

Steel Rain—

XVIII Airborne Corps Artillery in Desert Storm

by Major Kenneth P. Graves



Elements of the XVIII Airborne Corps Artillery were among the first forces deployed to Saudi Arabia in August 1990. The Contingency Corps Artillery force soon increased to three Field Artillery (FA) brigades and four division artilleries. This force spanned the spectrum from light artillery in airborne and air assault units to heavy artillery from armored and mechanized units. By mid-October, this formidable artillery organization was fully prepared to destroy any Iraqi attack into the Kingdom of Saudi Arabia.

In early November, the XVIII Airborne Corps began preparing for offensive actions to liberate Kuwait. The corps began adjusting its task organization to accommodate the arrival of VII Corps into the theater, and compartmented planning continued as the Central Command (CENTCOM) plan began to solidify. The plan underwent many changes before the ground forces crossed the line of departure some three months later. But the XVIII Airborne Corps mission remained clear:

On order, XVIII Airborne Corps attacks to penetrate Iraqi forward defenses and interdict Iraqi LOCs (lines of com-

navigation) along the Euphrates River in order to prevent reinforcement of and escape from the Kuwaiti Theater of Operations (KTO) by Iraqi forces; on order, continues the attack east to assist in the destruction of the RGFC (Republican Guards Forces Command).

The success of Operation Desert Storm is now well-documented. This was the first time in many decades that our armed forces have gathered such a large force for a conventional battle. This also was our first opportunity to apply Airland Battle doctrine in war. And for the artillery, this was the first opportunity to employ several new fire support systems and apply doctrine from the tactical to operational levels.

Did it all work perfectly? Is our direction in the fire support community sound? Could things have gone better?

Many of the answers to these questions could be lost in the euphoria of our great victory.

This article won't presume to provide "the answers" but will provide an insight into what worked, what didn't work and what we Redlegs need to do to improve our fire support and fire support coordination.

Transition to Desert Storm

In the first week of November 1990, the corps artillery received mission guidance for Desert Storm. Detailed planning to support the corps mission began immediately throughout the corps artillery. The change from a defensive to an offensive mission required a new organization for combat (see Figure 1) and detailed planning for logistics, movement and command, control and communications (C³). Offensive planning continued from early November until "G-Day" (ground war day) with constant refinements to the corps artillery support plan as the enemy and friendly situation changed.

The corps artillery moved from its Desert Shield locations to Desert Storm attack positions during the first two weeks of the air campaign. By 1 February, all corps artillery units, less the 196th FA Brigade that was still deploying to the theater, were in their attack positions and preparing for action. Air defense artillery (ADA) batteries, chemical decontamination platoons, target acquisition assets and maintenance

XVIII Airborne Corps Artillery

- 6-27 FA (MLRS/Army TACMS) (-) (General Support Reinforcing) 6th Light Armored Division Artillery (French), 2/101 Chemical Company (Decontamination) (Attached)
- 5-62 Air Defense Artillery (-) (DS)
- 101 Chemical Company (-)
- 18th FA Brigade (Force Artillery Headquarters) (Reinforcing or R) 6th Light Armored Division Artillery (French), On Call (General Support or GS)
 - 1-39 FA (155-mm, Towed)
 - 3-8 FA (155-mm, Towed)
 - 5-8 FA (155-mm, Towed)
 - 1-201 FA (155-mm, Self-Propelled)
 - 1st FA Detachment (2 Q37 Radars)
 - A/5-62 Air Defense Artillery (DS)
 - 3/101 Chemical Company (Decontamination) (Attached)
- 196th FA Brigade (-) En Route to Tactical Assembly Area
 - 1-181 FA (203-mm)
 - 1-623 FA (203-mm)
- 212th FA Brigade (-) (R) 24th Infantry Division Artillery (Mechanized)
 - 2-17 FA (155-mm, Self-Propelled)
 - 2-18 FA (203-mm)
 - 3-27 FA (MLRS)
 - C/25 FA Detachment (2 Q36 Radars and a Q37) (-)
 - C/5-62 Air Defence Artillery (DS)
 - 1/101 Chemical Company (Decontamination) (Attached)
- Attachments
 - C/5-8 FA (155-mm, Towed) Attached to 101st Airborne Division (Air Assault).
 - 3-18 FA (155-mm, Self-Propelled) Attached to 3d Armored Cavalry Regiment (ACR) with FA Detachment (Q36 Radar and Q37 Radar) (Attached)

Figure 1: The initial organization of the XVIII Airborne Corps Artillery for combat in the offensive mission.

