

HEADQUARTERS XIX CORPS
Office of the Signal Officer

APPENDIX "f"

SIGNAL COMMUNICATIONS DURING THE ASSAULT

1. General:

Careful coordination of Corps, Division, Air Support, Artillery, Engineer, and Special Unit Communications for the assault was essential for smooth operation of all units taking part in the penetration of the Siegfried Line. Commercial circuits, particularly buried cables, were utilized down to and within divisions. A special Corps team furnished information to divisions of the location of these circuits. During the rapid movement of the smaller units, radio was usually the only means of communication. The use of separate alternate and lateral circuits proved to be indispensable during periods of heavy shelling and counter attacks. Lessons learned - Bury all main wire circuits in forward areas prior to an assault.

2. Combat Information Radio Net:

During the penetration of the Siegfried Line an officer from the Combat Information Section, equipped with an SCR-193 radio set mounted in a 1/4 ton 4x4, accompanied each front line regiment. There were occasions when it was necessary to go to front-line Battalions for information desired. These officers kept the Corps Commander informed of the situation using radio channels direct to the Chief of Staff Section. The radios were operated by the Corps Signal Battalion personnel. The Converter M-209 was used exclusively for encoding. The NCS for this net was an SCR-399 located in the Radio Center, and operated by remote control from the Combat Information Section at Corps Headquarters. Short messages and fast operators gave the Corps Staff a fast service.

- Captain Virgil R. Owens, Radio Officer, XIX Corps -

3. 30th Infantry Division Communications:

Wire

The normal Division wire system was installed prior to the assault. Two lines were placed to regiment over alternate routes, utilizing a spiral-4 cable along axis of signal communication with one line to each regiment. Separate field wire circuits over alternate routes provided the second circuit to each regiment. Assault regiments, 117th and 119th, were tied in with one lateral circuit. Division CP was within easy enemy artillery range and as a precautionary measure an alternate CP was selected and circuits run to alternate location so a fast move could be made if required.

Close co-ordination with 2nd Armored Division, which followed the 30th Infantry Division through the initial break in the line, and with the 1st Infantry Division on the South, necessitated laterals to these units. Teletypewriter was operated over these circuits during a portion of the assault phase.

At no time during the initial assault phase was any regiment out of wire communication with Division. This was possible only because of provision of alternate routes and lateral between regiments.

Following the capture of Ubach by the 117th Infantry on October 3, the regimental CP moved forward to Ubach and extended three lines over alternate routes from switch at old location. A severe counter attack on 4 October, and almost continuous artillery and mortar fire during 4-5 October made it impossible to maintain wire communication to the 117th Infantry. During this period radio was used exclusively. Aside from this interruption wire communication was available at all times.

As regiments moved South from Ubach, commercial circuits from Heerlen commercial central office were utilized, first to Eigelshoven and later to Kerkrade. Spiral-4 cable was placed laterally from these offices to serve infantry regiments as they advanced. This procedure shortened field wire lines, reduced exposure and provided improved transmission.

SIGNAL COMMUNICATIONS DURING THE ASSAULT - APPENDIX "f" (Contd).

Radio

S.O.P. Division Command Radio Net functioned smoothly throughout the operation. This net employs SCR-193 radios mounted in C&R cars and manned by Signal Company personnel. Each set is provided with local adaption of Remote Control Unit RM-29, enabling operators at Regimental CP to hide vehicle in protected location and operate from basements. Remote control features provide EE-8a Telephone to S-3 of Regiments and G-3 of Division and net operates entirely on voice. Except for lower security, and necessity for employing "Slidex" this system provides communication as dependable and as satisfactory as wire.

- Lt. Col. E. M. Stevens, Signal Officer, 30th Infantry Division -

4. 2d Armored Division Communications:

Wire

With the beginning of the assault against the Siegfried Line by the 2d Armored Division on 3 October 1944, communication problems took on a new aspect. During the previous months when action was fast and great distances were covered daily, radio was, of necessity, the main means of communication. Wire was laid only when time permitted, and then only to a limited extent. The task of penetrating a prepared fortification such as the Siegfried Line required great masses of troops in a relatively small area. Wire became the principal means of communication. Distances covered from day to day were small; traffic was heavy on all roads; air raids occurred nightly. These conditions created tremendous problems in maintaining wire circuits, particularly for an Armored Division which is theoretically not intended to indulge in wire communications on the same scale as an Infantry Division, and is not equipped to do so.

Upon the commencement of the attack the Division CP was established at Scaesburg and was later moved to Grotenrath. As soon as a bridgehead was established across the Wurm River, a site was chosen in the vicinity of Ubach for an advance switching central. Two BD-72 Switchboards were placed in a civilian air raid shelter. Ubach was chosen because it was centrally located with respect to the combat elements of the Division. Wire teams were attached to CC"A", CC"B", and the Division Reserve to expedite the laying of lines between those units and switching central whenever a movement took place. At this time CC"B" was organized into two task forces and the same wire team that laid the lines to the switch was employed to keep lines in to the two task forces, priority being given to the Division lines.

