little can be determined as to the value of the preparation. The operation was included primarily to show an organization for combat which was used to support a river crossing.

91. Defense.<sup>10</sup> The one defensive situation presented shows the defense of a river line in one sector and an organized defensive position in the other. The front was an inactive one and the ammunition allocations extremely small. Only the minimum of fires were allowed as every effort was made to conserve this small allocation. Elaborate plans were made to support a counterattack against any enemy action.

92. Retrograde Movement.<sup>11</sup> There were very few retrograde movements in the European Theater of Operations. The Seventh Army withdrawal in Alsace, France, is presented in Part Two. The operation was a difficult one to support with artillery because of the very long front and the shortage of artillery units. The operation is of particular interest as it shows how a corps artillery successfully supported the infantry elements of two divisions who were in the line without their organic division artillery. A brigade headquarters solved the problems of liaison, communications and fires for the infantry elements of both divisions. In one instance a battery of 8-inch howitzers was the only supporting artillery for an infantry regiment.

93. Fortified Locality.<sup>12, 13, 14.</sup> Three operations of this nature were presented. In all these operations ammunition was closely rationed and allocations were small. However, within the limitations of the available ammunition,

artillery fire was used to neutralize the enemy positions outside the permanent fortifications. Direct fire against enemy fortifications and emplaced weapons contributed to the reduction of the individual forts. Excellent deceptive practices were employed at Metz and contributed to the success of the operation. The effects of direct fire against specific targets are included in the report of the Cherbourg operation and in the VIII Corps Artillery Report on the Brest operation.

94. Line of Permanent Fortifications.<sup>15</sup> In the assault of the Siegfried Line, field artillery made two major contributions. Enemy defenders were driven from exterior defenses and forced into the pillboxes and then direct fire or close indirect fire from artillery either reduced the pillboxes or neutralized the apertures while assault troops approached to destroy the enemy.

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## CHAPTER 2

### ORGANIZATION FOR COMBAT

#### 95. General.

a. A close study of artillery organization for combat is necessary in order to realize how it influences the ability of artillery to render effective support to other arms. It is obvious that liaison, communications, fire plans and the artillery support in general are all dependent upon organization for combat, and little can be done until it is determined. Division artillery organization for combat is dependent upon the additional artillery, its disposition, and missions assigned by corps.

b. It is evident, from a study of after-action reports, that there were almost as many methods of deciding corps artillery organization for combat as there were corps artillery commanders. This could be expected, as there had been very little artillery training at corps level, and as a result each corps artillery commander and his staff worked out the principles of organization for combat according to their own ideas. It is true that in most cases this was done in conjunction with one or more division artillery and higher commanders. However, with no previous experience or texts on the subject, the final solutions were necessarily different. It is admitted by most commanders that the artillery in all armies, corps and divisions did an excellent job, and that the maximum artillery support was rendered in all cases commensurate with the amount of artillery and ammunition available. This discussion has been centered around corps artillery because less variation was found in the procedure of division artillery. This is due to the fact that division artillery was taught in service schools and the major changes made were those in technique, instigated by the individual commanders. In a majority of the cases these changes did not materially affect the value of the artillery support as rendered. In speaking of organization for combat, commanders have listed many requirements for a satisfactory solution, but in reality there is only one: The field artillery must be able to support infantry, armor or cavalry on the field of battle.

#### 96. Army.

a. In general the organization for combat on the army level consisted of attaching units and allotting ammunition to the separate corps and in assigning certain missions to be performed by the corps artillery. In some few cases the army retained a small amount of heavy artillery under tactical control, employing the army brigade as the controlling unit. The amount of control retained over the artillery in the army, in the form of direct control or missions assigned to the corps, varied greatly with the army concerned. The records indicate that First Army retained the greatest amount of control.

b. The use of the field artillery brigade varied greatly with the army and the type operation. In the operation studied in detail the brigade is found used as a corps fire direction center,<sup>1</sup> as an administrative headquarters to care for units not needed in a fast moving situation,<sup>2</sup> as a division artillery headquarters,<sup>3</sup> as a tactical unit controlling heavy artillery directly under army control,<sup>4,5</sup> and attached to a corps and employed as a group headquarters.<sup>6</sup> A further study of the after-action reports of all armies indicates that First Army employed the brigade tactically under army control far more than did any other army. However, records show that all fire missions could have been performed equally as well and the support would have been as effective had the units been attached to one of the corps, with army dictating fire responsibilities when necessary.

c. The allocation of artillery to the different corps was influenced primarily by two things: (1) Availability, and (2) the mission of the corps. For normal operations each corps was given the same amount of artillery by type, and retained it until army found it necessary to shift artillery for a certain operation. For special operations, shifts were made from corps to corps within the army and, for large scale operations, shifts were made from army to army. For example Ninth Army, for the Roer and Rhine river crossings, received artillery units from all other US Armies.<sup>4,6</sup> In almost every operation, decision as to allocation of artillery to corps was made after a conference between the army artillery officer and the corps artillery commanders.