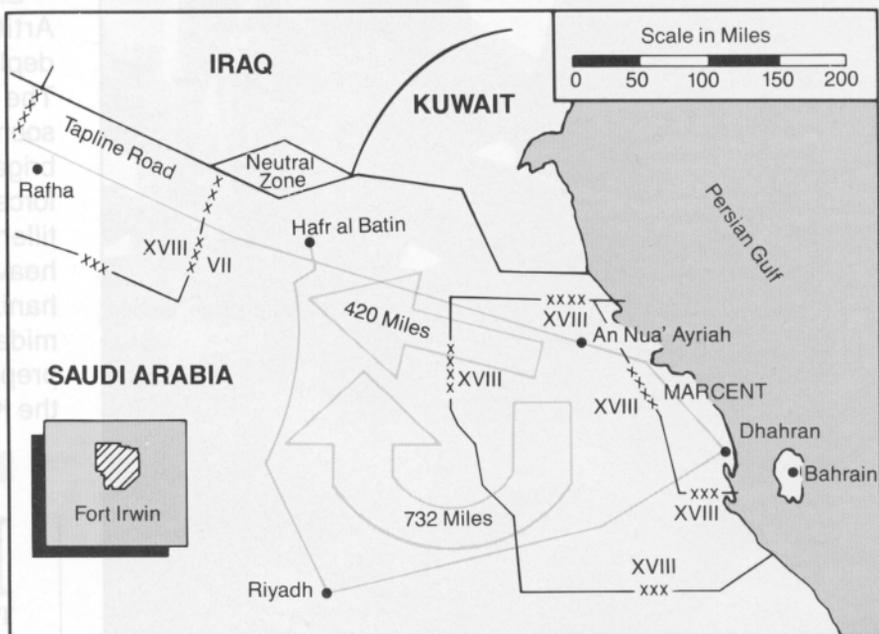


Figure 2: The XVIII Corps Artillery's Movement from Defensive Positions to Desert Storm Offensive Positions. The large area the corps artillery units operated in is clear in comparison to the area of the National Training Center (NTC) at Fort Irwin, California, inserted on the map to scale.

contact teams accompanied each of our three FA brigades.

In terms of numbers of vehicles and distances traveled, this movement dwarfed General Patton's movement of the Third Army in 1944 during the Battle of the Bulge. Figure 2 illustrates the

magnitude of the XVIII Airborne Corps movement. It was the equivalent of moving the entire population of Fayetteville, North Carolina, to Philadelphia, Pennsylvania, over a single two lane-road in 14 days. Corps artillery units moved on the two routes shown by the arrows in

Figure 2, with all tracked vehicles moving on heavy equipment transporters (HETs) or "lowboys." Incredibly detailed movement planning and decentralized execution at all levels made the move a success.

Desert Storm

After deploying to attack positions, the units continued the detailed preparation for the eventual ground attack. Some long awaited personnel and equipment shortages were filled during this period.

Deep operations were limited in scope in the XVIII Airborne Corps sector, which supported the CENTCOM's plan to deceive the enemy about the location of the XVIII Airborne Corps. Based on enemy prisoner of war interrogations after the war, the deception plan was successful, despite the size of the corps move.

On G-7, Army deep operations began in the XVIII Airborne Corps zone. Both the 212th and 18th FA Brigades fired missions in support of deep battle operations by the 24th Infantry (Mechanized) and 82d Airborne Divisions, respectively. The 6-27th FA Bn (-) assisted the 18th FA Brigade in this role with multiple launch rocket system (MLRS) fires. These missions took place from 13 to 23 February and were important in suppressing suspected enemy air defenses, destroying enemy reconnaissance and surveillance assets and deceiving the enemy about the attack helicopter flight routes.

Concurrently, the corps artillery established liaison at all levels, built hardened artillery positions, configured and attached Classes III (Fuel) and V (Ammunition) logistical slices to the FA brigades and fine-tuned plans through rehearsals. Intense preventive maintenance by all units paid off during the ground war; all artillery weapons systems maintained more than 90 percent readiness throughout the campaign.

The XVIII Airborne Corps Artillery was positioned as shown in Figure 3 at the beginning of G-Day. All artillery was well forward with maneuver units and would maintain the rapid pace of the maneuver forces until the cease fire on 28 February. From G-Day to the cease-fire on G+4 (Figures 4 and 5), the corps artillery units stayed on the move, stopping only to refuel, rearm or fire. In approximately 90 hours, the FA brigades and corps artillery command and control elements moved over distances varying between 370 and 435 kilometers.



SGT P. Fohl

On G-Day, gunners from B Battery, 5th Battalion, 8th FA send Iraqi forces a deadly message.

