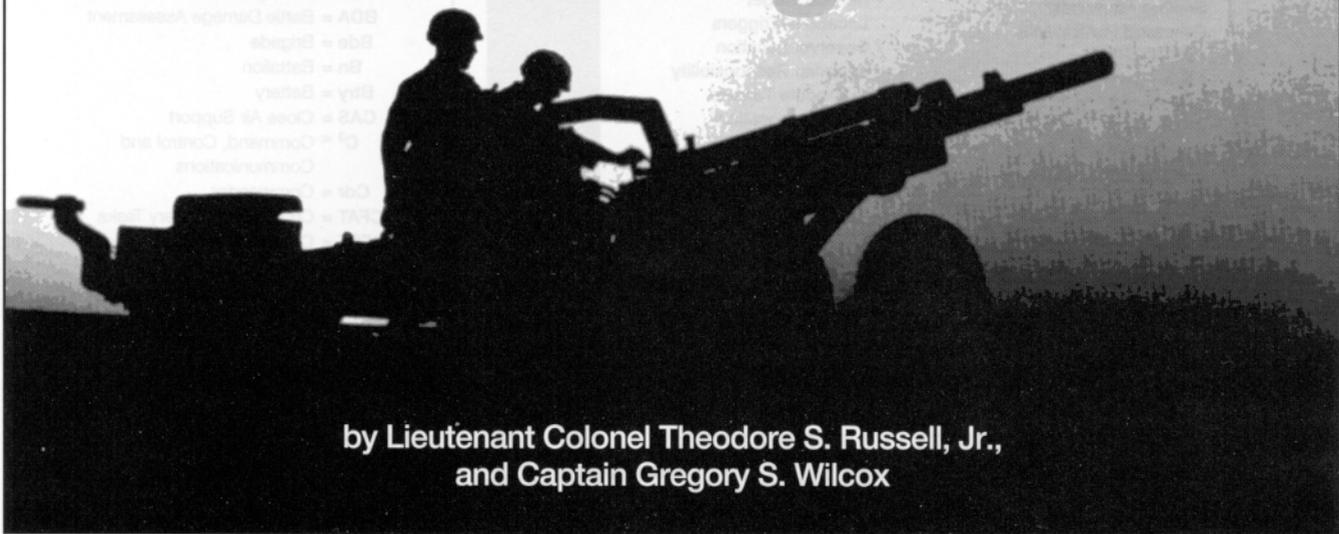


Echeloning Fires

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by Lieutenant Colonel Theodore S. Russell, Jr.,
and Captain Gregory S. Wilcox

Maneuver and fires must be integrated and synchronized by the combined arms commander to realize the full potential of each system available—just getting the systems into the fight is not enough. And, further, fire supporters must synchronize all available fires at the critical time and place on the battlefield to support the commander's intent.

Task Force 2-87 Infantry of the 10th Mountain Division (Light Infantry), Fort Drum, New York, deployed to Fort Bragg, North Carolina, as part of an XVIII Airborne Corps emergency deployment readiness exercise (EDRE). The task force's mission was to conduct a raid on an airfield held by enemy forces. An integral part of the mission was to integrate fires to support the major phases of the operation: reconnaissance, air assault, movement-to-contact and assault on the objective. The division commander's intent was to attrit the enemy forces by 50 percent before the assault on the objective by integrating and synchronizing all his fire support.

The scenario for the exercise required the task force to conduct a strategic movement from Fort Drum to an intermediate staging base (ISB) at Hunter Army Airfield, Georgia. Here the task force planned and rehearsed the opera-

tion. From the ISB, the task force moved by air to a flight landing strip at Holland Drop Zone (DZ) in the vicinity of Fort Bragg. At Holland DZ, a tactical assembly area (TAA) was established from which the task force air assaulted 20 kilometers to Luzon DZ for offensive operations.

Fire support assets available to the task force included A-10 Warthog sorties for close air support (CAS); OH-58D Kiowa Warriors for reconnaissance, observation and air assault security; a notional platoon of 155-mm towed artillery; a battery of 105-mm towed mortar assets. The task force also employed an AN/TPQ-36 Firefinder weapons locating radar, a position and azimuth determining system (PADS) and a dismounted ground-vehicular laser locator designator (G/VLLD).

