

VII Corps Artillery Battle Experiences

GROUND OBSERVERS CONFERENCE

The following VII Corps Artillery units, including a total of 56 ground observers, were represented:

Hq Btry, VII Corps Arty
18th FA Bn (105 H)
802d FA Bn (105H)
951st FA Bn (155 H)
87th FA Bn (105 H SP)
183d FA Bn (155 H)
188th FA Bn (155 H)
195th FA Bn (8" H)
660th FA Bn (8" H)
957th FA Bn (155 H)
980th FA Bn (155 G)
981st FA Bn (155 G)
991st FA Bn (155 G SP)

TARGETS AND TYPE AMMUNITION

Tanks and SP Guns. High explosive shell, fuze quick, was favored by 155-mm units as being more likely to knock out the tank without a direct hit. A near miss with delay fuze will not harm a tank. For direct fire, use T-105 fuze or delay fuze.

No observer present had seen HEAT ammunition fired.

White phosphorus is very effective in frightening tank crews, but it does very little actual damage and forms a screen under cover of which the tank can withdraw.

If hostile tanks are well out and friendly fighter bombers are in the vicinity, fire red smoke to draw the aircraft to that area.

Infantry. *a.* In the open: Observers favored adjustment with fuze quick, and fire for effect with time or V-T fuze. Time fire frequently was not used because of the additional time required to adjust. The impression was that neither time fire nor the V-T fuze had been used to full advantage.

b. In woods: In general, fuze quick gives tree bursts with excellent effect. When the enemy is dug in, fuze delay in woods is more effective because of its deeper penetration.

Pill Boxes and Strong Emplacements. 105-mm howitzer ammunition was ineffective. 155-mm

Brig. Gen. Williston B. Palmer, the VII Corps Artillery Commander throughout the entire campaign on the Continent, conducted a series of seven conferences, between 23 May and 6 June 1945, to discuss battle experiences and to record — while still fresh in mind—the outstanding lessons learned. In general, the conferees were the captains and lieutenants who had done the actual fighting. The seven conferences were as follows: Ground Observers; Air Observers; Group and Battalion S-3s; Group and Battalion S-2s; Battalion and Battery Motor Officers; and Battalion and Group Communication Officers. Unfortunately, redeployment orders for the VII Corps prevented the holding of a culminating conference of battalion commanders, as had been intended.

Included in this issue are the reports on the first two conferences: Ground Observers and Air Observers. The reports of the remaining conferences will be published in later issues.—Editor.

and heavier calibers were used with success. Delay fuze was used in adjustment, to get incidental effective hits. For direct fire, T-105 fuze with supercharge was used. One observer reported having used base ejection smoke to mask a pillbox while the infantry, receiving no injuries from the smoke shells, moved in on the pillbox.

Machine Guns, Mortars, etc. High explosive with air bursts was used generally. In one case, delay fuze was used with intent to shake the mortars off of their base plates.

Vehicles. Use fuze quick for adjustment and for effect against tires and personnel. When the vehicles have stopped, they can be destroyed by precision methods or additional fire for effect.

Observation Posts. Fuze depends on the type of shelter. Often enemy OPs are well dug in, indicating delay fuze. Air bursts are sometimes required.

Towns. TOT's on towns should include all types of fuze (air, quick, and delay) to catch the enemy on the streets

and inside the buildings. White phosphorus was included frequently, both because the Germans hated it and also to start fires.

CONCLUSIONS

1. Good ricochet conditions were very seldom found.

2. Most observers felt that time fire is generally too difficult to adjust; consequently, they consider it of little value. (Being from corps artillery units, these observers were mostly dependent on mechanical fuze M67. However, even the 105-mm observers seemed leery of time fire.)

3. Time fuze M67 is too erratic to be of much value.

4. The V-T fuze is very good and entails no difficulties of adjustment. The observers generally felt that it could have been used more. Experienced observers agreed that, when fired above a woods, the V-T fuze bursts too high to be effective on the ground beneath the trees. When used in conjunction with massed fires of several battalions, it appears to give too many early bursts by sympathetic detonation.

5. M51A3 fuze fired with delay action from 155-mm howitzer was found to give a high percentage of duds.

6. The French and British projectiles which were issued to 155-mm and 8" howitzer units were not satisfactory because of excessive dispersion.

7. From a forward observer's standpoint, the highest charge possible should be used because it gives least dispersion.

INITIAL DATA

Initial data were usually from the map. Coordinates were estimated to the nearest 100 yards, and tied in if possible by announcing a terrain feature appearing on the map. When small shifts were made, initial data were usually given from the last concentration fired.