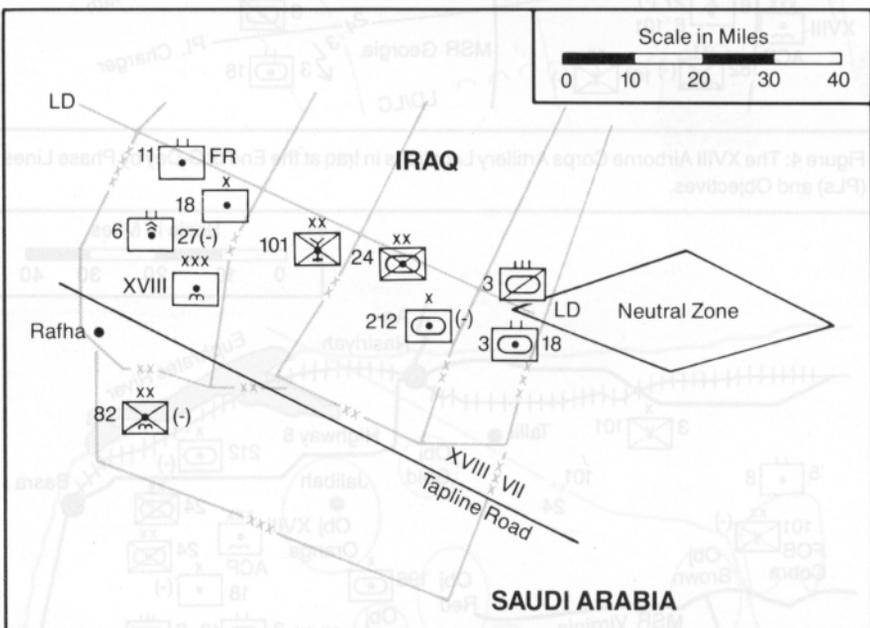
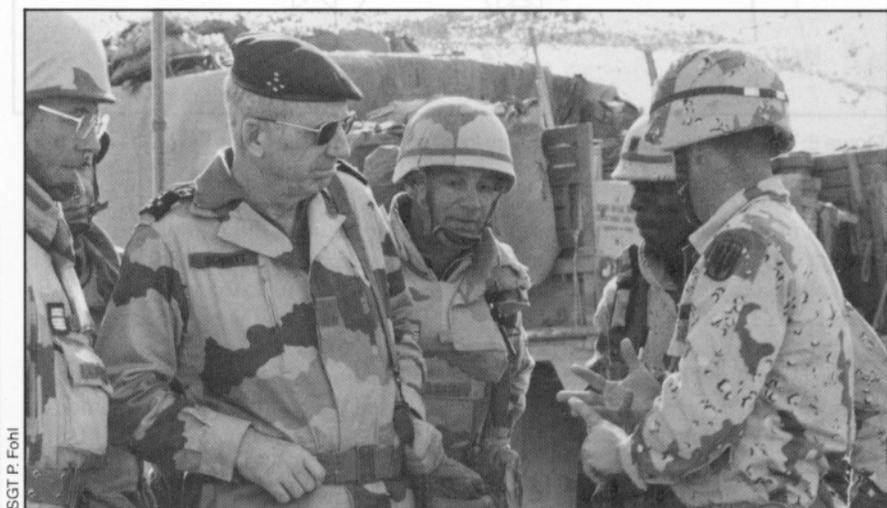


Figure 3: Artillery Deployment in XVII Airborne Corps Sector on G-Day. Corps artillery units worked with French (FR) units.



SGT P. Fohl

General Schmitt, Chief of Staff of the French Army, talks to soldiers of the 18th FA Brigade just before G-Day.