Due to the heavy traffic on all roads, continuous shelling and occasional bombing it was necessary to run circuits between the Division CP and the switching central by alternate routes. The bridge at Palenburg was shelled so constantly that it was impossible to keep lines in. For this reason a separate overhead crossing was made about 150 yards upstream from the bridge. The combat area was so congested with troops such as numerous Artillery Battalions, Infantry Units, and Engineer troops, that wire congestion itself became a serious problem which greatly impeded wire maintenance. This situation was anticipated and construction personnel were ordered to make more perfect installations at the expense of speed. Wires were carefully strung with particular attention being paid to keep them well out of the way at any point where vehicles were likely to leave the roads. Circuits were tagged with a much greater frequency than would normally be required by normal standards. This all paid good dividends in the days that followed, though unavoidable trouble continued to be considerable. During the period of October 3 to 8 a total of 194 miles of Wire W-110 were laid by the Division Wire Section.

Radio

Radio operations during this period were very satisfactory because of short ranges involved.

- Lt. Col. Carmon L. Clay, Signal Officer, 2d Armored Division -

5. Corps and Division Artillery Communications:

Wire

Wire was the primary means of communication employed by the Artillery during the assault. Installation was normal (All Groups and Division Artillery FDC were tied in to Corps FDC by direct circuits.). Lateral circuits between Groups and Division Artillery FDC were maintained. Some difficulty was experienced in maintenance of wire circuits due to enemy artillery and traffic congestion. This was largely overcome by the installation of alternate circuits. The laterals were of good use in routing calls when direct circuits went into trouble.

Radio

Radio was used as an alternate for wire and was a very satisfactory substitute. Greatest use was made of FM radios within the Battalions where it was particularly difficult to keep wire circuits in service.

- Captain Harland D. Johnson, Communications Officer, XIX Corps Artillery -

6. Air Support Communications:

Perfect communication was maintained between ground and air during the operation by the use of VHF radio. Fighter bombers coming from the rear would check in first with the XIX Corps Air Support Officer and then with the Division Air Support Officer for assistance in getting on the target. The pilot would then report the results of the bombing and return to base.

Medium bombers had the same type of VHF radio communications, however, their transmissions were limited to two calls. One, requesting an all clear from the Corps Air Support Officer when two minutes from the target area, and a second, transmission when the last plane had cleared the target. One group arriving late was denied permission to bomb as our infantry had started to occupy the area.

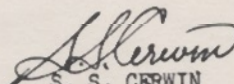
- Major Dovre Jensen, G-3 Air, XIX Corps -

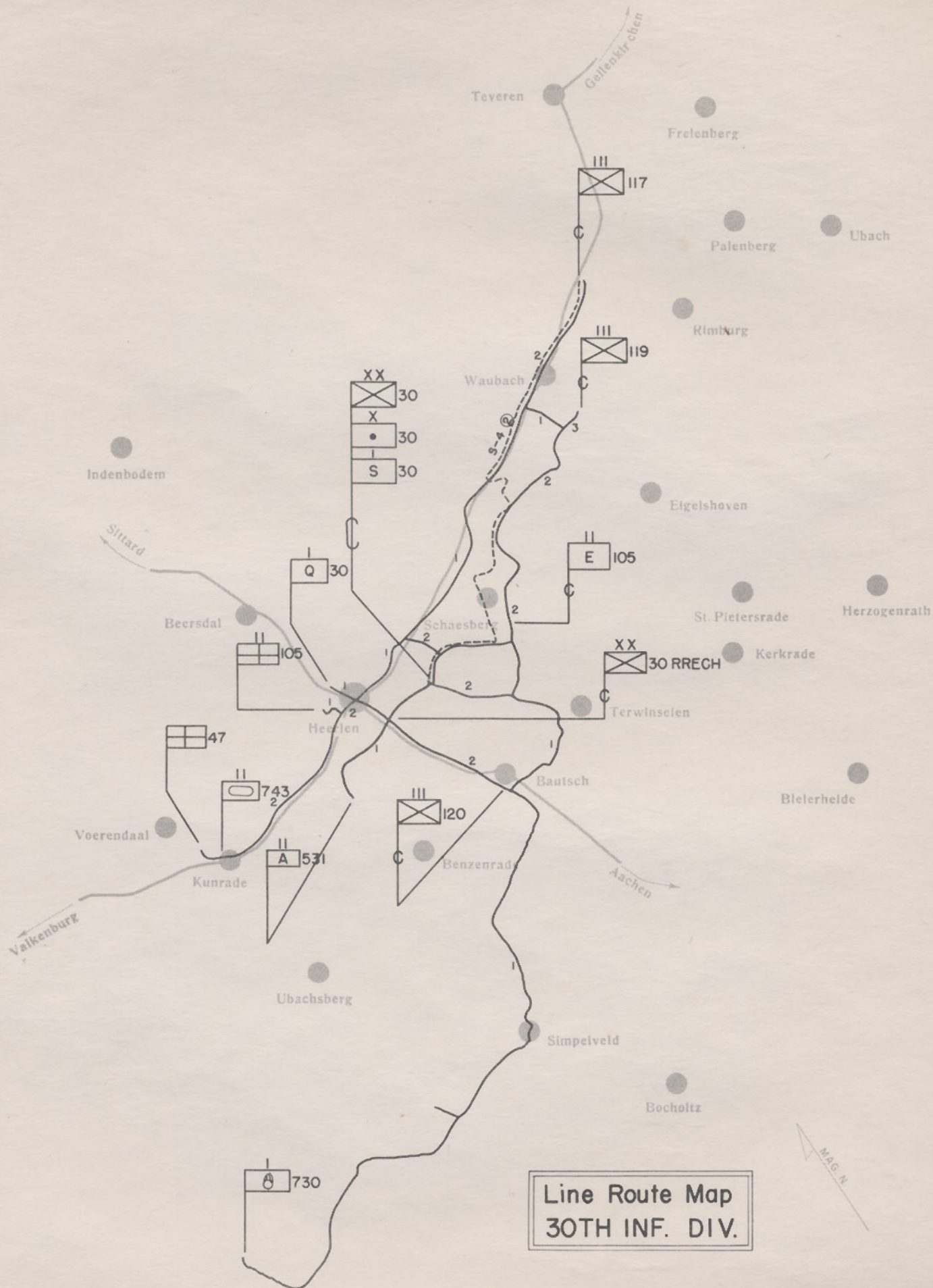
7. Engineer Communications:

