



Reflections on the Storm FA Vector for the Future

by Lieutenant Colonel M. Thomas Davis

Following the triumphant conclusion of the Gulf War in 1991, many articles appeared on the pages of this journal and others about the role and contributions of Field Artillery during the conduct of the desert campaign. Because the majority of these observations and recollections were written shortly after the conclusion of the conflict, they reflected the warm glow of victory and the satisfaction that flows from a job well done.

Certainly the success of our doctrine, fire support system and magnificent soldiers were well worth noting. But we must not allow applause to distract us from serious issues that must be faced in the near future. Despite our great success, Desert Storm left us with many questions about the current force and our vector for the future that demand serious consideration.

My purpose in this article, armed with the objectivity that comes with time and distance from a significant event, is to identify from the perspective of an artillery direct support (DS) battalion commander areas in which we should invest additional thought, training and resources. Some of these areas require solutions that are quite marginal, some evolutionary and some, perhaps, revo-

lutionary. The selected observations presented fall into the three broad categories of doctrine, equipment and organization.

Doctrine

As stated by many senior commanders, the performance of the AirLand team in the desert demonstrated the enormous value of the efforts focused on organizational and doctrinal analysis after the

Vietnam War. Nonetheless, in the arenas of fire support and artillery employment, certain elements of our doctrine, as reflected in tactics, techniques and procedures (TTPs), merit reflection and review.

Offensive Focus. We need to more thoroughly focus our thought, doctrinal publications and, most importantly, TTPs on offensive concepts. Although the past 10 years, especially since the publication of the 1982 version of *FM 100-5 Operations*, have witnessed renewed emphasis on the offensive and the advantages of initiative, agility and the concentration of power that comes with it, more needs to be done in many aspects of fire support.

For example, in the heavy force artillery, we invest considerable effort practicing and perfecting advance party operations. To accomplish this, we normally task an inappropriate vehicle from a section having another intended function, gather the soldiers from the various crews and launch them into the distance with the battery commander leading in a soft-skinned vehicle. The advance party goes to an assigned location or area, makes a brief security sweep with limited force and equipment and then prepares the position for the arrival of the main body with the howitzers.

Inherently this is a technique best suited for a defensive scenario where the area being prepared can be reasonably coordinated with the maneuver force and where the advance party can operate at acceptable risk close behind the forward line of

own troops (FLOT). But under offensive conditions such as those of Desert Storm, there's little possibility for employing an advance party and an even smaller likelihood that it's movements can be coordinated with the maneuver commander or his staff. In addition, with the vehicular and organizational density immediately behind the front lines, it's very difficult to establish a discreet position among the combat vehicles and trains of the supported force.

Furthermore, being forced to ride in high-mobility multipurpose wheeled vehicles (HMMWVs) and other soft-skinned vehicles, neither the battery commander nor his platoon sergeants have appropriate transport for operations near the FLOT.

In the offensive, especially a movement-to-contact of a large force, batteries must move in a formation conducive to immediate emplacement for firing or, if the terrain is more restrictive as it would have been in Europe, use the hasty occupation as the normal occupation tactic. The traditional advance party approach, which may be on the way out for other reasons as we field the Paladin (M109A6), should be more the exception than the rule.

Other elements of offensive operations should be more thoroughly considered in our tactical concepts and training programs. One element is the procedures for clearing fires.

In the movement of VII Corps to Objective Collins, the corps was screened to the front by the 2d Armored Cavalry Regiment (2d ACR) supported by the 210th Field Artillery Brigade. There's little published guidance on who clears fires in that area between the rear of a screening force

on the move, such as the 2d ACR in this example, and the front of the main force being screened.

This void became a constant concern in the desert as the location and posture of the 2d ACR's Regimental Support Squadron (RSS) was not precisely known to the lead elements of the main force at any given time. Obviously, this problem was most intensely felt at night and during periods of limited visibility, leaving those in the main force reluctant to engage targets to the front because of concerns about possible fratricide.

In the absence of other guidance, we employed a variation of the air defense conditions of "Free, Tight and Hold." While we knew the 2d ACR was to our immediate front, all scouts and fire support teams (FISTs) were placed in weapons "Hold"—not to engage targets unless they were receiving fire or could positively identify the target as hostile. Once the ACR slipped to our right, we changed the condition to weapons "Tight"—engage targets unless they could be identified positively as friendly.