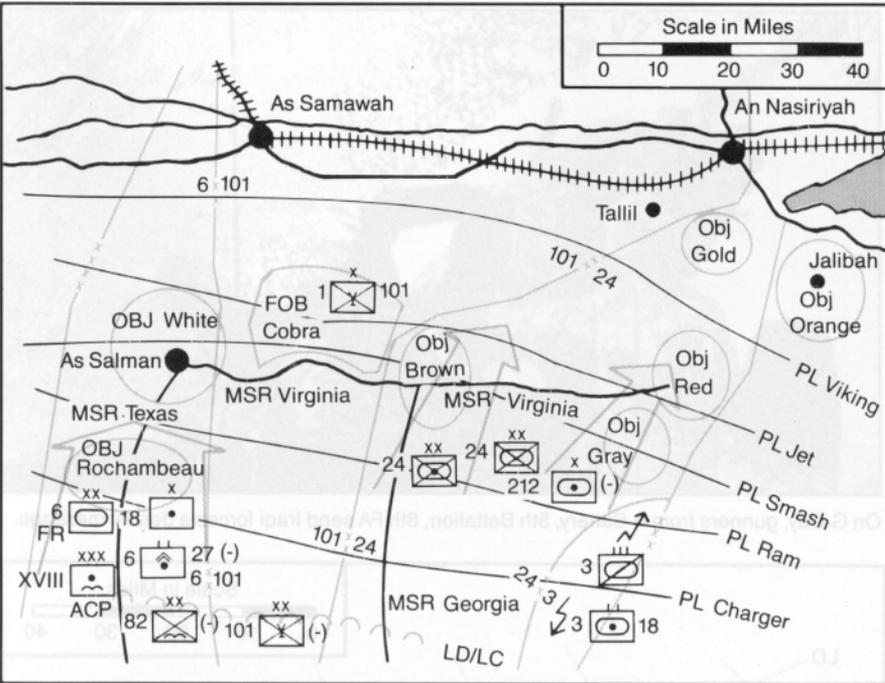


Figure 4: The XVIII Airborne Corps Artillery Locations in Iraq at the End of G-Day by Phase Lines (PLs) and Objectives.

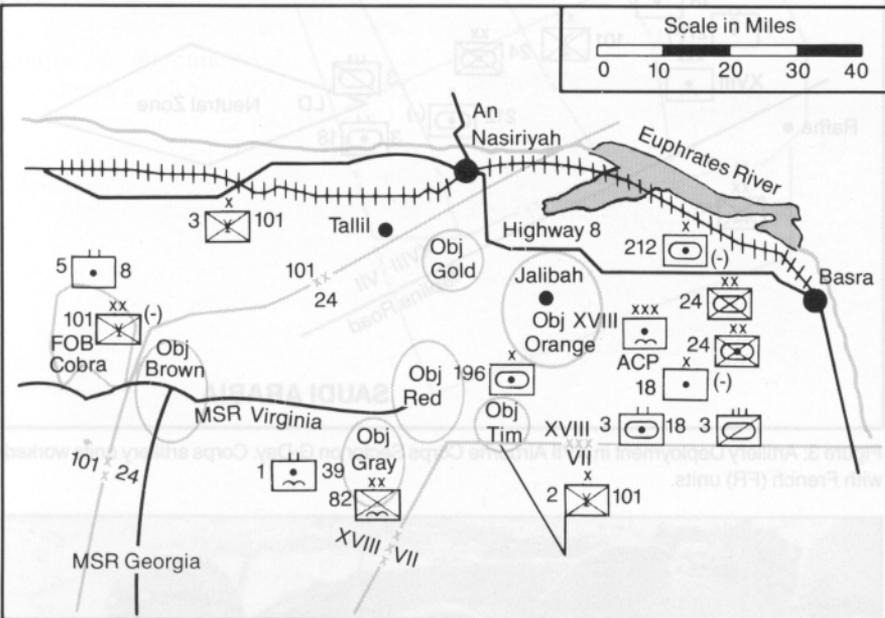


Figure 5: The XVIII Airborne Corps Artillery locations in Iraq at the cease fire on G+4.

The corps artillery organization for combat went through one major adjustment after completing operations in the French 6th Light Armored Division's sector (Figure 6). The 18th FA Brigade fought in both the western and eastern portions of the corps sector, moving more than 150 kilometers east to join the 24th Infantry Division. The first Army tactical missile system (Army TACMS) mission fired in the corps was fired during this move by the 6-27 FA (-), attached to the 18th FA Brigade.

Throughout the campaign, massed fires at the battalion and brigade levels were the norm. In the west, the 18th FA Brigade, acting as the force artillery headquarters for five US artillery battalions in the French sector, habitually massed the entire brigade on numerous targets. In the east, the 24th Infantry Division Artillery and 212th FA Brigade usually massed at least three battalions on each target. The 212th FA Brigade played a crucial role in the east, acting as force artillery headquarters initially for

- XVIII Airborne Corps Artillery
- 18 FA Brigade (GS)
 - 3-8 FA (155-mm, Towed)
 - 1-201 FA (155-mm, Self-Propelled)
 - 6-27 FA (MLRS/Army TACMS) (-)
 - 2/101st Chemical Company (Decontamination) (Attached)
 - 1 FA Detachment (2 Q37 Radars)
 - A/5-62 ADA (DS)
 - 3/101st Chemical Company (Decontamination) (Attached)
 - 5-62 ADA (-) (DS)
 - 101st Chemical Company (-)
 - 196th FA Brigade (-) En Route to Objective Tim
 - 1-181 FA (203-mm)
 - 1-623 FA (203-mm)
 - 212th FA Brigade (-) (R) 24th Infantry Division Artillery
 - 2-17 FA (155-mm, Self-Propelled)
 - 2-18 FA (203-mm)
 - 3-27 FA (MLRS)
 - C/25th TA (2 Q36 Radars and 1 Q37 Radar) (-)
 - C/5-62 ADA Battery (DS)
 - 1/101st Chemical Company (Decontamination) (Attached)
 - Attachments
 - 5-8 FA (155-mm, Towed) Attached to 101st Airborne Division
 - 1-39 FA (Airborne) (155-mm, Towed) Attached to 82d Airborne Division
 - 3-18 FA (155-mm, Self-Propelled) Attached to 3d ACR, FA Detachment (1 Q36 Radar and 1 Q37 Radar) (Attached)