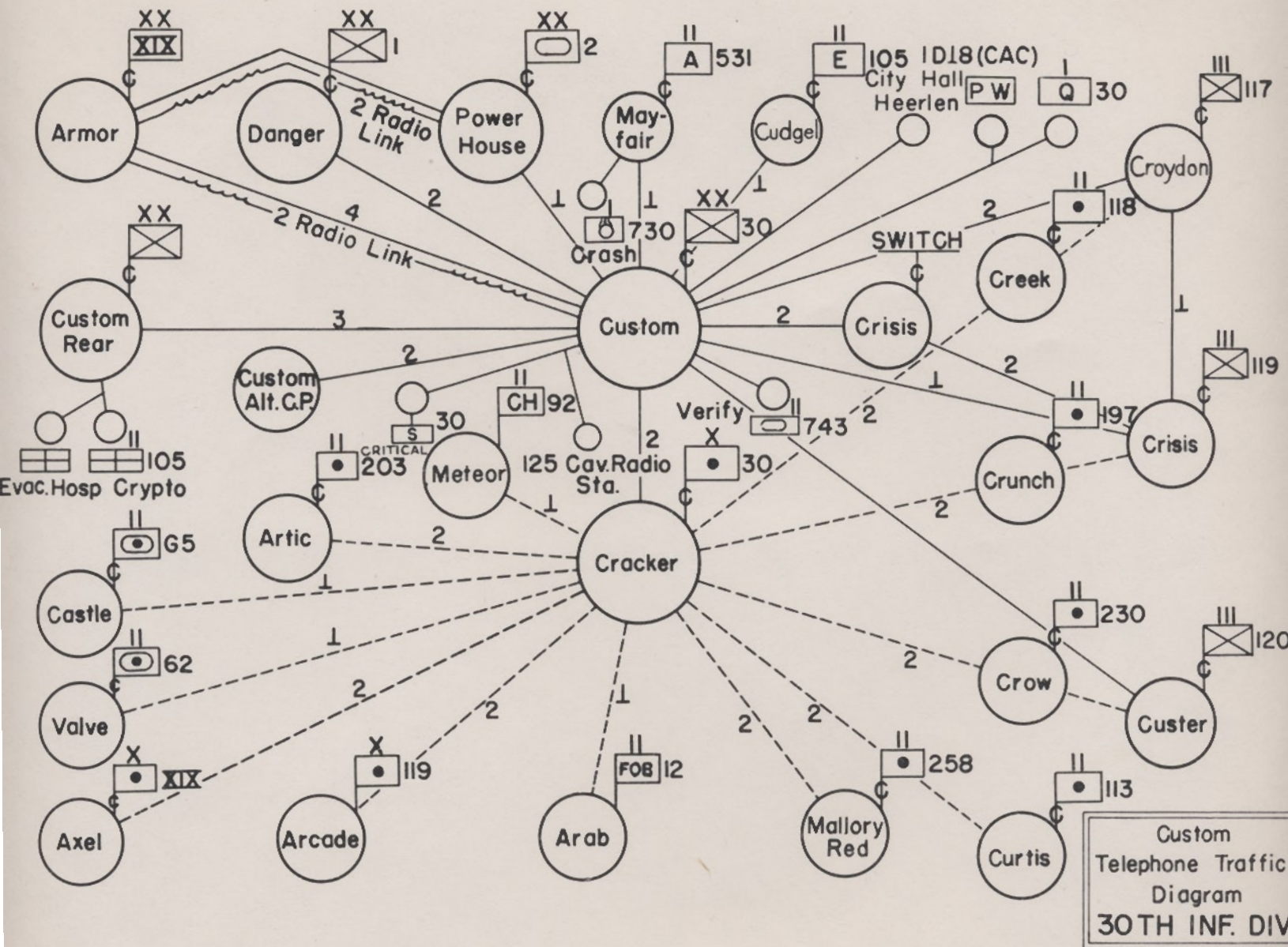
During the penetration of the Siegfried Line a Battalion of Combat Engineers was employed as Infantry. Due to the greater distances involved as a result of the Battalion occupying a very large sector, a SCR-193 was substituted for the SCR-284. Since the SCR-300 is quite large and bulky for use on patrol missions, SCR-536's were substituted for these sets.

