

Field Artillery Journal



July-August 1985

TRAINING . . .
That's the Bottom Line

Field Artillery Journal



Volume 53

July-August 1985

Number 4

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Cover photo by Jean Linnell Halloran

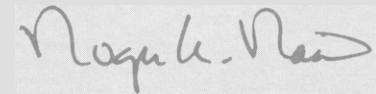
General Leslie James McNair was perpetually wary of the so-called "metallic officer," one with "silver in his hair, gold in his mouth, and lead in his pants." Today's hard-working Redleg leaders can profit by sharing McNair's attitude of healthy skepticism, particularly when it comes to suspect trainers.

All too often the day-to-day press of events surreptitiously undercuts the best laid plans of would-be trainers, and much too frequently training that is conducted falls short of requiring physical performance to standards. When all is said and done, the root of such evils is normally "lead in the pants" of leaders.

This issue of the *Journal* focuses on getting the "lead out" in training. It tackles problems, provides solutions, and recounts successes as well as training failures. With articles ranging from the down-to-earth recommendations of NCOs to accounts of the promising vistas of automated training management, this issue touches on the full gamut of training topics.

It even provides the candid observation of infantrymen regarding what field artillery training should yield to the combined arms team.

In brief, this *Journal* is a compendium of information and ideas that dynamic Redleg mentors everywhere can use to ensure those who serve the King of Battle will never be labeled as "metallic officers."



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Field Artillery Journal

The *Field Artillery Journal* (ISSN 0191-975x) is published bimonthly at the US Army Field Artillery School, Fort Sill, OK. Funds for printing are approved by Department of the Army. However, unless otherwise stated, material does not represent official policy or endorsement by any agency of the US Army.

PURPOSE (as stated in the first *Field Artillery Journal* in 1911): "To publish a journal for disseminating professional knowledge and furnishing information as to the field artillery's progress, development, and best use in campaign; to cultivate, with the other arms, a common understanding of the power and limitations of each; to foster a feeling of interdependence among the different arms and of hearty cooperation by all; and to promote understanding between the regular and militia forces by a closer bond; all of which objects are worthy and contribute to the good of our country."

SUBSCRIPTIONS: May be obtained through the US Field Artillery Association, P.O. Box 33027, Fort Sill, OK 73503-0311. Telephone numbers are AUTOVON 639-5121/6806 or commercial (405) 355-4677. Dues are \$16.00 per year (\$31.00 for 2 years and \$46.00 for 3 years) to US and APO addresses. All other addresses should add \$9.00 per subscription year for postage.

SUBMISSIONS: All letters and articles should be addressed to Editor, *Field Artillery Journal*, P.O. Box 33311, Fort Sill, OK 73503-0311. Telephone numbers are AUTOVON 639-5121/6806. Material submitted for publication is subject to edit by the *Journal* staff; footnotes and bibliographies may be deleted due to limitation of space.

REPRINTS: The *Field Artillery Journal* is pleased to grant permission to reprint articles. Please credit the author and the *Field Artillery Journal*.

POSTMASTERS: Second-class official mail postage is paid by the Department of the Army, DOD 314, at Lawton, OK 73501. Send address changes to the *Field Artillery Journal*, P.O. Box 33311, Fort Sill, OK 73503-0311.

On the Move

MG EUGENE S. KORPAL



Being entrusted with the keys to Blockhouse Signal Mountain and receiving the title of Mr. Field Artillery are honors for which I am very grateful. I accept them in full recognition of the attendant responsibilities to provide leadership to our branch and direction to our collective efforts.

By any measure, the dedication and hard work of the members of the Field Artillery Community in support of my predecessors have been truly outstanding. Under these superb leaders each Redleg has had an opportunity to make a distinct contribution to the advancement of the Field Artillery. I need and am counting on each of you—commissioned, warrant, NCO, enlisted, and civilian—to continue your support of programs designed to enhance our current and future capabilities. Through our unified and cooperative efforts in training, doctrinal, and materiel

developments—and especially in leadership—we will make good on the premise that "The future belongs to the Field Artillery."


Much has been done by the distinguished Redlegs who have gone before us, and we will continue to build on the solid foundation of these accomplishments as we face the challenges of the future. To do so, we must:

- *Exploit* the talents and innovativeness of Field Artillerymen everywhere as we continue to modernize. Collectively we must take full advantage of the technological advances which promise to revolutionize the way we do business. We must seek the highest possible payoff for resources expended and must ensure that our developmental efforts make good common sense both within and outside the Field Artillery system.

- *Recognize* that among our limited assets, human resources are the most valuable. A basic philosophy of training, maintaining, leading, and caring must serve as the framework and direction for our efforts toward ensuring that, when called upon, we will be ready to fight and win. In the school environment, as well as in our field units, we have a tremendous opportunity to continue to lead the way in training and developing our soldiers, NCOs, and officers and in providing the necessary support to their families.

- *Continue* to be forward-looking in developing doctrine to support AirLand Battle and future concepts. While being mission-oriented, we must remain receptive to new ideas and flexible in adopting organizations,

tactics, techniques, and procedures to maximize our contributions as a key member of the combined arms team. Moreover, these precepts regarding how we intend to fight must be the guiding factors in our articulation of new material requirements.

As Commandant, I assure you that I am committed to improving every dimension of fire support and to fulfilling every aspect of our mission. To accomplish these goals with the utmost efficiency and effectiveness, we must all contribute our collective best efforts. I pledge *my* best efforts and invite yours. 

We must remain receptive to new ideas . . . to maximize our contributions as a key member of the combined arms team.

Incoming

LETTERS TO THE EDITOR

Training

An NTC Report

My unit, 5th Battalion, 41st Field Artillery, recently completed a very successful rotation at the National Training Center (NTC) at Fort Irwin, California. I want to let the entire military community know that there is no better training to be had.

All of the preparation and the downloading from the NTC is a hassle but well worth the effort. I have been involved in numerous field training exercises (FTX) at various levels of command and at many different locations in my 25 years of service, yet I have seen none better. The NTC offers the most realistic training a soldier can get outside of actual combat. It is very tough training, and the opposing force (OPFOR) is truly professional.

My battalion had just received the tactical fire direction system (TACFIRE), and we had only one short FTX at Fort Knox to "get it together." We completed all of our fire missions at the NTC using TACFIRE. We were a completely separate battalion with limited outside support, and I think this speaks very highly of our unit and TACFIRE.

A very special thanks and a "job well done" to the Reserve Components. We had about 30 National Guard soldiers from 4 different states—Kentucky, Tennessee, Ohio, and West Virginia—attached to our battalion. They joined us 1 day prior to deployment, and they all performed in an outstanding fashion.

I also want to thank the command and soldiers of Fort Irwin for their support and hospitality during the field training exercise. Fort Irwin is a very small installation and this was no easy task. The "Proud Legions" of the 194th Armored Brigade numbered almost 3,500 soldiers during this rotation. The NTC soldiers made our training safe and meaningful.