## 97. Corps.

a. The sub-allocation of artillery units by the corps artillery commanders was dictated by the opinion of the commander concerned as to how much or how little of his artillery he could effectively control. Because there was little published on the subject, the important function of setting up an organization for combat was left largely to ideas and experiences of individuals. Difference in concepts is apparent if one looks closely at organizations for combat set up under similar circumstances. Naturally this lessened standardization of high-level artillery procedure.

b. In the corps organization for combat, most corps attached all non-divisional light battalions to divisions; in many cases these were semi-permanent attachments of relatively long duration. In particular, it is seen that armored divisions received attachments of non-divisional light self-propelled battalions and that these attachments were usually permanent. In attaching medium battalions the corps varied considerably. Field artillery groups, by established practice, were composed of units having a common mission. Although the procedure varied in some cases, this was nearly always true. The missions assigned to the corps groups were roles of general support, general support and reinforcing the fires of a division with a group, or part of a group.

c. With reference to the varying corps artillery policies in this theater, summarized below are the methods

of three veteran corps. Although there is the indisputable fact that successful artillery support was rendered by each of these corps, a greater standardization of policies would have been of considerable advantage to division and group artillery commanders, as their units were moved from corps to corps. They would have been able to anticipate, at least in general, the artillery support a corps would render in a type operation.

- (1) One Corps Artillery followed these principles:<sup>8</sup> All corps artillery battalions were assigned a general support mission. In addition all light and medium battalions were assigned the mission of reinforcing a division artillery or a direct support battalion of a division artillery. At times heavy battalions, particularly 8-inch howitzer battalions, were assigned reinforcing missions. A typical corps mission for a group of one light, two medium and one heavy battalion was: "General support corps -- Reinforcing division with one light and two medium battalions." The group commander, coordinating with the division artillery commander, assigned missions to the battalions.
- (2) The second Corps Artillery considered,<sup>9</sup> with the exception of one operation, habitually attached all non-divisional light battalions to one of the division artilleries. Only in exceptional cases were other than light battalions attached to divisions. There was no standard group but when the situation permitted a group of two medium battalions and one heavy battalion supported a division artillery. Reinforcing units were designated and the division artillery was informed as to the amount of ammunition available and the number of times during which these battalions would be available to the division artillery. Normally, the general support groups consisted of heavy battalions. Every effort was made to maintain centralized control except in very fast-moving situations.
- (3) The third Corps Artillery<sup>10</sup> habitually attached all non-divisional light battalions to divisions and, when the available artillery permitted, an additional 155mm howitzer battalion was also attached to an infantry division. A group consisting of two 155mm howitzer battalions, one 155mm gun battalion and one 8-inch howitzer battalion reinforced the fires of each infantry division artillery. A group consisting of one 4.5-inch gun battalion and one 155mm gun battalion (self-propelled) reinforced the fires of an armored division. A 155mm howitzer

battalion was attached to the latter group when it was available. All other artillery was in general support.

## 98. Division.

a. On the division level, organic direct support battalions invariably worked with the same infantry regiment when it was committed. There was divergence of practice, however, in the employment of attached battalions or organic battalions whose associated infantry regiment was not committed. Some division artillery commanders formed groups under command of direct support battalion commanders; some placed extra battalions in general support with reinforcing missions; some assigned reinforcing missions and some put them in general support. Each of these solutions has advantages in certain situations. Whenever a coordinated attack was planned a regiment was always directly supported by two or more battalions.

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#### Chapter 2

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#### CHAPTER 3

#### FIRE PLANS

99. General. The corps artillery was the highest

echelon engaged in the actual preparation of fire plans. In very few operations an army artillery officer requested certain fires across the army boundary, and frequently the army artillery officer checked the coordination of fires across corps boundaries. The army commander influenced the fire plans in four other important ways: (1) By the allocation of artillery units, (2) by the allocation of artillery ammunition, (3) by deciding the time length of a preparation in case corps commanders were in disagreement, and (4) by ordering diversionary preparations to be fired.