We synchronized fires with maneuver by echeloning fires—shot targets in a schedule of fires from the highest to lowest caliber weapon (based on the minimum safe distances, or MSDs, of each weapon) as the maneuver force moved toward the objective. This technique is not often used because it requires extremely detailed planning and coordination. However, executed correctly, the result is continuous, massive fires on enemy forces followed immediately by a ground assault on the objective.

Echelon Requirements. To closely integrate fires with our maneuver forces, certain requirements had to be met. First, we had to have accurate and timely target intelligence—intelligence on the objective and the routes leading up to the objective. The division's long-range surveillance detachment (LRSD), task force scouts and a rifle platoon were inserted early to reconnoiter the targets on the objective, routes, LZs and enemy activities. This information gave us the accurate size, location and disposition of the enemy forces, which was critical to determining the initial plan for the preparation fires.

The commander's attack guidance included neutralizing the enemy's 60-mm mortars and his reconnaissance and target acquisition assets plus destroying his ground forces and command and control (C²) nodes. We used the target intelligence collected to determine the number of volleys and the type of munitions required to meet that guidance.

Information about the route leading to the objective helped our maneuver commander determine his rate of march, which was information we used to time the preparation fires. The goal was to synchronize fires to allow ground forces to move toward the objective without stopping.

The second requirement was for a detailed communications plan. Because

the prep involved so many fire support assets located across considerable distances, reliable and redundant means of digital and voice communications were essential. We used a ground-mounted retransmission node and, during the main attack, an airborne C² helicopter. These means ensured the fire support coordination net had continuous, redundant communications.

We needed a retransmission node because the distance between the division fire support element (FSE) and the task force FSE was more than 20 kilometers. All fire support agencies monitored this net during the preparation to ensure fires were synchronized.

A third requirement was to thoroughly rehearse the prep plan as a combined arms force to synchronize and troubleshoot all aspects of the plan. The task

force conducted two detailed rehearsals. The first was with key leaders using a terrain model that included graphics and targets. The second involved the entire task force and included all aspects of the operation from the air assault to the actions on the objective. We used radios for this second rehearsal.

In addition to the two combined arms rehearsals, we conducted three fire support rehearsals. Two were backbriefings to review the details of the prep, and the third covered the schedule of fires on the actual radio nets. This third rehearsal was conducted in the TAA on the afternoon before execution and served not only to verify the schedule of fires, but also to test our digital and voice communications between all nodes.

Other measures the task force took to ensure that all its indirect fire assets

could contribute to the fight was to air assault the 105-mm battery before the infantry companies left the TAA and insert two mortar sections early with the scouts. These measures ensured fire support assets were positioned to support the attack. The battery could provide fires to suppress enemy air defenses (SEAD), as required. The mortars with the scouts could provide suppressive fires for the scouts if fires were needed to break contact during reconnaissance operations. The mortar platoon leader located near the air assault LZ controlled all the mortars.

Preparation Schedule. Because synchronization was so critical, we used an operations schedule to execute the preparation, code name "Thunder." (See Figure 1.) This schedule delineated the critical events and identified by call-sign the

Event #	A-Time	Time	Event	Responsible Agency
1	A-35	2200	Communications Check	Mtn 35
2	A-5	2230	OH-58D on Station	Saber 06
3	A-5	2230	A-10 at IP, Contacts Saber 06 and Alpine 11	Kuda 01, 02
4	A-Hour	00 (Approx 2235)	Time Hack	Mtn 35
5	A+8	08	A-10 Departs IP	Kuda 01, 02
6	A+9	09	OH-58D Laser Requested	Echo 36
7	A+9:50	09:50	155-mm Shot	Kuda 01, 02 to Saber 06
8	A+10	10	CAS/155-mm Impact (Splash)	Echo 36
9	A+14:37	14:37	105-mm Shot	Bulldog 36
10	A+15	15	105-mm Impact (Splash)	Bulldog 36
11	A+21	21	CAS Complete	Kuda 01, 02
12	A+25	25	BDA on CAS Strike	Saber 06
13	A+37	37	155-mm Rounds Complete	Echo 36
14	A+44	44	81-mm Shot	Raven 09
15	A+45	45	105-mm Rounds Complete	Bulldog 36
16	A+45	45	81-mm Impact (Splash)	Raven 09
17	A+51	51	81-mm Rounds Complete	Raven 09
18	A+51	51	60-mm Shot	Apache 09
19	A+51:25	51:25	60-mm Impact (Splash)	Apache 09
20	A+55	55	60-mm Rounds Complete	Apache 09
21	A+60	60	Prep Complete	Mtn 35
22	A+75	75	BDA on Objective	Saber 06