Figure 6: Corp Artillery Organization for Combat after Operations in the 6th French Sector.

the 1st Brigade of the 24th Division and later for the entire division. On the final day, the 18th and 212th FA Brigades and 24th Infantry Division Artillery massed nine battalions in a devastating early morning preparation that destroyed the Hammurabi RGFC Armored Division.

The campaign was a great success. Corps artillery casualties were light, and soldiers and equipment performed magnificently as artillery fires swept enemy positions with extreme devastation. The effectiveness of these fires, in particular dual-purpose improved conventional munitions (DPICM), led to a term coined by Iraqi soldiers—"Steel Rain."

Observations from a Corps Perspective

The XVIII Airborne Corps Artillery perspective of this operation provides some unique insights and lessons for the FA community. You should keep in mind that many of the lessons are based on the

fast-moving nature of XVIII Airborne Corps operations. The operations are best characterized as exploitive rather than the deliberate attack accomplished by VII Corps.

Operations and Intelligence

Targeting Process. The targeting process at the corps level is highly dependent upon both echelons above corps (EAC) and corps intelligence assets. In Desert Storm, the corps used the doctrinal decide, detect, deliver process. High-payoff target (HPT) lists and attack guidance matrices were part of the process. The decide and deliver portions of the process worked well. The detect portion of the process needs improvement.



MAJ T. Taylor

The XVIII Airborne Corps Artillery tactical command post crosses into Iraq with the 2d Brigade, 82d Airborne Division.



An 8-inch howitzer prepares to fire with a backdrop of MLRS rocket fires.



Gunners from the 2-17 FA, 212th Brigade, load ammo for fires in support of the 24th Infantry Division (Mechanized).

Within the corps tactical operations center support element (CTOCSE), it's critical that intelligence analysts quickly recognize and pass HPTs to the fire support cell, especially deep targets. Many of the HPTs in Desert Storm were fleeting targets. With only a small number of Army TACMS available as the main artillery system for deep attack, timeliness in reporting was essential. An Army TACMS missile couldn't be risked on an HPT more than one hour old. The joint surveillance and target attack radar system (JSTARS) provided target information fairly quickly and should be of great value in the targeting process once ground station modules are fielded in the corps and corps artillery.

Keeping Pace with Maneuver. With minor exceptions, all FA units kept up with the maneuver forces they supported. But we still need a tracked howitzer system with the mobility equivalent to the M1A1 tank. The FA's M548 ammunition carriers fell far behind. The one battalion in the corps artillery with FA ammunition supply vehicles (FAASVs) had no such problems.

Units innovatively countered mobility problems. For example, they mounted tactical fire direction system (TACFIRE) shelters on heavy expanded-mobility tactical trucks (HEMTTs) to overcome some TACFIRE mobility problems. Five-ton expandable vans in the FA brigades had limited mobility and wouldn't allow artillery tactical operations center (TOCs) to keep up. So the brigades created "jump TOCs" in high-mobility multipurpose wheeled vehicles (HMMWVs) that kept pace with the battle. In one case, a unit replaced its 5-ton expandable vans with M577 command post (CP) carriers.

Command, Control and Communications. In the corps sector, 200 miles wide and 120 miles deep, command and control was highly dependent on reliable long-range communications. Tactical satellite (TACSAT) radios proved to be the only reliable link between the corps and corps artillery headquarters. There was no reliable long-range communications means among the corps artillery headquarters, its liaison officers (LNOs) and the FA brigades, although radio teletypewriter (RATT) worked intermittently.

AM secure voice communications failed entirely in the corps artillery, Mobile subscriber equipment (MSE), which

1LT Gregory Gaddson

worked well in Desert Shield rehearsals, was unable to keep up with the rapid advances in Desert Storm. Had the enemy presented any great surprises, this lack of communications could have had serious consequences.

Using a tactical CP (TACCP) and an assault CP (ACP) was critical to the corps artillery commander's ability to control his brigades. The ACP jumped ahead to maintain FM radio contact with the FA brigades (at first only one brigade) and was joined by the TACCP after the jump.