Army Aviation. We need a more thorough understanding of the nature of the mission being performed by Army attack helicopters. Attack helicopter commanders argue that they operate in the "ground environment" and that assigning an attack company, or battalion if available, to reinforce a committed maneuver unit is no different than cross-attaching a tank company. Conceptually, this may be correct; practically, it is not.

A tank company cross-attached to another battalion or brigade arrives with the understanding it will operate with its new command for some time. It comes with

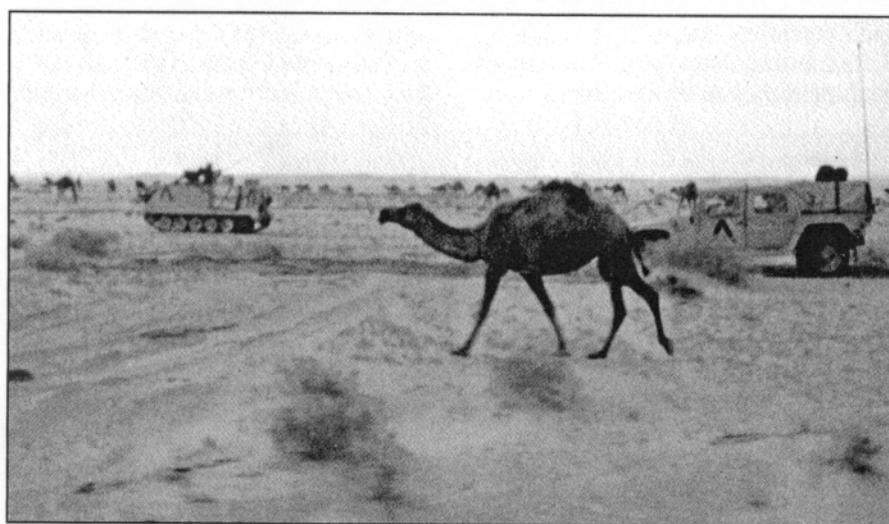
certain logistical assets, or arrangements are made to provide support from the forward support unit of its new organization. The commander of the tank unit reports to his new headquarters and coordinates the mission, the scheme of maneuver, communications and resupply. Once all of this coordination is complete, he takes his unit to its designated position.

With a helicopter company, conditions are very different. The aircraft appear usually on short notice—and coordination is literally "on the fly." The situation, mission, scheme of maneuver, fire support plan and appropriate control measures will likely be explained over the radio, leaving the commander of the attack unit to quickly determine how he can best support the operation as he understands it. Once he has expended his ordnance, consumed his fuel or been ordered to another location, he departs.

The punch line is this: Unless they're assigned a distinct zone or sector in which to operate, Army attack helicopters look considerably more like additional fire support than maneuver assets. Because there's no Army Aviation element within the maneuver brigade tactical operations center (TOC), the aircraft usually are controlled and coordinated by either the brigade commander or his operations officer. At some point, in order to synchronize the employment of the aircraft, Army air assets must be coordinated with other fire support assets by the fire support coordinator (FSCOORD) or the brigade fire support officer (FSO). But when and by whom?

Doctrinally, we should consider Army attack helicopters as fire support assets when working in support of a committed maneuver brigade. Their fires should be coordinated by the FSCOORD and planned by the brigade fire support element (FSE). The brigade FSE should be where attack helicopters report in when they arrive in an area of operations and where they check out when they depart.

An alternative to this arrangement, one advocated by some members of the Aviation community, would be to take the attack helicopter commander out of the cockpit and put him on the ground with the supported maneuver commander. This would make him less like a "maneuver" commander and more like a FSCOORD and certainly not a "fighter." Essentially, when assigned a mission of reinforcing a maneuver element, the helicopter commander would come to the supported unit TOC or tactical command post (TAC) by



How Btry, 2d Sqdn, 3d ACR in Desert Storm. There's little published guidance on who clears fires between the rear of a screening force and the front of the main force being screened.

either air or ground with appropriate communications equipment, coordinate the integration and synchronization of his assets and depart when the mission is complete.

There are many arguments, from the practical to the emotional, recommending either of these solutions and several more. But we must further review and refine the process by which we employ Army air on the battlefield and control its fires when it arrives.

Artillery 4x6. An early victim of the desert war was the 3x8 concept of employing batteries in distinct platoons. In my battalion and most others, we quickly returned to the battery concept for several reasons: it better facilitates mass fires, simplifies command and control, reduces the not inconsiderable problem of coordinating positions in the brigade zone/sector, eases logistical support requirements, enhances local security and was feasible, given the minimal counterfire threat. We should seriously consider, even with the fielding of the Paladin, moving away from the platoon-oriented 3x8 concept toward a battery-oriented 4x6 structure.