Call-Signs:		Legend:	
Alpine 11 = Tactical Air Control Party (USAF)	Kuda 02 = A-10 Pilot	BDA = Battle Damage Assessment	
Apache 09 = 60-mm Mortar Platoon Fire Direction NCO	Mtn 35 = Deputy Fire Support Coordinator (Airborne in a Command and Control Aircraft)	CAS = Close Air Support	
Bulldog 36 = B Battery (105-mm) Fire Direction Officer	Raven 09 = 81-mm Mortar Platoon Fire Direction NCO	IP = Initial Point	
Echo 36 = E Battery (155-mm) Fire Direction Officer	Saber 06 = Air Battle Captain		
Kuda 01 = A-10 Pilot			

Figure 1: Operations Schedule for Preparation "Thunder." This schedule delineates the critical events in echeloning fires and the agent responsible for each event by call-sign. The prep was estimated to begin at approximately 2230; the time had to accommodate the troops' rate-of-march from the air assault landing zone to the vicinity of the objective.

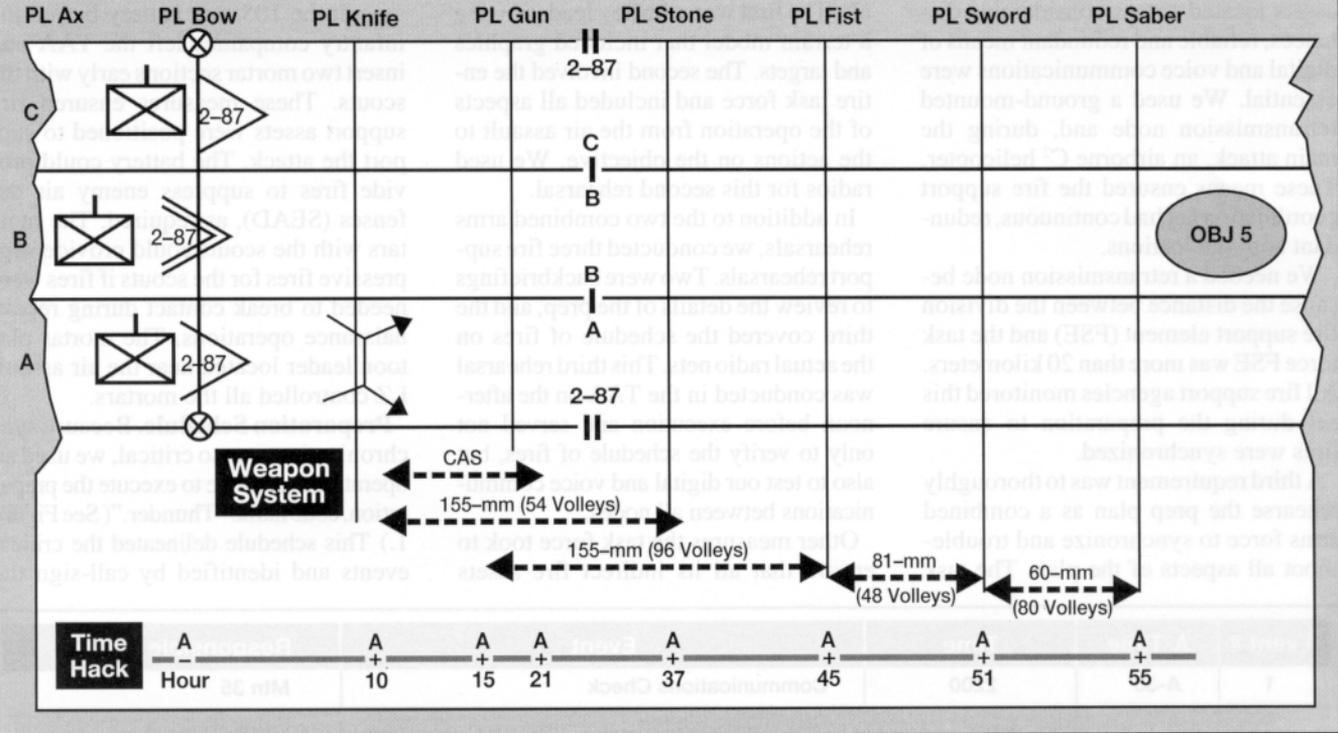


Figure 2: In echeloning fires for offensive operations, each phase line (PL) entered into the PLGR corresponded to the minimum safe distance of the weapon system to be firing as the force progressed to the objective.