#### 100. Preparation and Coordination.

a. Due to the time required to prepare an effective fire plan, it was essential that they be prepared simultaneously in all echelons and then coordinated. Almost all fire plans were prepared in this manner. This called for a mutual understanding and close cooperation throughout the chain of command, down to and including the direct support battalion commander. When the plans were completed, each artillery echelon made certain that its plan was coordinated with and that the fires of one plan were superimposed upon those of the next lower echelon.

b. For an attack of an organized position, a river line or similar defensive position, several units arrived at the same sequence in the attack of targets. This consisted of four phases: (1) during the first phase all artillery fired on targets selected with a view to disrupting enemy communications; (2) during the second phase corps artillery fired on enemy batteries, and division artillery fired on enemy defensive positions close to the front lines; (3) during the third phase all artillery fired on enemy defensive positions close to the front lines; and (4) during the fourth phase corps artillery lifted to counterbattery and neutralization of rear areas, and division artillery continued close support and neutralization of areas close to the front.

c. In a defensive situation, fires were planned to protect the defensive positions and to cover a withdrawal if the enemy made a penetration. These fires were planned and coordinated by corps and division artillery and all artillery units were prepared to participate in these fires.

d. Two types of special fire plans which called for the full cooperation and excellent liaison between field artillery and the supported arm were: (1) Direct or very close indirect fire by heavy artillery, to reduce permanent fortifications or to render close protective fires, and (2) fire for neutralizing enemy antiaircraft positions while friendly planes were in the area.

PART FOUR

CONCLUSIONS AND RECOMMENDATIONS

CHAPTER 1

CONCLUSIONS

101. Support Rendered.

a. That field artillery, in the European Theater of Operations, performed its mission of supporting infantry, armor and cavalry by rendering effective support in all operations.

b. That the support was rendered in accordance with published field artillery doctrine.

102. Massed Artillery Fire.

a. That there was no substitute for massed artillery fires.

b. That these fires played a major role in the advance of our troops and in breaking up and disorganizing enemy counterattacks.

c. That these fires were carefully controlled and readily shifted to the desired location.

d. That these fires were available, on short notice, during all hours of the day and night and in all kinds of weather.

103. Flexibility.

a. That the flexibility of organization permitted the massing of artillery units behind armies, corps and divisions, and insured the maximum support for the main effort.

b. That the ability to mass quickly and accurately the fires of many field artillery battalions on a single target was quite frequently responsible for the success of an operation.

104. Tactical Control of Artillery.

a. That, in this theater of operations, it was not necessary for army to maintain tactical control of any field artillery units.

b. That those functions performed by the field artillery brigade could have been performed by a group headquarters.

105. Organization for Combat and Operating Procedure.

a. That the corps artillery organization for combat is one of the most important factors influencing the artillery support rendered a given operation.

b. That all corps artillery commanders applied the principles as stated in published doctrine, but they varied greatly in technique and operating procedure.

c. That a more standard organization for combat and operating procedure in corps artillery would have been of great value to the artillery commanders of divisions, groups and battalions as their units were moved from one corps to another.

d. That a more standard operating procedure in corps artillery would have simplified the training and increased the efficiency of staff officers of corps and division artillery.

106. Composition of Field Artillery Groups.

a. That groups composed of battalions of different caliber were almost habitually employed by all corps artillery commanders.

b. That groups composed of battalions of different caliber were suitable for reinforcing the fires of division artillery.

107. Liaison.

a. That liaison was effectively maintained in almost all instances.

b. That the efficiency of liaison could have been greatly increased if sufficient officer personnel had been available to allow the establishment of liaison by officers who were members of the organization represented.

108. Ammunition Allocations.

a. That the rationing of ammunition hampered and delayed the success of operations quite frequently.

b. That the failure to expend an ammunition allocation for a particular operation was not indicative that the operation was adequately supported by artillery fire.

109. Fire Plans.

a. That for an attack, the preparation and the fires scheduled after the attack began were very successful in disrupting enemy communications, neutralizing his artillery, preventing movement on the field of battle and in driving his defending troops under cover while our attacking troops approached.

b. That in the preparation of fire plans all

intelligence sources were utilized in locating and selecting the proper targets.

c. That, excluding targets on the immediate front, nearly all artillery targets were located by agencies on the corps level.

d. That it was essential that fire plans be prepared simultaneously in all echelons and then coordinated.

e. That it was necessary to schedule fires after H-Hour to insure artillery support during the initial stages of an attack.

110. Tank Destroyer, Antiaircraft Artillery and Chemical Mortars.

a. That tank destroyer and antiaircraft artillery units employed as field artillery, and chemical mortar battalions were used very effectively to reinforce the fires of artillery units.

b. That the fires from these units were particularly valuable in preparations and other prearranged fires.

CHAPTER 2

RECOMMENDATIONS

111. Published Field Artillery Doctrine. That no changes be made in published field artillery doctrine concerning tactical employment.

112. Organization for Combat and Operating Procedure. That a study be made of the principles on which corps artillery commanders based their organization for combat and of the standing operating procedures employed by corps artillery, for the purpose of establishing a standard method of employment of corps artillery.

113. Artillery in Major Operations. That detailed studies be made of the artillery support rendered in some of the important operations, for the purpose of obtaining reference data for service schools. These studies to be complete with orders, maps, fire plans, and comments of the commanders concerned as to the reasons why certain things were done.