Finally, I want to say that the 194th Armored Brigade in general and the 5th Battalion, 41st Field Artillery in particular can say "mission accomplished." We will be ready again for the next rotation.

James M. Greenwell
CSM, USA
Fort Knox, KY



Photo by SFC Date Butler

Soldiers of Battery B, 5th Battalion, 41st Field Artillery set up aiming stakes before sending a round downrange at the National Training Center.

A Combat Multiplier

"How Safe Should Safe Be?" by Captain Richard D. Koethe (November-December 1984 *Field Artillery Journal*) raises some good questions about realistic training and safety.

Effective safety procedures boil down to effective leadership procedures. They are not designed to inhibit training, but rather to ensure that training can be completed. Safety procedures learned in training will ensure that an opportunity exists for us to complete our mission in combat.

In Vietnam, accidents claimed approximately 5,700 lives; disabled more than 106,000 soldiers; and produced nearly 5 million non-disabling injuries. Approximately 20 percent of the total personnel lost in Vietnam were lost as a result of accidents. Now imagine that preventable loss rate in a scenario involving North Atlantic Treaty Organization and Warsaw Pact countries where we are outnumbered in every category—tanks, artillery, and human beings. We cannot afford the preventable loss rate we had in Vietnam!

The "D-Day" invasion of Normandy during World War II was held up until *ideal* weather conditions were forecasted, including the tide effect from

the moon. I am sure that at least some of the thousands of soldiers waiting for the word to go thought General Dwight D. Eisenhower was emphasizing excessive safety procedures. Consider the results.

The lower we bring our accident rates now, the lower they will be in the trauma of combat, and the more effective our operations will be. Safety is not something separate from training, but it must be an integral part of our performance. In the words of General John A. Wickham, Jr., US Army Chief of Staff, "Your command's accident rate is a valid measure of your willingness to accept substandard performance."

Responsibility for training safety must be a responsibility of the commander and must involve all key leaders in peacetime and in wartime. The time spent establishing safe and effective procedures in peacetime is an investment directly related to the proficiency our soldiers will have in war.

Safety is a combat multiplier.

Joseph L. Shepler
Sixth US Army Safety &
Occupational Health
Manager
Presidio of San
Francisco, CA

Field Artillery Journal

The SQT

In today's Army, there must be some valid means of determining an individual's basic military occupational specialty qualifications. But is our present tool—the skill qualification test (SQT)—a fair and proper instrument? I and many of my colleagues feel the present SQTs are not serving that purpose.

As a sergeant first class fire support sergeant and an instructor in the 7th Army Combined Arms Training Center, Tactical Fire Direction System (TACFIRE) Training Department, I feel that some changes must be made in the 13F and 13C SQTs (and others, if necessary).

Using the 1983 test as a reference point, it is apparent that the SQT, which is used as a discriminator in so many personnel actions and policies, is flawed—not fatally, but flawed nonetheless. For example, it is very difficult for a field-experienced 13F to deal with the performance task when it is translated into an academic question format. Our FMs 6-20 and 6-30 are always with us in the field, and we use them. As field soldiers, we do not generally memorize smoke data; we simply use the field manual's smoke charts during appropriate missions. For SQTs, no standard references are permitted; therefore, one's memory must be perfect. When a 13F fixes a location by intersection in the field, he has a "real" map and an accurate protractor and plotting scale. Using a poorly reproduced map segment and a grossly inaccurate protractor and scale, soldiers confronting that task on the SQT face a fielder's choice. Every 13F whom I have talked to since the 1983 test chose an answer different from the one selected by the test originator, and I have yet to meet a 13F who received a "go" on that task.

Translation of the tasks to a written format can be done, but the result must be analyzed objectively and reviewed prior to fielding the SQT. Tasks that are designed to test map skills should mandate that a real map and accurate plotting equipment be provided. Questions that pertain to tabular or charted data should permit the use of FMs 6-20 and 6-30.

The 1983 SQT for 13Cs posed similar problems. For example, questions on message input asked what went into a particular field of a format, but no format was shown. TACFIRE uses nearly 200 separate message formats with many unique fields and legal entries—that alone is a memory jog! When a particular field

requires an entry and the legal possibilities do not come to mind, a 13C has various technical manuals available for reference; but the SQT tests memorization, not knowledge. A 13C who cannot find the information given in the appropriate technical manual has a problem; therefore, a test that permits use of the technical manual or extracts would be valid.

When the SQT included a hands-on portion, the originator programed the software for a specific response, and any other entry was scored as a wrong answer even though TACFIRE permits options. For example, TACFIRE permits one to order fire units using the FM; FUSEL message in any order as long as the corresponding iterations agree.

When the 13Fs received notices of their 1984 testing, they found five tasks were on equipment that had not yet been fully fielded. The supplement to FM 6-13F lists the task, condition, standard, and performance measure sequence and the appropriate equipment technical manual. Unfortunately, if you do not have the equipment, you do not have the technical manual. How can you answer questions on something you have never seen?

The 1984 tasking for 13Cs was based on software version 3 which was unfamiliar to some soldiers. Software version 4.5 has been out for more than a year, and technical manuals support that version. How many units would save a superseded software version and supporting manuals?

To expect a newly trained 13C to be tested on outdated software is definitely unfair. Does a change in the software version generate that much of a real change? Yes, indeed! The transition to software version 5.56 has generated about 5,000 pages of technical manual changes. Since the fielded software originates from the same source (the US Army Field Artillery School) as the SQT, it appears that the School could generate an SQT that is compatible with the software currently used by soldiers in the field.

Should we scrap the SQT? Definitely not; it is far too important as a diagnostic and management tool. But make it a fair test—one that actually pertains to equipment that the soldier is using in his day-to-day duties.

Richard C. Lyons
SFC, USA
APO NY

Answering the Mail on SQT

Responding to Sergeant First Class Lyon's letter, I would like to make several points: First and foremost the skill qualification test (SQT) for the tactical fire direction system (TACFIRE) has been updated with new software formats. Based upon the results of field inquiries, the item analysis of the SQT, and the results of test validations, additional format illustrations and format procedure tables were incorporated in the 1984 13C SQT. Partial or total procedure tables were provided where appropriate to ensure all required reference data was available to complete the task.

Moreover, the SQT booklet now identifies which tested software version applies. Factors determining which software version is used for the SQT are:

- The acceptance date of the software by the Department of the Army.
- The date the Army will have a software format fully fielded.
- The beginning and end dates for a particular SQT.

If a software format will not be fully fielded within 30 days prior to the opening of the test window of the SQT, it will not be included in that year's test. Every effort is made to base the SQT on the latest software version in use by the field.

Although standard references are not permitted while taking the SQT, extracts, if needed, are provided during the test. These extracts are exact copies of tables or passages from the appropriate references. Precise *technical* recall is *never* required during the SQT.

Current US Army Training and Doctrine Command regulations require an item to be 80 percent fielded Army-wide for at least 1 year before it can be used as a task in an SQT. As tasks are developed for new equipment, they will appear in the next version of the soldiers manual and then in an SQT notice.