When no map was available, an estimated compass and range were used. If the battery location was not known, a town shown on a road map could be

used as a reference point for the initial data. (Even in Europe, observers once in a while had no map, usually because they had advanced beyond the limits of the sheets available.)

BATTERY SHEAF

For light artillery, a sheaf of 100 yards was believed ideal and was found in nearly all cases to be well aligned.

For medium artillery, a sheaf of 200 yards was believed too wide for the average target. A width of 150 yards was suggested by most observers.

Additional exactness is needed in sensing the sheaf. A suggested standard message from observer to FDC is (for example): *Converge on # 3 to 50 yards.*

ADJUSTMENT OF TIME FIRE

Most forward observers used the standard sensings: graze, mixed, air and high air. They recommend a change of *Up 10* to follow at FDC from an initial graze sensing. They think that positive height sensings should be given by the observer (for example, *Air 50 yards*).

METHOD OF FIRE

Adjustment. Most observers favored adjustment by one gun. A minority favored one platoon. In special cases, such as a counterattack, the battery should be used.

Fire for effect. The most important consideration is the proximity of the target to our own troops. If the target is within 150 yards, only the adjusting battery should be fired for effect. For targets between 150 and 300 yards, the rest of the battalion may be brought in. For targets beyond 300 yards, other battalions may be used for effect. Observers generally agreed that the spread of battalion and large concentrations made these restrictions necessary to avoid likelihood of hitting our own troops.

CONDUCT OF FIRE

All missions were processed through the battalion fire direction center, except when a battery was separated from battalion control.

Forward observer sensings were invariably used by all observers. They feel that a sound understanding of the principles of lateral observation increases the efficiency of an observer.

High angle fire has been used very little by these particular observers and

results were not conclusive. Excessive dispersion of high angle fire was reported by several.

The chart, below, is a compilation of written *estimates* prepared by observers during the conference; figures are not reliable statistics.

PREARRANGED FIRES

These observers recommend clean breaks of several minutes in long preparations, to entice the enemy out of their holes expecting the attack. Then start preparation again and catch them exposed.

These observers do not favor rolling barrages. Used at request of infantry in one case to protect open flanks of advancing unit, the observer considered this firing wasted. Observers consider a plan of successive concentrations to protect attacking troops much better than a rolling barrage.

Training in the planning of defensive fires after the day's fighting, with the FO planning with an infantry company

commander and the liaison office planning with an infantry battalion commander, was insufficient at all stage prior to reaching the battlefield. FO must work with the infantry company commander in planning defensive fire. Planning of defensive fires must start at all levels simultaneously; there is no time to develop them successively from company up to division.

Whenever possible, data for defensive fires should be verified by actual adjustment on several of them, especially those which are close to our own troops.

FORWARD OBSERVER EQUIPMENT

It was agreed that the following equipment should be taken by the forward observer:

Offensive mission

- 1—1/4-Ton truck
- 1—610 Radio (with Armor, 510)
- 1—609 Radio (with Armor, 509)
- 2—536 Radios

Distance of Target from Observer:

Weapon	Maximum	Minimum	Average	Based on estimated
				No. of missions
105 H	6,000	25	500-800	380
105 H (SP)	7,000	50	700-800	1870
155 H	14,000	50	1000-2000	2680
155 G (SP)	12,000	400	4000	190
155 G	14,000	300	3000-7000	400
8" H	15,000	1000	2500-5000	60

Distance of Guns from Observer:

Weapon	Maximum	Minimum	Average	Based on estimated
				No. of missions
105 H	8,000	1500	4000-5000	380
105 H (SP)	6,000	100	3000-4000	1870
155 H	14,000	4000	8000	2680
155 G (SP)	10,000	0 (direct fire)	7000-8000	190
155 G	12,000	0 (direct fire)	8000-12000	400
8" H	10,000		5000	60

Relative locations of Observer—Gun—Target

Weapon	Extreme	Average
105 H	Lateral on Flank	Axial and Small T
105 H (SP)	Target between O and G	Small T and Large T
155 H	Lateral	Small T
155 G (SP)		Axial and Small T
155 G	Lateral	Axial and Small T
8" H		Axial and Small T

(Remark: Conclusion is that fire is usually requested by an observer near the target, in an "axial" position, who—50% of the time, at least—is not a member of the battalion which fires.)

- 1—Remote control set
- 1—Set extra radio batteries
- 1—Power telephone
- 1—Mile W-130 wire
- 1—Pr field glasses
- 1—Coordinate square
- 1—M2 compass
- 1—Flashlight
- 1—Watch with sweep second hand

Defensive mission

Same as offensive, adding:

- 1—BC Scope
- 1—Small plotting board and plotting equipment

OBSERVER'S "HEARTFELT GRIEVANCES"

When a Corps Artillery observer picked up an important target, such as a tank holding up our infantry, it was often almost impossible to obtain a clearance to fire on it (Observer to Bn to Gp to Div Arty to 105 Bn and return).