Unlike maneuver formations that fight at the company level, the Field Artillery battalion fights as a battalion. The mission of direct support, for example, is assigned to a battalion, not to its individual batteries and certainly not to its platoons. To successfully accomplish this mission, the battalion must be able to quickly and effectively mass its fires.

Although the Battle Command Training Program (BCTP) indicates we are increasingly skillful in planning massed fires, results from the National Training Center (NTC), Fort Irwin, California, suggest we are having considerably less success in actually executing them. At one point, the NTC was counting two or more platoons firing on a target as "massed fires." We should not allow ourselves to be deceived into viewing massed fires as anything less than massing a battalion—or better yet, several battalions. As a division commander once commented to me after a major live-fire exercise, "Nothing on the battlefield is as *underwhelming* as a battery one."

By fighting in six-platoon elements, the chances of massing all the battalion's howitzers on a target are greatly reduced. We must address what appears to be a basic inconsistency in our current operational concept: successfully accomplish-

ing our mission requires that we fully integrate the fires of a battalion; but, our operational technique *disintegrates* our fundamental organization—the firing battery. This trend only will become more pronounced if we begin employing Paladins in two-gun "fire teams," no matter what the technological capabilities of the weapon.

Coordinating the movements of three or four batteries, each containing firing elements with adequate logistics and support for combat resupply and local defense, is a far simpler task for battalion commanders and battalion S3s than trying to stay current on the status of six elements—some with trains and some without, some with specialized munitions and some without, some on the move and some stationary. If we believe our primary business is massing fires, and I believe we do, then tactics and procedures that inhibit our ability to perform this most fundamental function must be seriously questioned.

There's another major consideration for focusing operations at the battery level. The area behind a maneuver brigade's leading elements is remarkably crowded. Even in the unrestricted terrain of the open desert, we were astounded by the heavy density of personnel and vehicles immediately to the rear of the brigade FLOT. In this area, one finds many small sections and organizations from the signal battalion's mobile subscriber equipment (MSE) nodes, to the engineers' heavy earthmovers, to the intelligence battalion's collectors and jammers—all eagerly seeking a location to emplace their equipment and all too frequently failing to coordinate their movements with the maneuver commander or S3.

Maneuver battalion commanders are responsible for keeping an inherently disorderly place somewhat organized and controlled. The simple act of coordinating positions for six firing elements, plus a headquarters, plus trains, plus the multiple-launch rocket system (MLRS) battery (should one be attached) is a heavy burden for the DS battalion commander and operations officer. Anything that simplifies this process is helpful.

Many in the maneuver community are uncomfortable with the terrain management problems that result from the 3x8 concept. They clearly will be less comfortable with the challenge inherent in a Paladin doctrine that *looks* like 2x12 or 1x24.

That said, we must retain the expanded firepower offered by 24 howitzers. There are significant operational gains and no documented lethality losses to be realized in restructuring ourselves from 3x8 to 4x6. This will involve certain personnel gains and losses, but it addresses the significant problems already mentioned, facilitates massing fires and provides the DS battalion commander an additional method of weighting the fight through the positioning of his fourth battery. In addition, it simplifies all dimensions of the logistical issue because it becomes easier to refuel, rearm and recover vehicles.

Equipment

In comparison to the other combat arms, investment in fire support during the past decade has been relatively modest. As might be expected, the effects of this investment lag were quite visible during the desert campaign. While the maneuver forces employed newer, modernized systems, the artillery went to war armed



The FA should consider moving away from the 3x8 to the 4x6 structure—even with the fielding of Paladin (shown here with its ammo resupply vehicle).



4th Battalion, 82d Field Artillery in a Sand Storm during Desert Storm. We didn't engage the enemy at near maximum range because we do not have the target acquisition systems to provide real-time input at the brigade and division levels.

predominantly with the M109 howitzer and, in some cases, with the M110, both systems part of the Army inventory for almost 30 years. Direct-fire systems are now able to engage targets and score kills at ranges formerly considered more appropriate for indirect fires. If this trend continues, the value of indirect fires will certainly diminish.

The only modernized fire support systems on display in the desert other than certain new munitions were the MLRS and the Firefinder radars—both of which performed exceptionally well. Our old howitzers, however, were so under-appreciated that the official Department of Defense Report to Congress, *Conduct of the Persian Gulf War*, does not even list them under ground systems. We clearly need new systems in the artillery, but we may not need what some think.