As we transition from one software version to another and field new doctrine, the Field Artillery School is working to ensure the 13C and 13F SQTs are compatible with software and doctrine currently used by soldiers in the field.

Hank Brandt
USAFAS
Fort Sill, OK

Better Safe than Sorry

Captain Richard D. Koethe voices much of the frustration felt by many artillerymen in his letter, "How safe should safe be?" (November-December 1984 *Field Artillery Journal*). He makes two claims: The first, that current safety requirements impose restrictions that detract from realistic training; the second, that the responsibility for safety needs to be put on the noncommissioned officers who will be responsible for safety during wartime. He recommends a total revision of current "peacetime" safety requirements to bring them in line with what would occur during war. I believe a more productive alternative would be to use present safety requirements as a means to improve training and impress our soldiers with the importance of safety and accuracy during war.

The following is a brief scenario which my unit has regularly executed: Time immaterial—Advance party occupies position. Ground guides prepare for arrival of main body. Gunnery sergeant sets up aiming circle and computes individual piece displacements for the battery computer system, passes data to the fire direction center via FM radio. Battery commander sets up safety circle and checks against aiming circle with gunnery sergeant.

0700—Main body arrives, begins occupation. Chief of firing battery lays

battery; executive officer checks orientation of safety circle.

0705—Chief of firing battery announces battery is laid; executive officer begins verification of lay.

0710—Verification of lay is complete; executive officer computes minimum quadrant elevation.

0715—Executive officer and chief of firing battery, beginning at opposite ends of the gun line, check that each weapon is safe to fire, while battery commander verifies fire direction center safety data.

0745—Safety checks are completed, any necessary reports are submitted to range control; live-fire begins.

Digging in wire, erection of camouflage nets, and other position improvements begin on each piece as soon as it is laid. Take care to keep net clear of ballistic shield until verification of lay by safety circle is complete.

The battery is ready to live-fire 45 minutes after the main body has arrived.

Virtually all training areas in Europe allow an E-6 or above (or an E-5 in an E-6 position) to serve as safety officer on an artillery piece. The section chief can and should serve as the safety officer for his own weapon.

Almost all safety requirements are applicable in war. Perhaps the only safety

requirement which is not in some way applied in wartime is safety chalking and taping. It is a holdover from the days when the safety officer had to check the gun line before each round was fired.

All too often we make a distinction between what we do in training but would not do in war. However, we often do not realize that many "artificial" training (safety) requirements are procedures formalized and made rote during training so that we may be aware of them in wartime to practice them and not kill ourselves through carelessness or negligence. Safety, accuracy, and attention to detail are even more important in war; they are necessary for us to exploit our accuracy-dependent technology and be an efficient fighting force.

Safety requirements need not stand in the way of training. It is possible to place the responsibility for safety with the appropriate personnel and maintain an acceptable balance between safety and realistic training. However, this is only possible if the chain of command in the unit thoroughly understands the safety requirements and takes the time to conduct appropriate, intensive training prior to going to the field so that the personnel who should take the responsibility for safety are able to do so.

Charles L. Ehlers
ILT, FA
APO NY

The FIST Fire

In-House Reforms Are Best

Captain Howard Lee's "A Redleg Solution" (May-June 1985 *Field Artillery Journal*), provides a pragmatic solution to the complex problem of who can best serve as the maneuver battalion or task force fire support officer. Captain Lee is not the only individual to consider the possibility of using the direct support battery commander as both commander and fire support coordinator. The members of Close Support Study Group (CSSG) III wrestled long and hard with this proposal.

At the beginning of the study, the vast majority of the field artillery participants believed the battery commander should be "dual hatted." Much to the Study Group's surprise, the Armor and Infantry School's representatives held a different opinion. Both maneuver schools believed that battery commanders are better employed with their

batteries.

The Armor and Infantry Schools recognize the problems with the current system and would agree with Captain Lee regarding their causes. Yet they believe the solutions to these problems can be best obtained through "in-house" rather than structural reform. The current system has worked well in some divisions and performed poorly in others. CSSG III discovered that the key to success was "command emphasis." Quality fire support coordination is the rule in units which ensures well-thought-out career progressions for lieutenants from firing battery positions to fire support positions.

The Study Group also found that second lieutenants are doing well in their initial assignments as fire support team (FIST) chiefs. This generally results from a superior training program conducted by several qualified personnel in the fire support system. The primary trainer should be the fire support

chief's noncommissioned officer. The secondary trainers should be the battalion and brigade fire support officers. Organizations worth their salt do not throw a new second lieutenant into a FIST chief's job and expect him to perform well. They train him. Experienced fire support officers in the battalion guide him, and maneuver company commanders train him as they do their new platoon leaders.

Overall, CSSG III found that maneuver commanders were pleased with the performance of their battalion fire support officers. This applied to both captains and lieutenants. Certainly, there are problems, but again "in-house" reforms appear to be the best.

Kevin Zealberg
CPT, FA
Fort Sill, OK

A Strong Endorsement

I very strongly support Captain Jeffery Jacobs suggestions on how to succeed as a fire support team (FIST) chief (January-February 1985 *Field Artillery Journal*). As a battery commander of a separate howitzer battery organic to an armored cavalry squadron, I know quite well what is expected of my FIST chiefs.

I have a few more thoughts and suggestions as to how a lieutenant can prepare himself for an assignment as a FIST chief. I should start by describing my maneuver commander's philosophy regarding FIST chiefs. First and foremost, he considers FIST lieutenants to be combat arms officers, and he expects the young field artillery officer to have a basic working knowledge of the applicable maneuver doctrine. A logical extension of this philosophy is the need to inform lieutenants early in the basic course where they will be assigned. This should facilitate much needed self-study. If the lieutenant is to be assigned to a cavalry squadron he needs to be familiar with cavalry doctrine and organic cavalry firepower. Similarly, if he is to be assigned to a light infantry division he must be familiar with light infantry doctrine.

We in the Field Artillery Community should endeavor to produce the professional reading lists for specific

maneuver assignments and make these assigned materiel readily available. Books written by maneuver commanders prove to be a much more interesting learning tool than field manuals and technical manuals, but doctrinal publications are still a must.

I echo Captain Jacobs' recommendation that FIST chiefs be experts at land navigation and that they be physically fit. Field artillery lieutenants who know they are going to be assigned as FIST chiefs should, if they have the opportunity, apply for Ranger training. This training establishes a firm foundation in maneuver concepts and greatly enhances the lieutenant's confidence in his own abilities. There is little doubt that the Field Artillery School trains our FIST chiefs well in fire support techniques. The Artillery School cannot, however, hope to teach young lieutenants the vast amount of maneuver doctrine that is required of a FIST chief.