S-3's lacked confidence in their observers. Examples: not firing requested amounts of ammunition for effect; not clearing fires in doubtful areas.

All captains and lieutenants in the battalion should take their turn as forward observers, and the FDC staff should come up and see the battle the way the observers see it, so they can visualize it at the FDC.

In hard continuous fighting, 72 hours is the maximum time an experienced forward observer can be expected to operate effectively, and 48 hours is the maximum for a green observer.

PILOTS AND AIR OBSERVERS CONFERENCE

The following VII Corps Artillery units, including a total of 44 pilots and air observers, were included:

- Hq Btry, VII Corps Arty
- Hq Btry, 142d FA Gp
- Hq Btry, 188th FA Gp
- Hq Btry, 224th FA Gp
- 18th FA Bn (105 H)
- 87th FA Bn (105 H SP)
- 183d FA Bn (155 H)
- 188th FA Bn (155 H)
- 195th FA Bn (8" H)
- 660th FA Bn (8" H)
- 802d FA Bn (105 H)
- 951st FA Bn (155 H)
- 957th FA Bn (155 H)
- 980th FA Bn (155 G)
- 981st FA Bn (155 G)
- 991st FA Bn (155 G SP)

PLANE AND EQUIPMENT

Plexiglass or a better grade of pyrolin should be installed to improve all-around visibility. One piece should be used in the left side rather than the present three sections.

Every officer used field glasses on many of his air observation missions. A special field glass, light and compact, with 8-power lens and a wider field of vision, is needed for air observers.

The observer very seldom faced to the rear. The general opinion was that observers should face to the rear only where enemy aircraft are particularly active. All observers want an adjustable seat.

All observers wanted an intercommunication system between pilot and observer. Many had improvised their own in the L-4 airplane.

The most serious defect in the air sections was lack of messing arrangements. The section is rarely convenient to a unit kitchen. T/O & E should furnish a cook, a cooking unit, and mess equipment for 10 men.

The general opinion was that, while transportation currently available gets the air section around, the habitual serious overloading would be avoided by substituting a 1½-ton personnel carrier for the ¾-ton weapons carrier.

Spare parts supply was usually satisfactory. A suggested list of additional spare parts to be carried by the air section follows:

Carburetor	Shock struts
Piston rings	Spark plugs
Propeller	Tail wheel

HAZARDS OF FLYING

Forty of the 99 major accidents in the VII Corps during combat occurred either in takeoffs or in landings. The first consideration in selecting a field should be suitability for takeoffs and landings. The second consideration should be exposure of the field to enemy artillery fire. In a stable situation, the base field should be 10,000 yards from our front lines, with a strip farther forward.

Safeguarding Planes. Pilots and observers commented on the difficulty of safeguarding planes on landing strips when operating with armored combat commands in a rapidly moving action. No general agreement was reached on a

solution but some remedial suggestions were:

1. Keep all planes working with a particular combat command on one strip.

2. Keep the strip close to combat command headquarters.

3. When the combat command pulls out during the night, arrange for a platoon of light tanks to remain behind and protect the landing strip until the planes and ground crews can move up in the morning.

Aircraft Warning. The enemy aircraft warning system often did not work satisfactorily for separate battalions. Suggested remedies:

1. The mobile AAA battery accompanying each corps artillery battalion receives all aircraft warnings. The AAA battery should notify its FA battalion FDC immediately, and the FDC immediately relay the warning to the air observers over SCR-608 net.

2. Any corps, division, group or battalion FDC which receives an air warning message should immediately broadcast the warning over the SCR-193 net to all FDC's for further relay as in 1, above.

It was learned the hard way that German flak fired at Air OP's. The best counter-flak measures were to avoid known flak areas, and to use varied evasive patterns when attacked.

COMMUNICATION

Radio. The SCR-619 had not been available to any unit present at the conference.

Observers agreed that the SCR-610 has been satisfactory. An important advantage is its interchangeability with any other 610 set. The best place for the SCR-610 is on the shelf in rear of the observer. The trailing antenna should not be used with the SCR-610 as it has definite directional characteristics. The recommended settings on the SCR-610 set for each battalion Air OP are battalion "common channel" and air channel of next higher headquarters. Observers also recommended that the FA group combine its air and command channels, as observers get much useful information by listening in on the normal command traffic.

T17 Microphones and P23 earphones are preferred to the present ear plugs

and throat microphone; the latter in fact were never used.

Present radio procedure is satisfactory, but proper priority in many cases was not given to fire missions.