Howitzers. The M109A2s of my battalion kept up with the supported tank brigade. But they did so because the tanks moved forward at a fraction of their maximum speed. Even then, the howitzers were hard pressed to maintain the modest pace asked of them. There were frequent stops to allow engines to cool before rejoining the great thrust northward. Being fully combat loaded, suspension systems proved barely adequate to support gross vehicle weight across the soft, rolling sands. Of the two howitzers eventually towed into Kuwait, both had gone down initially because torsion bars failed.

Clearly, we could use an improved howitzer with enhanced automotive and

mobility capability. The faster and quicker the howitzer, the better it will be able to support maneuver forces, mass fires and then displace, reducing the threat of counterfire. The Paladin will hopefully provide this.

Some greater range capability would be helpful, but it's neither decisive nor worth major development and production costs. Why? We tend to view increased range in the cannon systems as providing us greater opportunities for deep attack. Currently, however, increased range is primarily useful for expanding lateral coverage rather than lengthening our reach across the FLOT. Greater range providing greater deep attack capabilities requires proactive target acquisition systems that can locate targets of all types beyond the range of direct observation. At the tactical level, such acquisition systems remain modest and unsophisticated.

Target Acquisition. On the afternoon of 26 February 1991, having been in incidental contact with light and dispersed enemy elements for less than an hour, the scouts of our lead tank battalion crested a small sand dune and found themselves under fire in an engagement area prepared by a dug-in enemy brigade. A look at the battlefield after the war showed enemy tanks positioned in turret defilade and arrayed in a line about five miles along the now famous 73 Easting.

Could these Iraqi positions have been ranged and suppressed by our artillery? Of course. Was it our commander's intent and guidance that the enemy be engaged

at maximum standoff range? Clearly, it was. So, why did we meet the enemy as we did?

The enemy was not engaged with artillery fire at near maximum range because we simply do not have the target acquisition systems to provide real-time input to brigade and division battle staffs. Specifically, we clearly need some sort of remotely piloted air vehicle (RPV) or a similar platform to locate targets and then assist in their attack. Without this capability, we realize only marginal gains from enhancing the range on cannon systems. The experience in the Iraqi desert demonstrates that without a more robust, comprehensive target acquisition capability, we can never take full advantage of the range we have now.

The Firefinder radars are superior. But they only detect indirect fires, and they only detect them when rounds are in the air. They are, therefore, reactive rather than proactive. We need the ability to develop targets, including both direct- and indirect-fire targets at great range and attack them before our direct-fire systems close in. Such a capability would allow us to seize the initiative and contribute significantly to the fight.

Except for traditional ground-mounted systems such as scouts and FISTers, we could not develop direct-fire targets before closing within direct-*observation* range which, with the capabilities of the M1A1 tank and Bradley fighting vehicles (BFVs), equates to direct-*fire* range. Consequently, direct-fire battles erupted before

indirect fires were employed. If indirect fires of the future are going to be a combat multiplier, a system of choice by maneuver forces, we have to see and attack the enemy while he is beyond the direct-observation range of maneuver elements.

GPS. If there was one invaluable item of modern technology that transformed the operational concept of Desert Storm into such a major historical success, it was clearly the global positioning system (GPS). With GPS, my reinforcing battalion was able to fire a preparation for one division, pass through the barrier system and then cross 90 miles of open desert, mostly at night, and enter our maneuver brigade's formation before our major contact. This is the equivalent of Joe Montana throwing a 90-yard pass to Jerry Rice while blindfolded. Without GPS, we probably would never have attempted this mission. (See the "View From the Blockhouse" feature "Tactically Employing Today's SLGR" on Page 46, June 1993.)

The inexpensive receivers now available need to be widely distributed. Commanders need them, firing units need them and first sergeants and those running the logistics and support efforts need them. These systems are a substantial combat multiplier.

Organization

There are a handful of organizational issues we need to resolve. Principal among these is the 4x6 organization, but several other issues exist regarding basic DS artillery tables of organization and equipment (TOEs).

When Desert Storm first erupted and before our division was alerted to deploy, our brigades provided equipment, personnel—even entire organizations for deployment. After the division provided a chemical company, military police, Apache battalion and trucks and trailers to other deploying units, a senior officer was finally forced to ask if anyone realized a TOE was supposed to detail all a unit needed to perform its combat mission. Regrettably, the truth is that TOEs are too often inadequate.