The FIST chief must be able to advise the maneuver commander on employment of fire support assets in support of the scheme of maneuver. Unfortunately, this is an area in which most field artillery lieutenants need to practice. Their knowledge of the capabilities of indirect, fire-related equipment is often sketchy. The maneuver commander will often ask such questions as: "What is the maximum range of a 155-mm howitzer? What is the sustained rate of fire? What can the ground/vehicular laser locator

designator (G/VLLD) do for me? Where should I employ the G/VLLD? Where should I emplace my mortars? What is the current ammunition status?" The list goes on and on. Moreover, the maneuver commander not only expects the FIST chief to be knowledgeable regarding the employment of mortars but also will often request him to assist in teaching technical mortar gunnery.

The FIST chief and his battery commander must ensure that the FIST becomes an integral part of the maneuver commander's team. In the 2d Armored Cavalry Regiment, our FIST teams accompany the cavalry troops on all tactical exercises and maneuver with them on border surveillance missions. In fact, it is normal for a lieutenant to spend one-half to two-thirds of his time with his supported maneuver unit. This approach allows for the development of close relationships and mutual trust.

If field artillery lieutenants approach their assignments as FIST chiefs with these thoughts in mind, they can be assured of bringing credit to the Field Artillery Community, and they can be proud of their abilities as a combat arms officer.

Dewitt Hynes, Jr.
CPT, FA
APO NY

Bound to Improve

In his letter entitled "FIST Factors" (May-June 1985 *Field Artillery Journal*), Lieutenant Colonel R. S. Ballagh, Jr. makes a strong argument for improving the quality of fire support by using a major as a brigade fire support officer (FSO), even if this means a captain must hold the S3's position. His recommended filling of battalion FSO slots by captains who are at a minimum advanced course graduates and preferably former battery commanders would also be a tremendous plus for fire support. However, I disagree with his apparent lack of support for a complementary idea allowing new lieutenants the opportunity to gain firing battery experience prior to their being placed in fire support team (FIST) chief positions. There are several reasons for my disagreement.

First, Lieutenant Colonel Ballagh overlooks an important fact when he mentions that he was "generally satisfied" with the quality of training his lieutenants had received. The vast majority of lieutenants reporting to his unit have had

no training or interaction with maneuver commanders. On the other hand, they have received instruction on basic fire direction procedures and firing battery operations. This knowledge is perishable, and I believe it should be put to use in a firing battery whenever possible as soon as the lieutenant reaches his initial assignment.

I understand this concept would be difficult or even impossible to implement in every case because of the difference in the number of firing battery versus FIST chief positions. However, if new lieutenants can report directly to a firing battery instead of a FIST chief position even 50 percent of the time, the quality of fire support at maneuver company level will improve significantly. The reason for this improvement should be obvious. Who would be in a better position to advise a maneuver company commander on the proper employment of fire support assets, a lieutenant fresh out of the basic course or one who has acquired "technical competence" in a firing battery?

Second, as far as new lieutenants in a firing battery causing safety problems,

one has but to contact any range safety officer to ascertain that the majority of units which "shoot out" do so because of errors on the guns, not on the part of the executive officer (XO) or the fire direction officer (FDO). This is true both for direct support units which use experienced officers as XOs and FDOs and for general support units which often use inexperienced officers in these positions.

A final point in favor of assigning firing battery experienced officers to FIST chief slots stems from the widely held perception of maneuver company commanders that their fire support is obviously not of primary importance if instead of a seasoned lieutenant they receive only recent graduates of the officer basic course.

This proposal is nothing new. Nor is it one which would fail to work in conjunction with Lieutenant Colonel Ballagh's system. If the two proposals are used together, the quality of our fire support is bound to improve.

Kevin J. Appleton
CPT, FA
Fort Sill, OK

July-August

New Thoughts on Old Issues



A Piece of Junk?

In the November-December 1984 issue of the *Field Artillery Journal*, I was very disappointed to learn of the numerous and significant performance and maintenance problems associated with the newly-delivered multiple launch rocket system (MLRS). It is difficult for me to understand how these defects have passed acceptance standards and why they should be tolerated as "maintenance" items—tantamount to having a warranty expire at the threshold of the showroom floor!

As a lifetime "Redlegger" and concerned civilian, I hope to pursue answers to these questions with the government and the supplier. So, who is the prime contractor for that piece of junk?

Lillis L. Waylett
Bridgeport, CT

I asked a wide variety of MLRS experts to comment on your question. Their responses focus on two significant observations.

• The deficiencies mentioned in the November-December 1984 issue of the *Field Artillery Journal* are largely attributable to the Army's conscious decision to accelerate the

development of the MLRS.

• All of the deficiencies noted in the article have or are being resolved through a well-managed product improvement program.

The experts explained that in the mid-1970s, the US Congress and the Department of Defense (DOD) identified an urgent requirement to produce a weapon system capable of offsetting the growing firepower advantage enjoyed by the Warsaw Pact. Work on what was then known as the general support rocket system began in 1976, and Vought Corporation became the prime contractor. In order to close the gap with the Warsaw Pact as quickly as possible, DOD decision makers elected to curtail the usual 10-year development cycle. Although appropriate agencies tested the evolving MLRS at every stage, the corrections of minor deficiencies were set aside for a follow-up product improvement program. The net result was the delivery of an extraordinarily capable and efficient system in less than 6 years.

Division commanders around the world now have a nine-launcher battery which substantially evens the odds with their likely opponents. One MLRS launcher can deliver in one ripple the firepower equivalent of 87 separate howitzers firing at once. From a commander's perspective, that is "no piece of junk."

With regard to the particular maintenance problems highlighted in the initial article, local experts emphasize that most of the "fixes" have already occurred, and that overall operational readiness rates are steadily improving.

Perhaps one MLRS training expert best captured the total situation when he observed:

"The bottom line is simple. The trade-off for placing a quantum leap in capability into the hands of soldiers is some minor difficulty with maintenance and engineering. These problems have been identified and will be corrected as we continue to field the system. We have compressed the old fielding program that used to take up to 10 years to a new fielding program that has taken less than 6."

The MLRS is here and will continue to get better. The soldiers who train, operate, and may use the MLRS in combat are its most outspoken advocates. They agree; it's what the doctor ordered!—Ed.

Leave the FAC Alone

The "FAC Facts" piece which appeared in the March-April 1985 issue of the *Journal* brings out some issues that must be questioned. The first is the responsiveness of the ground forward air controllers' (GFAC) support to the forward battalions and brigades. With all the GFACs with the division tactical control party (TACP) in the tactical operations center (TOC), I think that control of air strikes will be severely degraded. In the case of preplanned air strikes there may be time to get the GFAC to the target area. On the other hand, in an immediate air strike, whether from an air strip alert aircraft, a diversion from another mission, or a returning aircraft from an interdiction or battlefield air interdiction mission, there may be only a matter of minutes before the aircraft is on station. I do not think there is any way to get a GFAC out to control the strike. In these instances the strike will have to be controlled by the air liaison officer (ALO), if he is available, or even more likely, by the fire support team (FIST) chief. The authors state that missions that have to be controlled by the ALO or FIST will be the exception rather than the rule. I believe that, given the pace of the modern AirLand Battlefield, just the opposite will be true. The ALO or the FIST chief acting on behalf of the maneuver commander will probably be the requestor of the air support in the first place; therefore, they should control the strike. Will this degrade the quality of air support for immediate air strikes? I do not think so. Lieutenants are trained to control air strikes during the Field Artillery Officer Basic Course. They just need to be given more opportunities to put these drills into practice once they get to their first duty assignment.