Both CPs maintained a single-channel TACSAT radio on the corps command nets, providing a minimal link to the corps. Additionally, the corps artillery commander was issued a MARCONI TACSAT telephone which, at times, provided the only link to the corps headquarters.

TACFIRE at the Corps Level. TACFIRE worked fairly well in Desert Shield rehearsals, even over distances of 40 kilometers. But the fast pace of operations and extensive distances between TACFIRE subscribers precluded its use in Desert Storm at the corps artillery level. Tactical fire control at the corps level was done exclusively with voice radio communications.

OH58D Artillery Team. Close work between the corps artillery units and OH58D helicopters from various aviation units was a major success. Though the OH58Ds laser designated for Copperhead missions, their greatest value was in targeting. The helicopters were particularly useful in locating enemy artillery units for attack. For the initial phase of the attack, the 12th Combat Aviation Brigade (CAB) with six OH58Ds was under the operational control of (OPCON) the corp artillery—a fruitful relationship. The FA needs to continue to work closely with OH58Ds.

Survey. During Desert Shield, survey control was established across the corps sector using the corps topographical engineer section attached to the corps artillery. This was easily accomplished in a static defensive situation.

But in Desert Storm, survey control was more difficult to establish. The Arabian-American Oil Company (ARAMCO) survey data was inaccurate by almost 200 meters. We couldn't calculate conventional survey using the position and azimuth determining system (PADS) because there were no absolute



Some 18th FA Brigade Redlegs shoot one of thousands of rounds the brigade fired at Iraqi forces in Desert Storm.

survey points to update PADS, and the pace of the advance prevented the topographical engineers from emplacing absolute survey points.

By placing a global positioning system (GPS) device (PSN-8 or PSN-9) in each PADS survey vehicle, units had a self-location capability that provided data good enough to shoot with. When an arbitrary survey point was emplaced using GPS data, other PADS survey vehicles could initialize on that point and then provide common survey to all artillery units in the immediate area, which allowed the units to mass fires more accurately. The lesson here is that each PADS vehicle should have GPS to provide "good enough" survey during fast-moving situations.

Dissemination of survey data across the corps proved difficult, mainly due to the long-range communications problems we experienced throughout Desert Storm. This could have had a serious impact on other survey-dependent systems in the corps, such as the Patriot and Hawk missiles and electronic warfare systems.

Meteorological Data. The meteorological data system (MDS) and lightweight Met systems deployed to Saudi Arabia performed fairly well during Desert Storm. However, throughout the war there was a critical shortage of spare parts and radiosondes for the systems.

The radiosonde shortage forced us to curtail the number of Met balloons flown before the start of the ground campaign. The calcium hydride generator for Met balloons uses too much water for desert operations (approximately 16 gallons per

balloon). The preferred method for inflating the balloons was to use commercial helium bottles. This was faster than calcium hydrides although some problems were encountered in refilling the bottles.

Logistics

Log planning accounted for much of the corps artillery staff effort. Log was one important element of our operations that could prevent our success. As should be expected, Class III and Class V were our greatest concerns. The large quantities of both classes of supplies required for a single day greatly exceeded our haul capacities. This necessitated a close relationship with the corps support command (COSCOM) to work out a satisfactory support relationship.

A "quick fix" plan evolved for corps artillery units. The 212th FA Brigade rolled up its support requirements with the 24th Infantry Division because it initially was intended to remain in a reinforcing role to that division throughout the war. The 24th Infantry Division, in turn, received the added logistic support of the 101st Corps Support Group (CSG). This non-standard relationship provided adequate support for the 212th FA Brigade, though it experienced shortfalls, especially in Class III.

Because the 18th FA Brigade would first support the French 6th Light Armored Division and later the 24th Infantry Division, a "roll up" solution was not an option. The short-term fix was to augment the brigade with HEMTT tankers and have a one-day's supply of Class V (uploaded on COSCOM assets) accompany the brigade trains. After the brigade

arrived in the 101st CSG area (24th Infantry Division sector), the normal area support would occur. The 18th FA Brigade also experienced Class III shortfalls, and the 101st CSG eventually became overwhelmed.

A fundamental observation is that logistical support doctrine for non-divisional units is not consistent with AirLand Battle doctrine. Had the war continued for a few more days or had the Class V usage increased, the situation would have been critical.

During the entire Southwest Asian conflict, the XVIII Airborne Corps Artillery units drew all logistical and maintenance support from CSGs on an area basis, in accordance with current logistical doctrine. This arrangement presented significant problems. Direct support (DS) maintenance units changed frequently, causing difficulty in tracking requisitions. Many times, DS units didn't have proper equipment or maintenance personnel to work on the supported units' equipment.