agent responsible for each event. Once the prep began, this schedule was essential for the task force fire support officer (FSO) to monitor the prep and advise the task force commander on the status of fires.

Based on the rate of march from the air assault LZ to the objective, we estimated the prep would begin at approximately 2230 hours. The first critical event of the prep was a time check that initiated A-Hour. This time had to be flexible due to the possibility our ground forces could make contact with the enemy during their movement to the objective.

The A-Hour could be adjusted by as much as one hour, based on the loiter time of the A-10s. The A-10s were to be at the initial point (IP) at 2230, so the prep had to start no later than 2330 to ensure CAS would be part of the prep. The time hack used was not based on clock time but started at 00.00; so A-Hour equalled 00.00. CAS was to impact at A+10.00.

As it turned out, this flexible A-Hour was crucial because as the lead company moved forward, it encountered a small enemy bunker complex not identified previously. The company took about 15 minutes to clear the bunker, so the clock time for A-Hour was slipped to 2245.

Phase Lines as MSD Control Measures. As the task force moved toward the objective during the prep, the lead maneuver company FSO needed a means to ensure the company was not moving inside the weapon systems' MSDs. He used the precision lightweight global positioning system (GPS) receiver (PLGR) to provide an accurate location as units moved along the infiltration routes.

The MSDs for each weapon system corresponded to a phase line, and the FSO entered these phase lines as way points into the PLGR. This allowed the task force and company commander to use the phase lines as control measures and ensure the lead company was outside the MSDs for each weapon system as it moved toward the objective. (See Figure 2.)

The MSDs were calculated based on personnel in the open or in lightly wooded terrain, the bursting radius of the munitions, the location of the delivery assets and the percentage of casualties the commander was willing to risk, given that all five elements of accurate predicted fire were met. Because the phase lines and MSDs were calculated in relation to the location of the targets for the prep, it was essential that we received accurate target data early. These control measures were incorporated into

the plan early enough so they could be published and rehearsed. To do this, a target cutoff time was established to ensure we could include all target refinements in the final plan.

Although the phase lines were planned as control measures, the intent was for our maneuver force to move to the objective without losing momentum. The duration of the prep for each weapon system was designed based on the rate of movement of our ground forces.

The most lethal weapon in the prep was laser-guided 500-pound bombs delivered by the A-10s; laser-guided munitions were requested. OH-58Ds with their lasing capability were the primary observers with the G/VLLD and reconnaissance rifle platoon as backups. This redundancy proved its value as the USAF tactical air control party (TACP) collocated with the maneuver commander temporarily lost communications with the OH-58Ds, and the G/VLLD had to lase for one of the A-10s.

Prep Execution. The prep went smoothly, and all fires were delivered from CAS down to the 60-mm mortars as the maneuver companies assaulted the objective. The task force massed direct and indirect fires and destroyed the enemy forces on the objective.

The lead company was able to move faster than expected, once it cleared the

enemy bunker complex; therefore, it had to slow its movement while the prep continued. Once the prep was completed, ground maneuver forces were in position for the assault.

The success of the operation was due, in part, to the additional assets that deployed with the task force during the EDRE. Although this operation was not executed with live ammunition, it was a great success.

When echeloning fires, maneuver commanders and battle staffs must understand the capabilities of the fire support systems available to them, and the FSE must integrate all fires to support the maneuver commander's intent. The intent for fires in this operation was to set the conditions for the direct fire fight so that friendly casualties were minimized. The technique of employing echeloned fires in support of a movement-to-contact requires meticulous planning and detailed rehearsals to carefully synchronize the commander's fires.