The division's ability to transport the GFACs around the battlefield is a second area of concern. According to "FAC Facts," appropriate vehicles and helicopters will be provided by the division. Habitually the TACP's collocate with the appropriate fire support element (FSE) established by the fire support coordinator (FSCOORD) in the maneuver battalion's and brigade's tactical operations center. When the command group goes forward, the ALO and fire support officer (FSO) go with it, either in their own vehicles or by hitching a ride with the command group. Now the authors say a vehicle, presumably in addition to

the GFAC's own, will be provided and possibly dedicated for GFAC use. Are those vehicles going to be added to the appropriate maneuver table of organization and equipment or are they going to have to come out of the maneuver commander's already scarce assets? The article states if the maneuver force has armored vehicles, one of them will be modified as necessary to accept the TACP's communications equipment. I submit this will severely limit the flexibility the commander has in the use of that vehicle, not to mention the accountability and maintenance of that equipment. Helicopters compound the problem even more. The authors state that aircraft from the division general support aviation company could or would be used

to ferry these GFACs around the battlefield. They allude to the fact the helicopters used by division artillery aerial observers could be used. Currently the division artillery support platoon of the general support aviation company is authorized six aircraft. The division artillery is authorized eight aerial observers. When you throw in aviation requirements of the division artillery commander and staff as well as the subordinate battalion commanders, those six helicopters are going to be awfully busy. Is the division artillery support platoon going to become the division artillery support company and get 10 or 12 more helicopters?

"FAC Facts" also mentions that there is no requirement for full-time Air Force

representation at battalion and brigade levels during peacetime. That may be true to a point. However, I think it is vitally important for the habitually associated tactical air control party to accompany the battalions and brigades whenever they go to the field the same as our fire support personnel.

In summary, I think the proposal as outlined will seriously limit the responsiveness of GFAC control of close air support strikes. We should leave the FACs with the maneuver battalions and brigades or give the responsibility to control air strikes to the FIST chief, who is trained and "up front" anyway.

Kenny W. Hendrix
MAJ, FA
Fort Sill, OK

Taking the Interoperability Initiative

Interoperability is a subject more than worthy of the entire issue of the November-December 1984 *Field Artillery Journal*. The United States has participated in some form of coalition warfare in every conflict since the Boxer Rebellion. Our most recent experiences in Lebanon and Grenada suggest that we may not always have the luxury of weeks or months to formulate solutions to interoperability problems before we must fight together. The dynamic nature of the Air-Land Battle means that the field artillery may be called upon to work with our foreign comrades-in-arms.

As the American liaison officer to the French Artillery School, I discuss these subjects on a daily basis, and, although I speak from essentially a French bias, I would like to offer some additional comments and suggestions that may have universal application.

- The single most important action in resolving interoperability issues is to establish and maintain a working dialogue with Allied armies. In some cases the framework for this exchange already exists. The US Army Training and Doctrine Command (TRADOC) has established liaison offices and nets with many Allied nations. The products distributed by the German liaison net are an excellent example of the long-term benefits of these organizations. Even within our much younger liaison net in France we find new subject areas to explore with the French on virtually a daily basis. The framework exists, but only with the initiation of a good working dialogue can interoperability

problems ever be diminished.

- Formalized arrangements below the major command level are capable of reaping significant benefits. A personnel exchange program between US and foreign army units (wherein these organizations exchange one officer each on a long-term basis) is one example. The 2d Armored Division (US) and the 2d Armored Division (FR) have done this. It has resulted in a much more comprehensive understanding of each other's capabilities and doctrine.

- Unit partnership programs offer another excellent technique. Records here at the French Artillery School reflect that there are not currently any formalized partnership relations between US field artillery units and the artillery regiments of the II French Army. Yet all the possible advantages of a partnership appear obtainable, particularly in Germany where the close physical proximity of these units makes its accomplishment easy. Efforts such as these in addressing interoperability issues can be aided by advertising them in professional journals as was done in the *Field Artillery Journal*.

- Even less formal opportunities exist. Foreign officers are occasionally invited to observe our training exercises such as Army Training and Evaluation Programs. Foreign officers viewing these exercises acquire a better understanding of our doctrine. Such visits also provide informal opportunities to discuss mutual problems and potential solutions. The visitors' observations will no doubt become an element of their future internal discussions of their own doctrine, tactics, techniques, and interoperability issues. For example, the French will soon be fielding their own multiple launch rocket system (MLRS) units. Their observation of

our field training exercises can assist them in writing doctrine that incorporates interoperability considerations that might otherwise be overlooked.

US units occasionally receive invitations to send personnel to observe Allied unit training. These opportunities, particularly at the "grass roots" level, should be accepted, and those participating should be required to present observations for the benefit of those unit personnel who could not attend.

The participation of foreign officers during our own exercises can also be used as an opportunity for staff elements to practice briefing, possibly in a foreign language, as though these officers represented Allied nation liaison elements. This is particularly true at our service schools where foreign liaison officers are already permanently assigned. We need not shy away from Allied officers viewing and participating in our training.

Interoperability is a subject worthy of frequent discussion at all echelons. We should not be at all averse to listening to the ideas and possible solutions offered by representatives of other armies. Certainly *now* is the time to be talking and *not* when time is at a premium.

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Speak Out

The *Journal* welcomes and encourages letters from our readers. Of particular interest are opinions, ideas, and innovations pertinent to the betterment of the Field Artillery and the total force. Also welcomed are thoughts on how to improve the magazine.—*Ed.*

There's Always an Excuse Not to Train



by Sergeant First Class Charles C. Sharp

Training is the central pillar of readiness. It is important to the nation because without training the military cannot function. It is important to the sergeants and junior officers in line units because readiness is the criteria by which they will be judged by everyone between them and the Joint Chiefs.

And yet . . . there's always an excuse not to train.

People naturally spend their time on those things that are important to them. On the job they spend their time on those projects that are *important* to the boss. And when time is scarce, they spend time on those things that are *obvious* to the boss. Logically, training ought to be very important to commanders and, because time is always scarce in military units, training or the lack of it ought to be obvious.

So if training is so important and visible, why is it done so poorly or simply avoided? Having knocked about the Army for a number of years, I have a few notions. But before outlining my ideas, I must deal with an obvious counterclaim: "Our training is actually quite good."

Make no mistake, training in units is *bad*. Just note the following:

- The US Army Training and Doctrine Command Systems Analysis Activity (TRASANA) test of certain field artillery military occupational specialties (MOS) in the US Army Europe (USAREUR) found in 1982 that on the average, over half the troops tested could not perform level one skill qualification test tasks satisfactorily. When a follow-on evaluation was done in the same units in 1984, only about two-thirds of the tasks could be satisfactorily

performed by troops with an average of 4 years time in service.