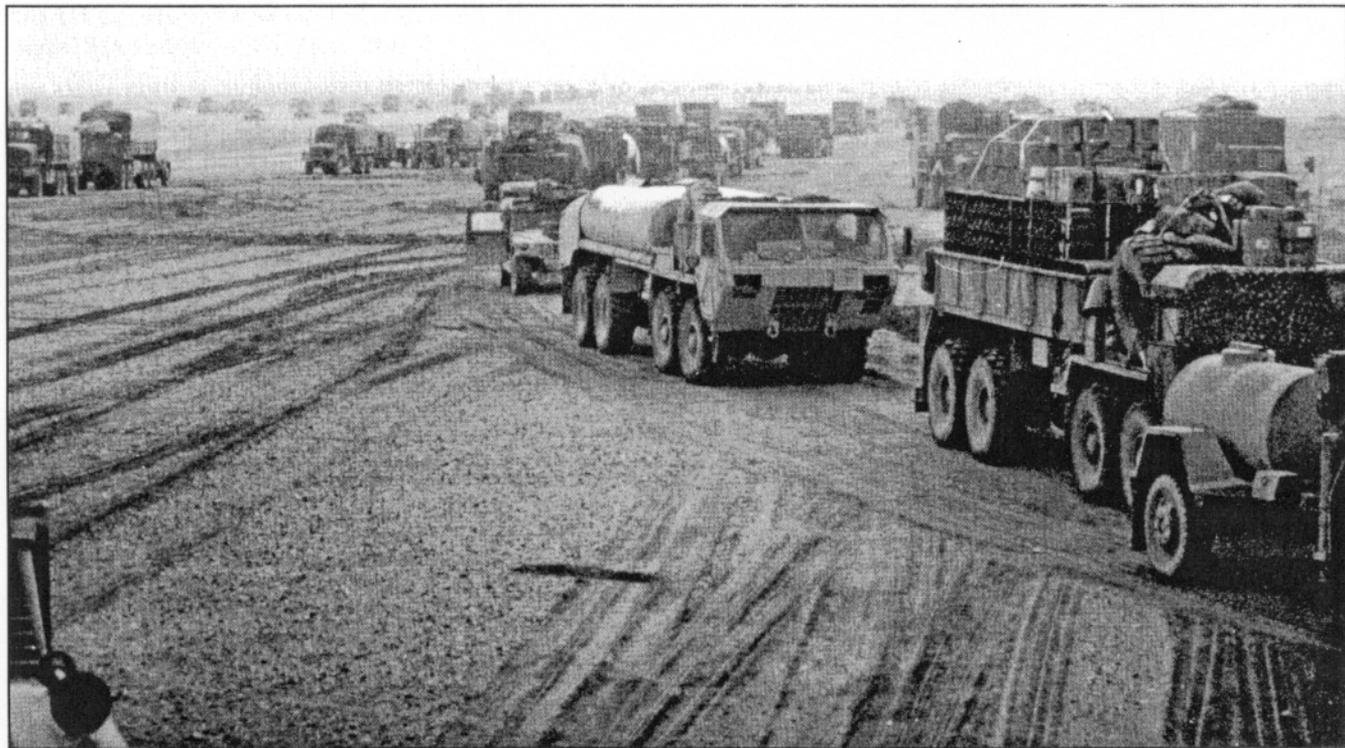
Artillery Vehicles. FSCOORDs and FSOs don't have appropriate vehicles to perform their combat tasks. Maneuver commanders from the company through the division levels want their FSOs with them. If the maneuver commander is mounted in an M1A1 or Bradley, his FSCOORD/FSO needs to have a similar vehicle. We may not be able to provide a tank or a Bradley, but we *clearly* need to

provide him more than a HMMWV. As others have stated so well, "What is a mere inconvenience at the NTC becomes a serious operational shortcoming in war."

The Army recognizes this deficiency. The day before my battalion shipped its vehicles to port, we were quickly issued M113s for the FSCOORD and the task force FSOs. Although this "emergency issue" was welcome, it would have been more welcome had the vehicles come equipped with radios and communications systems. At the same time, we were issued a handful of additional M113s for the firing battery platoon leaders.

The artillery has lived with this organizational deficiency for years. Now, as we're drawing down the active force, we must fix it. The elimination of many maneuver battalions will make available tracked vehicles and communications systems suitable for use by artillery commanders, FSOs and leaders.