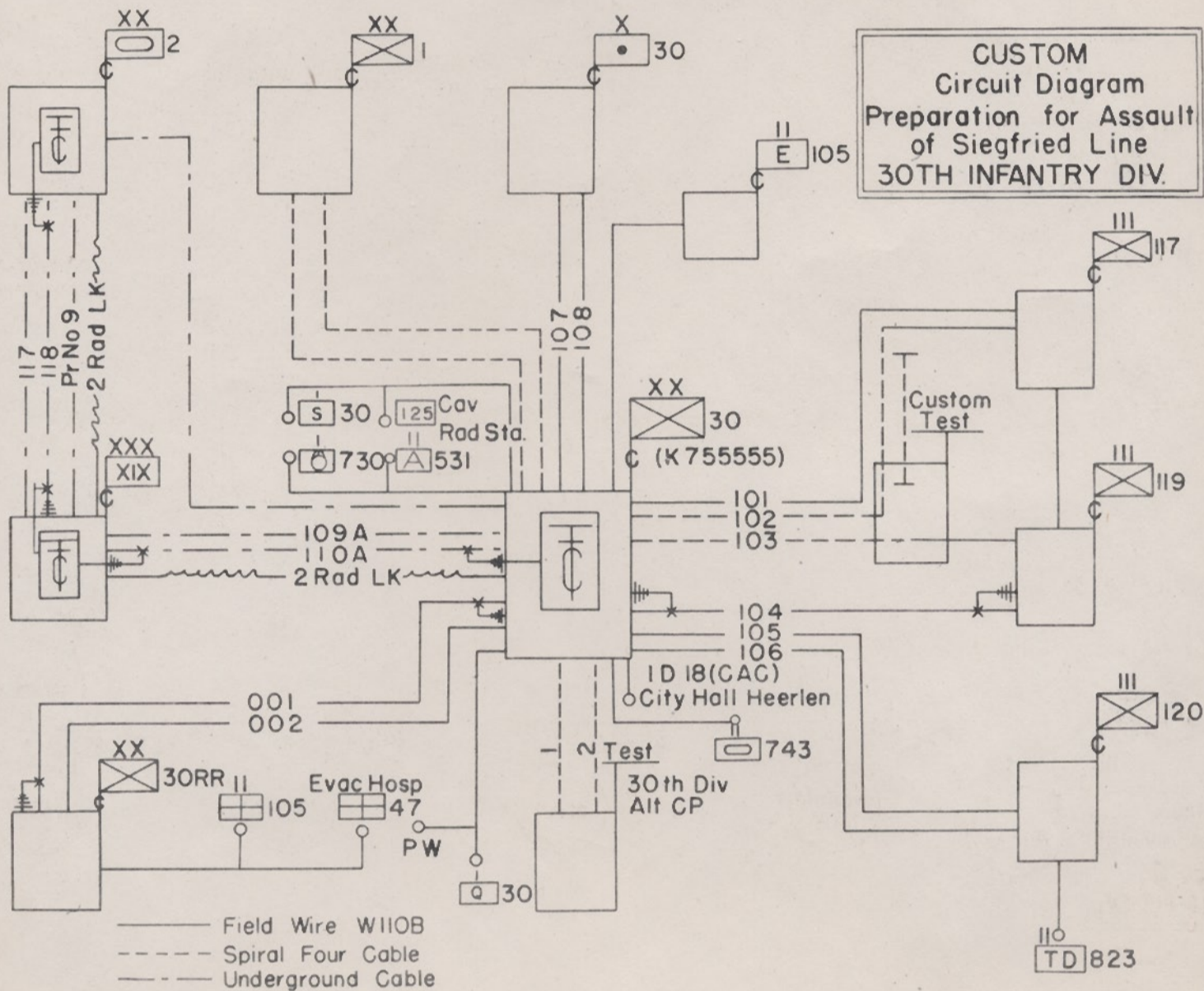
Due to the close cooperation and aid given the Battalion by the 30th Infantry Division Signal Officer, particularly in providing the substitute radio sets, good communication was maintained throughout the operation.