- In a recent exercise in the Continental United States, a multiple launch rocket system battery which had been fielded for less than a year suffered major operating problems. Some of the problems resulted from soldiers forgetting basic skills they had been taught in advanced individual training (AIT) less than 6 months previously!

- Soldiers in a unit in USAREUR recently noted they, "couldn't pass a post-AIT test now" because in less than a year since they had left the school, they had forgotten much of what they had learned.

Ironically, in a survey featured by *European Stars and Stripes* in the late 1970s, the most common complaint among junior soldiers was that they regarded over half their time as being wasted.

Some Common Excuses

"Training distractors" is a common phrase. The distractors can be as obvious as no people available to train or as subtle as no incentive for the trainer to train. Each unit has its own inherent training distractors. For example, most Lance battalions have essentially no yearly training plan at all. Their "training goals" are predicated not on readiness for combat, but on readiness for the next inspection or exercise. Problematically, every inspection or exercise is looking for something a little different. So, you train in tactics for the Army Training and Evaluation Program (ARTEP), then train in nuclear safety and operations for the nuclear surety inspection (NSI), and then drop everything except fire unit and assembly and transport platoon training for the annual service practice. Then, like most units, for a month or so before the annual general inspection (AGI), all training comes to a complete halt while everyone paints vehicles, GIs the barracks, and whitewashes the rocks. Sound familiar?

In the daily fight for time, maintenance always seems to win over training. This is because lousy maintenance tends to be more obvious than lousy training; after all, it shows up on deadline and monthly readiness reports and in vehicles sitting beside the road leaking fluids during a move-out.

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The squeaky wheel gets both the grease and the attention.

Frustrated commanders constantly ponder the relative merits of the question, "Which is worse—not to make it out to the field because your maintenance is substandard, or to make it to the field and make a fool of yourself because your people aren't trained well enough to do their jobs?"

Some General Answers

The first important point to remember about training is *to place as much emphasis on it as you do on maintenance and more emphasis than you put on cleaning the billets or anything else*. Clean, healthy barracks are important for the troops, but immaculate billets and grounds are a waste of time. Knowing their jobs in combat will keep soldiers alive and healthy a lot longer. Commanders have to put the emphasis on training and follow up with supervision. They should accept no excuses for not training. First line supervisors must be held as accountable for the training of their soldiers as they are held accountable for their equipment.

The second step toward better training is to realize that *simply locking a section in a room with an instructor and a chalkboard does not mean that training is taking place*, any more than putting troops in the motor pool with some hoods propped open means that maintenance is taking place. Paradoxically, poor training may be worse than *no* training. Our objective must be *good* training. Good training improves readiness including maintenance if for no other reason than you can't train too well on inoperable equipment. Good training also improves discipline, far more so than supercilious inspections of dirty shoe soles.

The third key to good training is *decentralization and coordination*. Decentralization makes sense. After all, the first line supervisors know better than anyone else what skills their troops need. The value of coordination is equally obvious. We cannot be concerned exclusively with reinforcing individual skills; we also have to train in sections, platoons, batteries, and battalions. Moreover, in these days of integrated computer command and control systems a soldier cannot even practice his individual skills without getting somebody else's computer on the air to send or receive data.

Some Practical Suggestions

Nice talk so far, but what about the nitty gritty action—what do we *do*

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about training? Well, if there's always an excuse not to train, let's look at the most common excuses, and turn them on their heads.

- Common Excuse Number One: "My equipment is up, but my gunner has a dental appointment, two crewmen are on guard, my driver is on battalion detail. . . ." Shorthanded as usual, right? Anything you teach today you'll just have to teach all over again to all the people that miss it, so why bother? Remember this: Training *anybody* is better than training *nobody*. Even if you only have one private left, you can train him. Polish up his individual skills, run a shorthanded crew drill. Do you think you won't be shorthanded in combat? Then, let *him* be the instructor for the people that missed the training session. After all, teaching someone else something is the fastest way to find out how well you have mastered the subject yourself; and anyone with ambitions of becoming a leader needs to learn how to teach.

- Common Excuse Number Two: "I can't train, I don't have all my equipment." If you cannot operate without all your equipment, you may not be able to last long in combat. Equipment gets shot at too. Sure, without the howitzer it's difficult to run firing operations, but there are a lot of other skills you can practice. The soldiers manual of common tasks is full of them. All you have to do is pull out the manual and get started. How are your troops at first aid? Got a soldier that already

knows it? Let him play the casualty. Do they know how to read a map? Use a compass? Combine physical training and map reading—send a couple of teams out across the countryside on a homemade map course or orienteering. How many in your crew know how to field-strip an M60? Make up a range card? Identify a T64 tank? Did you know that there are plastic models commercially available of three different modern Soviet tanks, five North Atlantic Treaty Organization (NATO) tanks, and virtually all the US armored vehicles? You can bet there is someone in your unit who is willing to put those together, too. A 6-inch model at 30 meters is the same through the binoculars as spotting the real thing 1,800 meters away—and it's a lot safer.

And for those in fire direction, even with the new computers on hand, it never hurts to practice the back-up methods. The hand-held calculator will be around for quite a while, and manual computations are still with us. It *never* hurts to sit the section down and figure out how you could operate without a certain piece of equipment, and then *practice* it.

Nor do you need to be in the field to train. In fact, given the difficulty of obtaining maneuver rights and road clearances, that can be another excuse. A Lance or multiple launch rocket system battery can wire together their M577-mounted fire direction systems and platoon leader's digital message devices (PLDMD), set up the extensions, and run a complete



Small jobs done well lead to excellence.



Lance crewmen pull preventive maintenance.

command post exercise without ever moving a vehicle or drawing communications-electronics operations instructions. Because computer operator skills are easy to forget, the more hands-on training the sections get the better.

- Common Excuse Number Three: "I don't have the people or the equipment." Then train yourself. Anybody out there that doesn't have something about his job that he needs to practice probably changes clothes in a phone booth and wears a cape. If nothing else, you can prepare training materials for when you do have equipment and people available. Don't waste your section's time waiting for you to get organized when you could have prepared ahead of time.

Common Excuse Number Four: "I don't have the training materials." What happens to all the leftover material from field exercises? You know, the message logs, fire mission forms, fire direction center data sheets, survey cards, and so on. Don't throw them away! They are the makings of a complete command post exercise and a host of challenging problems. Did anything go wrong out there? Then practice it again and again until your crew will get that same situation right next time. Do you need sample fire missions for the fire direction center? Have the troops make them up for each other, and provide some reward for the mission that is the most complicated or includes the most extra features—like zone-to-zone transformations for Lance. This will also invoke one of the most precious assets you have: people thinking about their job.



Practice makes perfect.

If you can pique your troops' interest in what they are doing—get them thinking about *how* and *why* they do things—they will practically train themselves on anything. There are many ways to get the troops involved in their own training. Contests are one of the oldest gimmicks, and yet they are surprisingly seldom used. Who can compute a fire mission the fastest; plot targets with the greatest accuracy; put up the OE-254 antenna quickest; encode, decode, and authenticate a message fastest—the list is as long as the skill qualification test task list and longer. Have the troops teach and critique each other. This has to be handled carefully to avoid irate soldiers having a shouting match, but it can be very effective.