On the supply side, the corps artillery G4 and brigade S4 sections had to function as fully operational support platoons, a mission for which they aren't configured. Area support for non-divisional artillery was cumbersome and slow. To expedite supply actions, the G4 and S4 sections frequently had to travel hundreds of miles to draw supplies directly from general support (GS) supply companies rather than through DS support.

Non-divisional logistics support needs a thorough review, especially as more combat support units move from division to corps control in the future force restructuring. FA brigades must have either organic or dedicated logistical units—especially in the maintenance area.

Fire Support Coordination

Joint Fire Support Doctrine. As the XVIII Airborne Corps began deep-battle operations, it became apparent there's a great disconnect between the Air Force and Army concerning the use of battlefield air interdiction (BAI) and the application of fire support coordination lines (FSCL). The Army doctrinally uses BAI to allow the corps commander to shape the battlefield. During Desert Storm, the Air Force didn't allow the corps commander to determine the BAI targets. This conflict in doctrine led to highly centralized control of Air Force assets during the war, with the corps receiving less tactical air (TACAIR) support than expected.

The terms BAI and air interdiction (AI) need clarification. The Air Force prefers AI because it allows them greater flexibility. The Army wants BAI, which provides dedicated air packages with munitions for each target and a specific block of time for use. During Desert Storm, AI was used exclusively.

The targeting cycle at EAC embraced this centralized approach. Corps targets were submitted through the Army Central Command (ARCENT) to the joint and combined targeting board at Central Command (CENTCOM). If the targets fit the CENTCOM targeting priorities, the Air Force attacked them. The corps submitted hundreds of targets; however, less than 15 percent were approved by CENTCOM. Obviously, this makes it very difficult for the corps commander to shape the deep battle using air assets.

Although the Air Force and Army have long agreed on a joint definition of the FSCL, interpretations of the definition differed during Desert Storm. The Army

viewed the FSCL as a permissive fire control measure that allows us to fire beyond it without coordination. The Air Force viewed the FSCL as a restrictive fire control measure that required the Army to coordinate all surface-to-surface fires beyond the FSCL with the Air Force.

The same problem held true for airspace coordination. Instead of establishing airspace coordination areas (ACAs) or flight corridors, Central Air Force (CENTAF) required clearance of fires above 32,000 feet throughout the battlefield. This caused lengthy delays with all Army TACMS missions and some MLRS missions.

During Desert Storm, some non-doctrinal, improvised fire support coordination measures were used. The Air Force used "kill boxes" to provide both AI and close air support (CAS). Often, targets weren't at the reported locations, resulting in the targets not being attacked. To use the sortie, the Air Force would let the sortie attack any positively identified enemy target within a certain kill box. Often these targets were the original targets, which had moved.

Joint Attack of Artillery (JAART). The basis of JAART is the use of all assets (USAF, FA, attack helicopters, etc.) to destroy enemy artillery before it can engage friendly forces. We used this concept in combat for the first time in Desert Storm with significant success. Air Force assets attacked many enemy artillery positions before the ground campaign. Attack helicopters and aerial scouts frequently found and destroyed enemy artillery; the 30-mm gun on the Apache helicopter is excellent against all artillery pieces. The OH58D helicopters OPCON to the corps artillery provided accurate locations for enemy artillery units, which corps artillery elements then fired upon. By using all available fire support to proactively locate and destroy enemy artillery, the corps effectively negated one of the Iraqi Army's greatest strengths.

Liaison

Communications. During Desert Shield and Storm, the XVIII Airborne Corps Artillery deployed several liaison teams to various units. The primary means of communication with these teams was AM secure voice, which was the only system that could range the distances involved. This system worked



Howitzers of the 2-18 FA, 212th Brigade cross the berm, returning to Saudi Arabia.

intermittently during Desert Shield and failed completely during Desert Storm. At the corps level, liaison teams have to communicate over long distances.

We need a reliable long-range communications system for liaison teams if they're to be useful. TACSAT appears to be one potential solution.

EAC Liaison Positions. The corps artillery normally doesn't provide extensive liaison to EAC. However in Southwest Asia, the corps artillery found this to be essential.

Corps artillery was represented at the ARCENT battlefield coordination element (BCE), on the airborne battlefield C³ aircraft and in the deep targeting cell. Liaison at this level became essential when ARCENT began controlling two corps.

Field Artillery Systems Employment

Heavy versus Towed FA Brigade. The corps artillery initially employed a heavy brigade behind the 24th Infantry Division and a predominantly towed, 155-mm brigade behind the French 6th Light Armored Division. This decision was based on the need for each brigade to have mobility similar to its supported maneuver unit. The artillery brigades also had protection requirements and logistical needs similar to their respective supported units.