- Lt. Dwight W. Black, Communications Officer, 1104th Engineer C Gp -

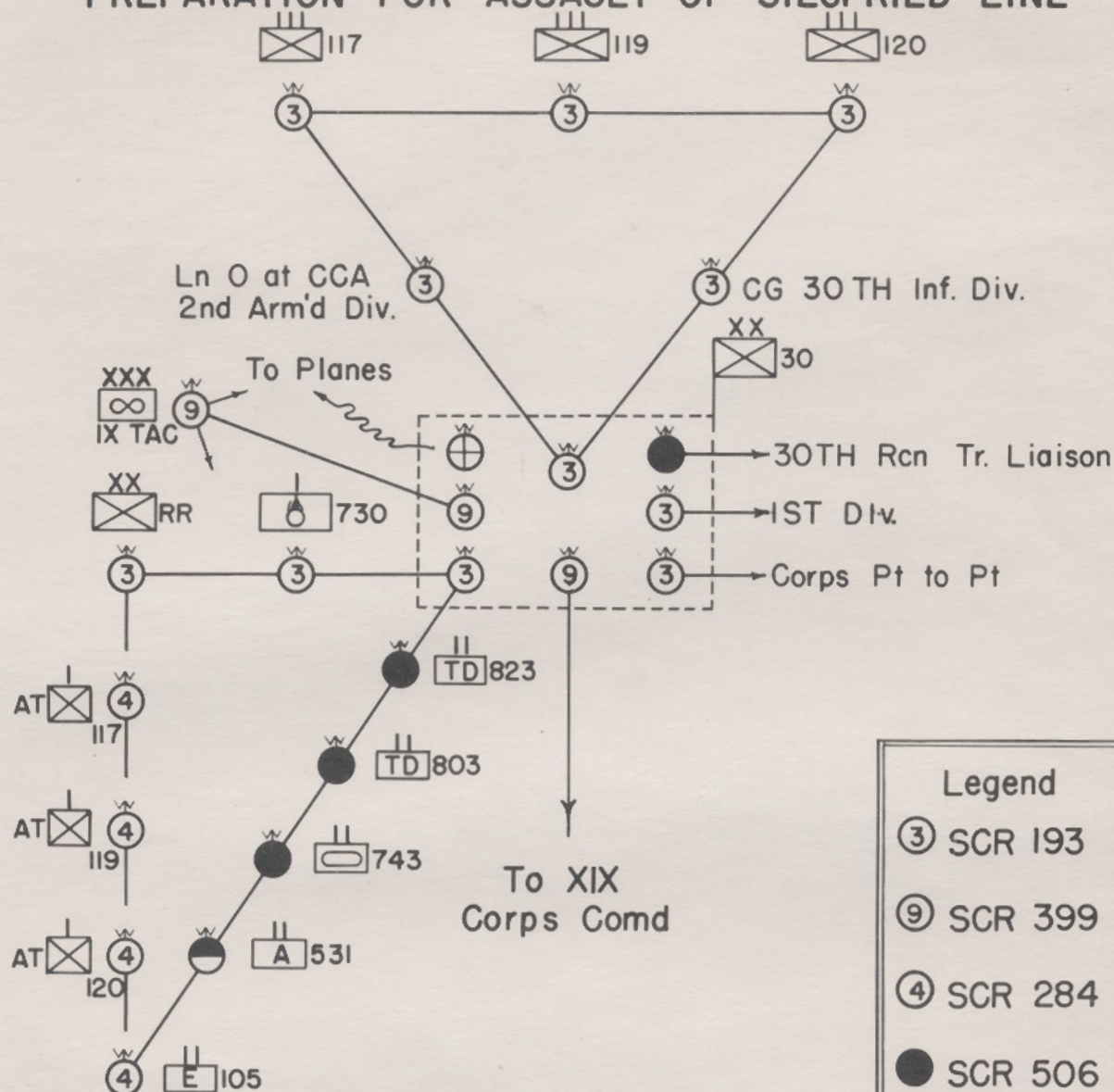

S. S. CERWIN
Colonel, Sig C
Signal Officer







RADIO NETS 30TH INF. DIV. 19 SEPT. 44 PREPARATION FOR ASSAULT OF SIEGFRIED LINE



Legend	
③	SCR 193
⑨	SCR 399
④	SCR 284
●	SCR 506
⊕	SCR 522
◐	SCR 177

ARTILLERY APPENDIX
TO
SIEGFRIED LINE OPERATION

- Part I - 30th Infantry Division Artillery,
Operations Through Siegfried Line
- Part II - Pillbox destruction report by 258th
F.A. Bn. (155mm Guns, M-12, SP)
- Part III - Artillery mission daily record by
XIX Corps, 1-16 October 1944

Part I

30th Infantry Division Artillery
Operations Through SIEGFRIED LINE

2-16 October 1944

The 1st October 1944, found the Division in position before the Siegfried Line west of Ubach and north of Aachen, Germany, awaiting orders for the assault on this barrier.

In addition to the organic battalions, the Division Artillery had the following attached units for the support of the Division effort:

- 258th Field Artillery Battalion (155mm Self-propelled guns)
- 65th Armored Field Artillery Battalion (105mm Howitzers)
- 62d Armored Field Artillery Battalion (105mm Howitzers)
- 92d Cml Battalion (4.2 Mortar)
- "A" Company, 823 Tank Battalion (3" guns)

The 119th Field Artillery Group was in direct support of the Division effort and received fire missions directly from the Division Artillery Fire Direction Center. This Group consisted of:

- 963d Field Artillery Battalion (155mm Howitzers)
- 967th Field Artillery Battalion (155mm Howitzers)
- 240th Field Artillery Battalion (155mm guns)

The primary missions of the artillery in the days preceding the attack were:

1. Destruction of all visible pillboxes.
2. Prevention of a build-up in the zone of attack.
3. Destruction or neutralization of enemy artillery, anti-aircraft, artillery, and mortars.
4. Markings of air support targets.