Another simple technique of an effective section training: Put a jar with a slotted lid next to the radio. Every-time someone misuses a proword or uses incorrect communications procedures, he puts a penny or a nickle in the jar. If your people start with communications procedures as bad as most sections, you'll have enough money to throw a great section party after the second field problem, and everyone will be more proficient on the radio. As always, keep the reference handy to settle disputes, and teach your troops how to use the reference.

Once troops start thinking about their own training, it becomes easy to integrate training with everything else they are doing. In fact, most training distractors can become training opportunities. Vehicles need washing? When was the last time your crew practiced nuclear, biological, and chemical decontamination procedures?

Treat the soap as STP or DS-2, put on mission-oriented protection posture gear, and give it a shot. Maintenance tasks, among others, should certainly be integrated with the training plan. After all, *maintenance is training*. As long as your section is down in the motor pool with the equipment, there is a lot of training value for the troops. If the vehicle has to be moved, why not let someone do a little close-quarters maneuvering while another troop practices ground-guiding with either hand signals or a flashlight (how many times have you scraped a tree in the woods because the driver and ground guide *had not* had enough practice?)

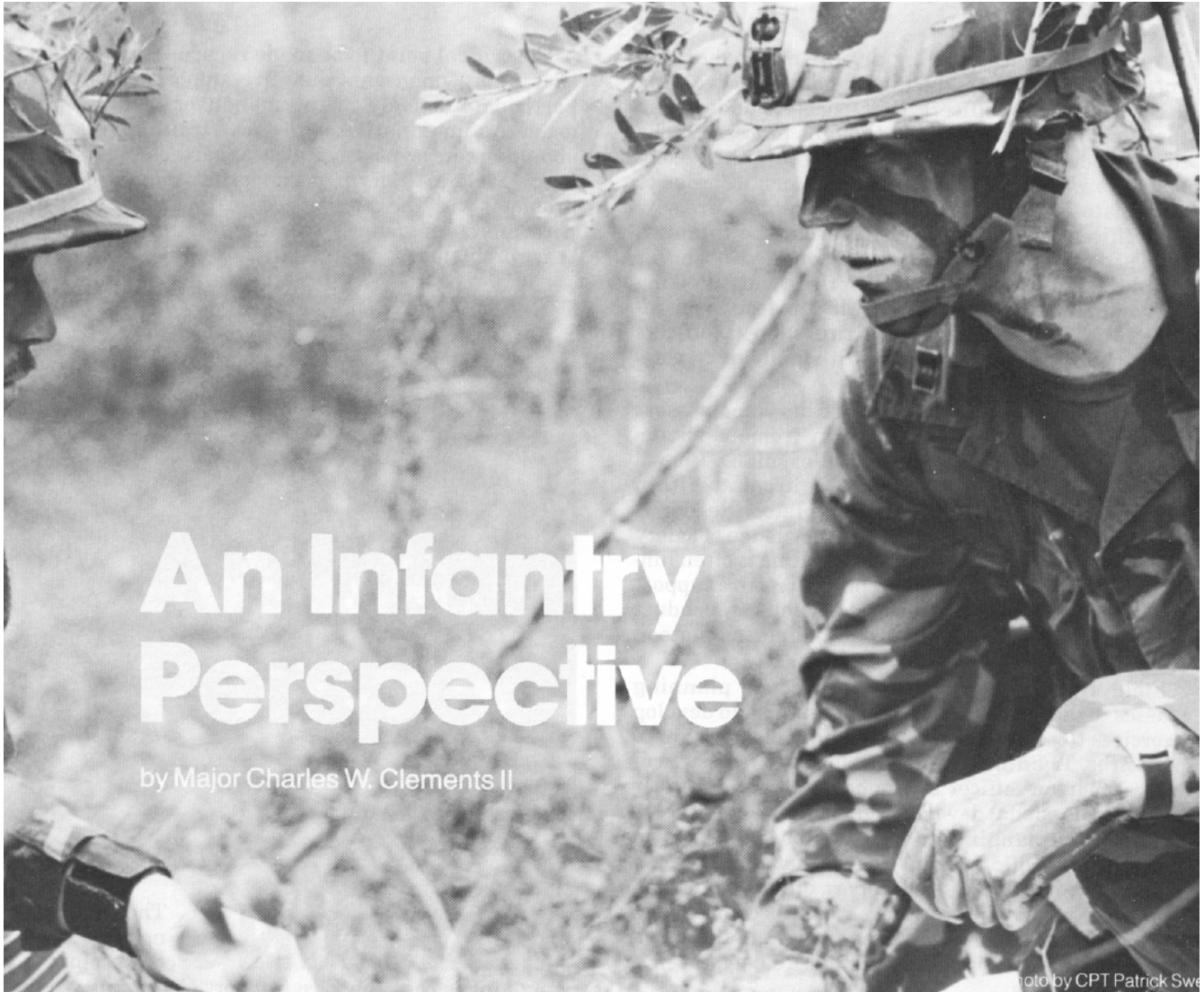
Some Reasons to Train

Everyone can find an excuse not to train, but in reality, there are far more good reasons *to* train. Here are but two. First, training is important. It is the one thing that allows us to do our jobs in combat, and it keeps people alive and well in peace. Second, given a little thought, training is easy to accomplish. Every training schedule you create should have inclement weather, no equipment, and a few personnel alternatives. Any time your section or platoon has nothing to do, then they must have met every possible training and proficiency criteria.

I have only scratched the surface of possibilities for making training interesting, useful, and attainable. You can think of others. Write them up. Share them with other leaders. Training is one activity in which more cooks simply make for a richer soup. And never forget, *there is no excuse not to train.* 

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An Infantry Perspective

by Major Charles W. Clements II

photo by CPT Patrick Sw

Understanding the maneuver commander's intent is the key to accomplishing the fire support mission. This truism not only applies to combat operations but also to peacetime training and garrison operations as well. Infantrymen are the principal users of the fire support system; and their expectations and perceptions have a significant impact on everything field artillerymen do.

The development of an infantry "needs statement" for Close Support Study Group III and the findings of that study have sparked a lively discussion within the Infantry Community regarding what fire support should accomplish for maneuver. Such discussions among infantrymen are important, but their utility is limited unless they are heard and understood throughout the Fire Support Community.

The field artillery instructors at the Infantry School have been eager participants in discussions at Fort Benning. We have been able to obtain and synthesize infantry opinions on several critical topics. In fact, the Redlegs of the Infantry School are now able to paint a "picture" of what the Infantry Community wants fire supporters to do.

Although maneuver commanders have their own
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techniques for managing combat power, they do share some common approaches. During our discussions with Fort Benning's leaders, we found that their fire support needs can be conveniently categorized into four general areas—training, manning, equipment, and doctrine. This article addresses these needs, and, in consequence, it offers some recommendations to field artillery commanders that should allow Redlegs to accomplish their mission better.