In the later stages of the battle, elements of the towed FA brigade were sent across the corps sector to support the 24th Infantry Division. These elements demonstrated more mobility than expected, traveling more than 150 miles in 36 hours with much of this movement cross country through the desert at night.

The towed elements were able to effectively support the heavy division. However, it's wise to match the mobility



The XVIII Airborne Corps Q37 Firefinder radars couldn't complete the cross-country trek because of mobility problems with the trailers.

103rd Public Affairs Office

protection levels and logistical requirements of an artillery brigade with those characteristic of the supported maneuver division.

MLRS and Army TACMS. MLRS quickly proved itself the weapon of choice for counterfire missions and was particularly devastating against towed artillery units. MLRS units were frequently employed by battery rather than by the platoon-based concept. This was possible because of the lack of a credible air or counterfire threat and allowed easier command and control.

Army TACMS fires were controlled at the corps level throughout the operation. This system was excellent for deep attack once suitable targets were obtained. Of the seven targets fired upon by the XVIII Airborne Corps Artillery, all were destroyed or rendered combat ineffective.

Generally, one platoon of the Army TACMS battery was configured for Army TACMS at any time. While this was usually enough, we learned it's prudent to provide the battery as much warning as possible when a surge of Army TACMS missions is expected. The package requests may exceed the battery's capability if a launcher is down or a missile malfunctions. Prior warning will give the battery time to reconfigure other launchers.

changers from MLRS to Army TACMS, as required.

Counterfire Radars. Our counterfire radars were expected to provide us a distinct advantage over the Iraqis. For the most part they did, though there were some problems.

The Q37 radar experienced severe mobility problems in cross-country movement. No Q37 radar played a significant role in the XVIII Airborne Corps' eastern sector. All six radars were unable to complete the crosscountry trek—the trailer must be replaced.

The Q36 radar became the mainstay for counterfire; however, it detected many spurious targets that required careful screening by operators.

Conclusion

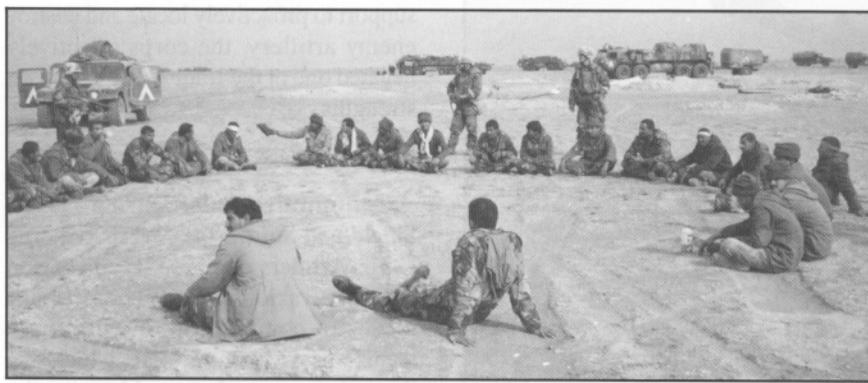
Great soldiers, great training and great equipment made the Desert Storm victory possible. Clearly, fire support and fire support coordination for Desert Storm was outstanding.

But as artillery operations in the Kuwaiti Theater of Operations are analyzed, we must recognize our success was due, in part, to an enemy unable to inflict heavy casualties on our forces or cause us to deviate from our plans. This presented a very "forgiving" battlefield. We must ensure we don't place undue emphasis on lessons learned from a war fought under very unique circumstances.

But one lesson from Desert Storm is clear. Accurately delivered, massed artillery fire continues to be the critical ingredient for success on the modern battlefield. As has been proven in previous wars, the FA is truly the "King of Battle."



Major Kenneth P. Graves was assigned to the XVIII Airborne Corps Artillery Headquarters in Saudi Arabia in September 1990. He deployed in Operation Desert Shield as the Corps Artillery Liaison Officer (LNO) to the Marine Central Command (MARCENT) and the 1st Marine Division. During planning for Operation Desert Storm, he was the Corps Artillery G3 Planner and then served as the LNO to the 24th Infantry Division (Mechanized). Major Graves is currently the Force Modernization Officer and LNO of the XVIII Airborne Corps Artillery. He has commanded two batteries, one in the 2d Battalion, 35th Field Artillery, 24th Infantry Division (Mechanized), Fort Stewart, Georgia, and the Howitzer Battery of the 3d Squadron, 11th Armored Cavalry Regiment, Germany.



Soldiers of the 2-18 FA, 212th Brigade, guard enemy prisoners of war in southeastern Iraq.