DESTRUCTION OF ALL VISIBLE PILLBOXES: In the days preceding the attack it was determined that 105mm Howitzers lacked the velocity, weight and accuracy required to

destroy these pillboxes; that the 155mm Howitzer lacked the accuracy and that the 3" gun lacked the destructive power to destroy pillboxes effectively. The 155mm Self-propelled Gun was determined to be the most suitable available weapon for the purpose and as a consequence the 258th Field Artillery Battalion was given this mission. The Battalion succeeded in neutralizing some of the visible pillboxes in the Division zone of attack prior to the "jump off" and continued the mission during the attack.

For the accomplishment of the mission the Battalion used one (1) battery on direct laying, using T-105 Concrete Piercing Fuses. After very careful prior planning and extensive reconnaissances, pieces were brought into position under cover of darkness and used singly. Pillboxes were not only penetrated, but in some instances reduced to rubble. In order not to disclose the proposed zone of attack, this operation was carried out in a number of sectors. The mission was continued throughout the penetration of the line and during succeeding days as the Division effort proceeded southward to a junction with the First Infantry Division northeast of Aachen, Germany.

A thorough "working-over" of these installations by 105mm and 155mm Howitzers first is considered desirable if the supply of ammunition permits. This tears away the camouflage and clears the installation for the direct fire weapons. It weakens the structure and jams and chews up embrasure slits and moving parts. The assault weapon should be "covered" where possible, by supporting artillery since in a direct fire position it is subject to return fire of the same nature.

DESTRUCTION OR NEUTRALIZATION OF ENEMY ARTILLERY, ANTI-AIRCRAFT ARTILLERY AND MORTARS: This was carried out jointly by Corps and Division Artillery, the former placing the emphasis on counter-battery and neutralization of anti-aircraft artillery the latter accepting the primary responsibility for counter mortar fire.

The enemy practiced the deception of intermingling mortar and artillery fire to such an extent that it all appeared to be artillery fire to even more than the casual observer. When the sound base failed to pick up the source of fire the extent of the deception was apparent; however, in the time available it was impossible to locate the mortar positions, and substantially neutralize them. The enemy constantly changed his mortar positions and by this practice greatly magnified the problem of counter-mortar.

COUNTER-BATTERY was more successful. In a lesser degree the same practice of firing and then displacing made the mission a difficult one. "Shellreps", a sound and flash base, and aerial observers as well as terrestrial observers accounted for the substantial neutralization of enemy artillery.

Aerial observers were assigned the primary mission of spotting enemy Anti-aircraft Artillery during the air strikes preceding the day of attack. Active positions were promptly taken under fire with notable success. Information thus obtained was retained for use on the enemy anti-aircraft artillery "Blackout" preceding the saturation bombing on D-Day.

PREVENTION OF A BUILD UP IN THE ZONE OF ATTACK: The Division Artillery, joined by Corps artillery, prevented a substantial build-up in the zone of attack by extensive fires throughout the day and by night interdiction fires. Aerial observers under centralized Division Artillery control were given definite overlapping zones of observation over which a constant vigil was kept when visibility permitted. Terrestrial observers operated as listening posts at night. Very close liaison between Division and Corps Artillery was maintained throughout the operation. 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. The attached Tank Destroyer Company was used extensively on interdiction by this Headquarters, this being necessary by the restriction on the expenditure of Artillery Ammunition. Attention was diverted from the zone of attack by profitable diversion fires.

MARKING OF AIR SUPPORT TARGETS: Light Battalions of the Division Artillery marked the air support targets. At this time of the year in this sector, green and

violet smoke proved of no value as target marking agencies for high performance aircraft. These colors blend with the predominantly green background of foliage and become indiscernible. White Phosphorous, while discernible, was not used to any great extent because of the likelihood of the enemy nullifying the effort by firing like smoke into our lines.

Air support targets were agreed upon prior to the air strike and the marking mission assigned to particular battalions. Data was computed by the battalion and the mission assigned to a battery within the battalion. This battery was then given the requisite smoke for the mission. Communication between the Division Air-Support Party officer, Division Artillery Fire Direction Center and the battalion was continuous. In most instances direct lines were used. As the planes approached the area the Air Support Party officer "coaxed" the planes over the target area by use of his air-ground radio set. Smoke was fired at the air support party officer's command and an "on the way" was given for re-transmission to the pilot. The method of fire was one battery volley, followed by one round per minute until the target was identified by the air. On occasion it was necessary to vary the method of fire to obtain the desired results.