The challenge for fire supporters in echeloning fires is to ensure ground forces can maneuver to the objective without losing momentum and with minimal casualties. If friendly forces' momentum allows them to reach the objective before the preparation fires have achieved their effects, the challenge for the maneuver force is to exercise battlefield patience. It's important to remember that the issue is not whether fires are controlling maneuver or vice versa but that the combined arms meet the goal of destroying the enemy on the objective with minimal friendly casualties.



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Democracy in Haiti. He commanded C Battery, 1st Battalion, 92d Field Artillery, 2d Armored Division, Fort Hood, Texas; C Battery, 1st Battalion, 37th Field Artillery, 172d Light Infantry Brigade, Fort Wainwright, Alaska; and the US Army Recruiting Company, Columbia, South Carolina. He also served as Chief of the Command Planning Group at the Combined Arms Command, Fort Leavenworth, Kansas.

Captain Gregory S. Wilcox until recently was the Fire Support Officer for 2d Battalion, 87th Infantry and was assigned to the 2d Battalion, 15th Field Artillery as part of the 10th Mountain Division (Light Infantry) at Fort Drum. His previous assignments include serving as Fire Direction Officer and Platoon Leader with B Battery, 2d Battalion, 17th Field Artillery, 212th Field Artillery Brigade and Aide-de-Camp to the Commanding General, both in III Corps Artillery, Fort Sill, Oklahoma. He is a graduate of the Field Artillery Officer Advanced Course, Fort Sill. Captain Wilcox has left the Army and is now a Candidate Consultant with Orion International Consulting in Cincinnati, Ohio.

Technological Advances in Training

The Field Artillery School, Fort Sill, Oklahoma, is replacing the traditional classroom with the "classroom of the future" and developing advanced technology multimedia modules for training. Classroom XXI and Distance Learning are changing the way the FA trains. Classrooms will be the trainer and student "on-ramp" to the Information Highway while Distance Learning will make FA training available on the Internet and via other means. Standardized training with "real-time" updates will be readily available to the entire force.

Classroom XXI. FA School classrooms are being modernized to enable instructors and students to communicate from room to room as well as with remote sites. Classroom capabilities are classified as Levels 1 through 5.

- Eleven classrooms have been upgraded from traditional classrooms to Level 1 where training can include computer-generated slide shows, animation and demonstrations.

- One Level 2 classroom has computers for student access to the local area network (LAN) and World Wide Web Internet.

- Two Level 3 classrooms have multimedia computers and video teletraining capabilities with two-way audio-video pos-

sible between Fort Sill and remote training sites. The first students to train from a remote site via one of these classrooms were III Corps Redlegs at Fort Hood, Texas, who received the FA Basic NCO Course (BNCOC). Portions of Paladin New Equipment Training (NET) are scheduled for teletraining in the third quarter of this FY.

- Two Level 4 classrooms can receive and send simulated training exercises. Students can use the computer-generated simulations throughout their course.

Distance Learning. The Army Distance Learning Plan outlines the path we'll take to transform instructor-centered training to student-centered, computer-generated methodology. Digitized lessons, interactive computer-based modules and on-line training modules are being developed for the FA military occupational specialties (MOS) with the 13F Fire Support Specialist MOS completed.

The digitized lessons are multimedia, computer-based instruction that can be delivered on demand to any student with access to the World Wide Web; the lessons also can be deployed on a LAN or distributed via CD-ROM.

The lessons contain video clips of instructors teaching, demonstrations on

equipment, terrain features and simulated exercises. Each module has a series of teaching objectives, practical exercises and exams. Student interaction is possible at any point during learning.

The student also can take a diagnostic exam and then complete only the lessons in his weak areas. An embedded course manager module records the student's progress for review by a course administrator or his instructor.

The Field Artillery School has developed 185 digital lessons for all skill levels of MOS 13F. The lessons are presented in 48 modules on 18 CD-ROMs that can be used for formal and refresher training or individual soldier self-development training. An additional 170 digital lessons are being developed for MOS 13B Cannon Crewman, 13E Fire Direction Specialist and 13M Multiple-Launch Rocket System Crewman.

Units can order the course and 13F CD-ROMs from the Army Training Support Center, Fort Eustis, Virginia, using their 12-series publications (pinpoint distribution) account numbers.

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