Wire. Wire should always be maintained between the (group or separate battalion) FDC and airstrip. In a fast moving situation, a field should be selected where good communication can be maintained with the battalion.

MAPS AND PHOTOS

The best all-around map is the scale 1/50,000. It is the best compromise between amount of area covered and detail shown, and also gives a very good duplication of the view from the plane.

The 1/25,000 map was used frequently in a stable, limited area.

No type of photograph was considered really necessary. Gridded obliques were rarely used. Ungridded obliques were preferred for briefing. Some observers thought that a 1/25,000 gridded, colored photo map would be very helpful in all except fast-moving situations.

TARGETS

Most targets were picked up by seeing a flash or movement. German camouflage and camouflage discipline were both excellent, and targets were difficult to find except by prolonged study of suspected areas. Many targets were picked up by observing the reactions of friendly troops. In some cases communication with friendly forward observers was helpful. German dummy gun positions were not seen at all, except when flash pots were used in conjunction with them. Enemy flak installations were often spotted when they fired at our fighter bombers. Targets were taken under fire in the following order of frequency:

- Artillery in position
- Registrations
- Tanks and vehicles
- Moving foot troops

GUNNERY

Registration. For a registration, give the observer an area in which to select a registration point rather than designate a specific point from the ground which may be unsuitable from the air.

Center-of-impact was obtained by firing 2 groups of 3 rounds, after splitting a 100-yard range bracket.

Adjustment. All observers agree that:

The gun-target line must be known. If not determined otherwise, it must be shot in.

The target must be bracketed when adjusting. A yardstick on the ground, such as two crossroads a known distance apart, is very helpful and was usually easy to find in the European Theater.

The use of an auxiliary target to get surprise was not successful because the shift could not be fixed accurately enough.

In snow, delay fuze is helpful in spotting bursts.

Fire for Effect. Average area covered by one battalion was 300 yards by 300 yards.

Amount of fire for effect given by S-3 was felt generally to be sufficient.

Observers noted that a smoke screen with 155-mm howitzer was difficult to maintain due to the larger number of duds from the M67 fuze.

Time Fire. Air observers rarely used time fire except for time registrations. Accurate sensings on height of burst are impossible; air or graze are the only possible sensings. All grazes with M67 fuzes are *lost*.

GENERAL

Situation Map. Each division and group air officer should keep an accurate up-to-date situation map at the air strip with the following information:

- Front lines.
- Plan of operation of supported troops.
- All FA battalion position areas.
- Known enemy installations.
- Areas in which flak has been received.
- In the best combat divisions, this was done; in green divisions, it was not done.

Hazard—V-T Fuze. The present VII Corps method for warning Air OP's of V-T fire (V-T, LEFT ZONE, UNTIL 1305) is satisfactory except that warnings were rarely given in time. Observers recommend:

Broadcast the warning *at least* 10 minutes prior to the firing, and include *both* starting and ending time for the fire. (Example: V-T, LEFT ZONE, 1235 UNTIL 1305.)

Broadcast the warning over the SCR-193 (Corps Artillery Officer's net) so

that all FDC's in the corps can notify their planes.

Zone of Operation. No agreement was reached on the best zone or area in which to operate an Air OP. It was generally agreed that in a stable situation with good visibility the plane should stay 2000 to 3000 yards behind the front line. When enemy resistance seemed disorganized or feeble, many observers frequently went well into enemy territory for reconnaissance or for a detailed search of a specific area. The average patrolling altitude is 1500 feet, but altitudes up to 4500 feet are favored by some observers if visibility is good. Some feel that there is more danger from flak and enemy aircraft at such higher altitudes; others disagree. In support of a tank breakthrough, altitudes as low as 300 feet must sometimes be flown.

Depending on visibility, which was extremely variable, the distance from plane to target on the majority of missions was between 3500 and 5000 yard. The maximum distance was 15,000 yards on a day of exceptional visibility.

Daily Missions. On their primary mission of flying for the artillery, the present Air OP section (2 aircraft) can handle 4 two-hour missions per day Reconnaissance flights, flying for infantry commanders, messenger service etc., simply reduce the flying time for field artillery. The maximum flying time of a pilot and observer should not exceed 5 hours in the air per day and this rate cannot be continued for more than 5 or 6 days. Observers feel that 2 two-hour patrols per day are much better than 4 one-hour patrols because the former permit more detailed study of the terrain and more continuous attention.

Regularly Assigned Observer. All pilots and observers felt strongly that two trained air observers should be regularly assigned to each air section. Some units had detailed many officers haphazardly as air observers; these observers saw nothing. No observer had received reasonably adequate training before working as an observer in combat. Training should include intensive work on map reading and aerial orientation; also Air OP firing.