On the 2d of October, 1944, the Division attacked eastward into the Siegfried Line in the direction of Ubach, German. The plan of supporting artillery fires consisted of:

1. Isolation of Area to be attacked.
2. Counter-battery, Counter-mortar, and an Enemy Anti-aircraft Artillery "Blackout."
3. Marking of Air Support Targets.
4. Destruction of Barbed wire defenses
5. Scheduled Concentrations on Strongpoints, Fortifications, etc. and extensive Concentrations on Call.
6. Successive Barrage Lines before the Advancing Infantry.
7. Continuation of the Destruction of Pillboxes and Fortifications.

The area to be attacked was "sealed off" by concentrations on cross roads and avenues of approach to this area. All enemy artillery positions were "worked over" by Corps Artillery with considerable success. The initial difficulty in locating mortar positions, coupled with the enemy practice of frequent displacement and our lack of sufficient ammunition to search the areas made the counter-mortar phase of doubtful success.

Immediately prior to the approach of the supporting aircraft, enemy anti-aircraft installations were fired upon by Corps Artillery with complete success. The spotting of these positions on former days had been so thorough that on this day no anti-aircraft fire of any consequence was observed. On former days considerable anti-aircraft fire in this sector had been observed.

The air support targets were marked by the light battalions of the Division Artillery for the dive bombers who came in on the marked targets with creditable results. The destruction of the barbed wire defenses was carried out by the 92d Cml Battalion. Since range and velocity were not factors, the 4.2" mortar was found to be admirably suited for the purpose, the blast effect of the projectile being sufficient to accomplish the severance of the wire.

This operation presented the usual problems of timing, coordination, position and priority of fires. The situation was difficult because a counter-attack in force could very conceivably come from either the east, against the assault forces, from the south against the holding force or from both directions simultaneously.

Meticulous prior planning, close coordination and maturity of units simplified the problems, communications clinched them. In addition to the normal communications, the Division Artillery had direct lines to Corps Artillery Fire Direction Center, Division air support party officer. Each battalion in turn was linked with the battalion on either side, respectively, by lateral lines. Never throughout the operation did communications fail although the area was frequently subjected to severe enemy bombing and shelling.

PART II (Artillery)

HEADQUARTERS, 258TH FIELD ARTILLERY BATTALION

APO 230, U. S. Army
5 October 1944

SUBJECT: Destruction of concrete pillboxes by short range fire from M12,
155mm Gun, SF.

TO : Commanding General, XIX Corps, APO 270, U. S. Army

1. Between 26 September 1944 and 2 October 1944 this battalion was assigned to the mission of methodical destruction of all pillboxes which could be located on the front or immediate flanks of the impending attack on the Siegfried Line by the 30th Division.

2. During this period intensive aerial and ground reconnaissance, in conjunction with aerial photo study, revealed 49 pillboxes as potential observable targets.

3. Of this number 43 were attacked by short range M12 fire, 1 by direct fire and 2 by 3" guns of Co a, 823d TD Bn. M12 adjusted using fuze delay, switching to T105 fuze on obtaining the first target shot. The TD company commander fired using one gun, direct laying, firing both HE with fuze CB, and armor piercing shot. Evidence of penetration was obtained on all 46 targets above. For details of each mission, see accompanying annex.

4. Firing was terminated only on evidence that a penetration has been obtained. It has not yet been possible to verify by close-up examination of the targets whether penetration was accomplished in every instance.

5. Terrain considerations affecting this mission differed materially from those encountered in VII Corps penetration of the Siegfried Line. Major factors were:

a. The terrain to the west of the Wurm River, the general front lines, offered a slightly rolling bare plateau approximately 1500 yards wide, dominated by enemy observation, and no positions for direct fire except in its center, which could not be occupied to accomplish the assigned mission because of counter-battery fire immediately incurred. This plateau dropped sharply to the Wurm River, and it was in this valley, dead space from any possible position that the only targets which were found but not fired upon, were located.

b. Enemy observation dominated the entire area and counter-fire was accurate and occasionally heavy, falling normally from 20 to 30 minutes after opening fire.

6. Solution to mission was occupation of positions immediately west of general area of Scherpenseel where sight defilade only could be obtained and short range indirect fire could be employed. Also similar positions were found just south of Nieuwenhegen. In the face of frequently heavy shelling, ground observation was pushed to the edge of the plateau facing on the Wurm River, and aggressive use of air observation was continuous.

7. Following tentative conclusions are submitted as result of accomplishment of this mission:

a. Effective destruction of a point target is a function of range from target, not whether method is direct or indirect.

b. Where short range indirect fire with sight defilade is possible, by expenditure of two or three extra adjusting rounds, the mission can be accomplished without the loss of materiel that is probable consequence of emplacing this gun in appropriate position for direct laying. Two pieces suffered direct hits occupying positions for direct fire, none were lost employing indirect fire.

c. German counter-battery fire could be counted upon not to fall sooner than 20 minutes after opening fire. As a result roving positions were chosen, a box destroyed, and the gun moved out quickly thereafter. Fire would then be opened nearby after a 15 minute additional delay. This procedure avoided destruction or serious damage to materiel in several instances. This method involved no sacrifice of adjusted data since each box, due to differences in site, required a complete new adjustment whether in the same or another position.