Manning FSEs. For 24-hour operations, FSEs at all levels are undermanned. In my organization, brigade and battalion FSEs were authorized an officer, a fire support NCO, a computer operator and a driver—*four* soldiers. Given the demands of shift work, supervision, security, drafting orders, constructing overlays and



Behind the Front Lines in Desert Storm. Maneuver battalion commanders are responsible for keeping an inherently disorderly place somewhat organized and controlled.

movement and the preparations for it, this is inadequate manning—especially at the brigade level.

Again, the Army recognizes this shortage. Before deployment and continuing throughout the build-up in the desert, additional soldiers were transferred to us from many units and organizations. Ultimately, I had seven soldiers (including three officers) at the brigade FSE and five at the battalion level. This was close to what our doctrine and TOEs should mandate, although I would argue for six at the battalion level plus additional increments once the vehicle issue already discussed is addressed.

General Support Trucks. Again, it came as little surprise that we were inadequately resourced for wheeled cargo carriers. The trucks we had on our TOE were satisfactory for the many TOE items that must be carried. However, there's no space to transport many other items not in the TOE: building materials for bunkers, additional shelters, field sanitation devices, five days of food and water and countless other items unnecessary in normal training at established training facilities in a mature logistical theater. Another specific shortage was fuel trucks.

TOE Distribution. Finally, our distribution of equipment is not well-suited for many tactical missions. For example, my battalion was authorized two recovery vehicles, two heavy expanded-mobility tactical truck (HEMTT) fuelers, and two position and azimuth determining systems (PADS). For the more centralized control inherent in defensive operations, such distributions are acceptable. However, under offensive operations where control may be very decentralized, such equipment distributions aren't logical allocations of essential capabilities.

In Operation Desert Storm, for example, with our firing batteries operating immediately behind the maneuver task forces and rather widely dispersed across the battlefield, each needed a PADS. At an artillery conference before deployment, a senior artillery commander directed PADS available from inactivating artillery units in Europe be issued to deploying units so each battery would have one.

By tacitly acknowledging the inadequacy of the TOE and providing permission to acquire equipment not authorized, this significant shortcoming was eliminated. Eventually, we also were issued six recovery vehicles. Regrettably, we never had more than two fuelers.

The rule for unit design should be that key items of supporting equipment need to be assigned to battalions in numbers evenly divisible by the number of firing units. In many instances, we have been forced by limited resources to establish TOEs that are inadequate for certain combat missions—usually the offensive mission. But the time has come to effect changes.

With the force reduction now underway, we need to push forward with an extensive review of equipment and personnel authorizations and, at a minimum, eliminate those discontinuities that have existed for too long. If we are going to accomplish all missions, we need organizational TOEs crafted with that in mind. Equipment is now available (or soon will be) from inactivating units. The artillery must compete for it, or it will be distributed to other branches and components as it has been in the past.

Developing Munitions versus "Launchers"

This article has addressed some thoughts that seem most significant after two years of reflection on what we did and how we did it during Operations Desert Shield and Storm. But there's one last item we should consider.

Perhaps the time has come to seriously ask ourselves if we have done all that can be done with the traditional cannon concept. Maneuver commanders greatly appreciate what we can do, but they still want more. They want us to see at ranges beyond their own direct line-of-sight and engage and kill specific, point targets at these ranges with almost immediate responsiveness. With our current cannon concept, it is unlikely we will meet many of these desires, particularly the desire for reliable, high-probability, point-target kills.

Given the wonders of modern technology, the time may have come to begin transitioning from our long-held preference for viewing the cannon as a system in itself to viewing it in a more limited way—as merely a "launcher." In the current technological environment, we must seriously consider investing much more in the projectile and much less in the launcher—be it cannon or rocket.

We are very close to having incredibly capable, brilliant munitions that can fly great ranges, find particular target suites, discern specific targets designated for

destruction under the maneuver commander's intent and produce high-probability kills. A few such highly capable projectiles could replace many thousands of projectiles currently in use, resulting in enormous savings in manpower, haul capacity and many other tasks associated with crewing, supporting and sustaining our labor-intensive howitzer fleet.

The launcher (cannon) for such a system need not be radically different from those now in use. Improvements in automation and mobility matching that of the supported force are clearly in order, but other major enhancements would be better invested in munitions rather than in the launcher.

Fire support of the future needs to move in this direction: greater probability of locating and killing targets at greater range with fewer projectiles and, hence, smaller manpower and logistical loads. Direct-fire systems have already moved into the range bands where artillery used to reign unchallenged. They are there to stay.

The time has come for fire supporters to move beyond the next hill—even the one after—and stake our new claim. If we do not, in the next war we may find ourselves playing a minimal role in contributing to the maneuver fight.



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