d. For quick penetration, fire must be delivered as nearly as possible in line perpendicular to face of the box.

e. HE shell, Fuze TL05, does not obtain its maximum effectiveness at ranges under 2000 yards if supercharge is used. Considerable evidence exists that the shell begins to shatter into large fragments slightly before the delay fuze becomes operative, when the terminal velocity is excessive. This was countered effectively in last stages of this mission, by firing normal instead of supercharge at shorter ranges and penetration was found to be better. This matter has not been thoroughly explored and its possibilities are offered as a subject of further study. This experience agrees with that of the 991st FA Bn engaged in a similar mission with the VII Corps. With very little instruction the gunner corporal can be taught to employ the direct laying sight on the M12 (graduated for supercharge) with normal charge.

f. Factors of terrain, angle of impact of the fires, and effectiveness of penetration of various types of boxes at different terminal velocities outweighed considerations of probable error consequent on range of gun from target. This will be noted from accompanying annex which summarizes the essential elements of fires of 27 pillboxes. Data on the balance of the fires delivered is not available but their delivery revealed no considerations not demonstrated in these 27.

g. Air OP conduct of precision destruction fire is highly effective.

h. The 3" anti-tank gun employed as in paragraph 3 above can penetrate concrete when it is possible to find positions from which direct laying is possible. Its rapid rate of fire, quick emplacement and displacement, and low silhouette avoided the major difficulties inherent in similar employment of the M12.

i. Direct laying by the M12, as opposed to indirect short range fires, has the sole advantage of greater speed consequent upon the elimination of the factor of communications, and conversion of sensings into appropriate firing data.

8. From fires that have been executed or attempted by platoons working closely with assault infantry battalions, it is believed that the M12 can be effectively employed in an infantry assault gun role only in exceptional circumstances. It is essential that any such employment be under command and control of artillery officers on the ground familiar with the characteristics of the weapon, as has been the case in supporting the 30th Division infantry, and not attached to the supported units. The number of missions fired in this manner of close support have been too few in number to provide further detailed conclusions.

/s/ BRADFORD BUTLER JR.
/t/ BRADFORD BUTLER JR.
Lt Col, 258th FA Bn
Cmdg

ANNEX NO. 1 (Part II)

No.	No. of Total Rds	No. of Rds Adj.	No. of Rds.Fuze delay	No. of fuze CP	No. of Penet. Shots	Total No. Target Hits	Range	Coordinates
1	31	10	11	21	2	12	4670	87.22-60.35
2	30	18	19	11	1	9	4750	87.28-60.19
3	22	9	11	11	2	8	4400	86.87-60.00
4	9	5	6	3	2	4	3600	86.03-60.47
5	19	5	6	13	2	7	3640	85.94-60.82
6	4	5	12	1	11	3100	85.52-60.47	
7	15	5	6	9	2	6	3400	85.02-59.40
8	21	2	3	18	2	12	3400	85.02-59.33
9	23	9	10	13	3	10	2100	85.22-59.32
10	11	4	5	6	2	5	3570	85.17-59.24
11	16	4	5	11	-	3	4250	86.60-61.16
12	14	8	9	5	2	4	4790	87.14-60.62
13	11	4	5	6	-	3	4630	86.97-60.95
14	21	6	7	14	2	6	3660	86.09-60.26
15	11	3	4	7	2	6	3400	85.16-59.27
16	23	11	10	13	3	10	2300	85.20-59.32
17	10	4	5	5	2	6	2700	83.98-56.70
18	21	2	3	18	3	12	3400	85.15-59.34
19	6	4	5	1	1	2	2600	85.10-60.20
20	7	3	4	3	1	2	3560	85.79-61.78
21	19	9	10	9	1	4	4280	86.52-61.70
22	16	7	6	10	2	5	3560	85.68-62.06
23	16	5	6	10	2	6	2660	85.68-62.06
24	8	3	3	5	1	3	2200	85.27-60.30
25	19	9	10	9	1	3	5500	83.96-56.24
26	21	8	9	12	2	8	4980	87.29-60.09
27	33	15	15	18	2	13	2800	85.94-60.94

PART III (Artillery)

XIX CORPS ARTY MISSIONS FIRED DURING ATTACK ON SIEGFRIED LINE

OCT	DAILY TOTAL	OF WHICH OBSERVED	COUNTER BATTERY	HARRASSING AND INTERDICTION	MISCELL ANEOUS	CLOSE INFANTRY SUPPORT
1	336	176	11	295	30	65
2	916	693	57	192	61	606
3	1097	614	72	447	35	543
4	597	330	35	250	14	298
5	575	298	109	222	43	201
6	576	310	66	233	48	229
7	507	316	47	167	14	279
8	565	298	83	225	61	196
9	814	440	27	360	33	394
10	767	451	55	288	108	316
11	735	352	60	207	64	392
12	787	362	78	327	106	284
13	863	435	73	324	104	362
14	524	363	96	136	25	267
15	434	305	109	89	44	196
16	558	366	93	153	39	273
TOTALS	10,851	6,109	1,071	3,915	829	4,901