TRAINING

Of all the topics discussed, training is the area that has the greatest impact on the overall fire support-maneuver relationship. Above all else, maneuver commanders want their fire support personnel to be present during *all* maneuver training. Infantrymen understand that it is difficult to "play" indirect fires while maneuvering on a reservation. However, they also contend that unless fire support gets integrated into every field training exercise, it will be forgotten in the heat of battle. Unless constantly drilled, company and battalion commanders will simply stop considering fire support during their tactical decision making.

An even more compelling argument for the presence of fire supporters during *all* maneuver training is the fire support officers' (FSO) need to understand the supported commanders' thought processes. The fire support officers need to know how their commanders will react to certain situations in order to anticipate fire support needs. For example, fire support officers should realize that from the infantryman's perspective, the platoon forward observer should be the originator of mortar fires, thus allowing the company fire support team (FIST) to focus on artillery fires. Put succinctly, the fire support officers must be in complete "sync" with maneuver commanders.

As indirect fire experts, field artillerymen possess specific training skills that are in tremendous demand in infantry units. The artilleryman's knowledge of safety procedures offers a case in point. Within an infantry battalion, the mortar platoon leader is usually the only officer with any knowledge of safety data computation, and his understanding is often limited. The battalion fire support officer or a fire support team chief can help fill this void. They can conduct safety computation training for the mortar platoon leadership.

Field artillerymen can also teach fire planning classes to the entire battalion leadership and develop exercises to allow the maneuver unit's leadership to plan fires. Training on the "call for fire" is a particularly important officer and noncommissioned officer (NCO) professional development.

Safety, fire planning, and the call for fire are only a few of the specific training needs that infantrymen mention; a dedicated fire support officer would undoubtedly receive many others from his commander. The bottom line is that the sheer weight of the training load demands virtually constant Redleg presence in infantry units.

But training infantrymen in fire support procedures is only part of the training picture. Fire support personnel also need training in maneuver doctrine. Much of that training is available only in the maneuver environment.

When an artillery officer or NCO reports to a maneuver unit, he must become completely familiar with maneuver doctrine. For example, fire support personnel must understand all maneuver graphics and how they influence the battle. Without a fundamental grasp of tactics and associated graphics, artillerymen cannot orchestrate the fire support essential to realizing the commander's intent. Artillerymen must also be proficient in map reading and land navigation.

All these challenges present the battalion fire support officer with clear training requirements, and the manner in which he accomplishes that training will dictate what sort of relationship he has with his unit. Although many infantrymen believe the fire support officer could conduct the training himself, most contend that a better solution would be for him to participate in the maneuver unit's training program. This participation not only allows for the exchange of training expertise but also fosters the development of a close fire support-maneuver relationship.

The critical point to be made regarding training is that

infantrymen want their fire support personnel to participate actively in the maneuver training program. An imaginative, aggressive training program should create a positive atmosphere of mutual respect. Field artillerymen know that there are some problems with the complete dedication of fire support personnel to maneuver training. Manning is one of these problems.



MANNING The infantryman's second most common complaint is that the Fire Support Community neither provides enough fire support element (FSE) positions nor fills the positions that exist. This shortfall leads many maneuver commanders to believe that the artillery's primary mission of support to maneuver is accomplished only after the artillery unit supports itself. This is a serious charge that warrants every artillery commander's patient consideration.

When pressed for specifics, the infantrymen with whom we spoke stated that battalion and brigade fire support elements need one additional person to operate on a 24-hour basis. Most, but not all, infantrymen believe that the fire support team headquarters also needs an additional soldier if it is to perform its coordination and laser designation roles simultaneously. Fort Benning leadership advanced this position as part of its comments on Close Support Study Group III.

Clearly, failure to man fire support elements to their current authorized levels causes considerable consternation among the leadership of supported units, but even when authorized fire support positions are filled, personnel turbulence is often a continuing source of tremendous frustration for infantrymen. They cite endless examples of frequent changes in fire support personnel, and they are concerned by the training problems that result from this turbulence.

Without exception, infantrymen want their fire support personnel stabilized for a *minimum* of 12 months; anything less is unacceptable. They believe that failure to stabilize personnel in fire support positions adds to the impression that such billets are second-string slots.

One of the methods suggested to improve stability and enhance manning levels is to assign fire support personnel to their supported unit. An often proposed alternative is their attachment for specific periods. These options have been discussed at the highest levels in the Infantry Community and should be perceived as a signal of how seriously this problem is viewed. There is a clear, clarion call that cannot be ignored: Personnel stability among fire support personnel is a must.

There is one common infantry proposal that offers partial relief to the overextended Fire Support Community. Nearly all of the people interviewed felt that mechanized platoons can operate with only one forward observer. Infantrymen are adamant that a platoon forward observer is needed to free the platoon leader to "fight" his platoon, but they also conclude that one person can do the job. If all fire support positions in a mechanized unit cannot be manned, the forward observer's radiotelephone operator should be the last position filled.

EQUIPMENT According to Infantry Community commentators, the equipment that field artillery units use to support maneuver units is adequate at this time. They endorse our efforts to develop and field lightweight digital devices and laser rangefinders. The only fault they find is the occasional leadership lapse of failing to bring equipment to training. Such crimes of omission pose a nuisance to the infantry units and are common sources of embarrassment for fire support sections.


Infantrymen also contend that whichever unit "owns" the fire support personnel—maneuver or artillery—should have the equipment on its table of organization and equipment (TOE). If fire support personnel are assigned to maneuver units in the future, their equipment should appear on the maneuver unit's TOE. In short, equipment is an area where the Field Artillery Community appears to be fulfilling maneuver's needs.

DOCTRINE Although current fire support doctrine is accepted throughout the Infantry Community, many infantrymen feel that the manner in which that doctrine is executed often leaves much to be desired. Generally, they believe that the essential tenets of fire planning, coordination of fires, and organization for combat facilitate the rapid engagement of enemy forces by indirect fire systems. There are, however, differences of opinion between infantrymen and artillerymen regarding how the fire support tasks should and do get accomplished.

Until recently, a significant portion of the Field Artillery Community believed the fire support team chief to be

primarily a fire support coordinator. They contended that the place from which he could best accomplish that mission was from inside the fire support team vehicle. All the infantrymen with whom we talked said that the fire support team chief and fire support officer should sit side-by-side with their maneuver commander. The Chief of Field Artillery concurs, and this technique is gaining acceptance. As the Field Artillery Community applies this concept, the divergence in perception of roles will undoubtedly change. The bottom line is simple: fire support team chiefs and fire support officers should ride with their maneuver commanders.

The fire support officer's role in the employment of mortars has also been a frequent topic of discussion among infantrymen at Fort Benning. It is no secret that company and battalion mortars are not performing well at the National Training Center. Although no definitive answer to the problem exists, a clarification of maneuver and fire support roles may improve the situation. All of the infantrymen we interviewed agreed that movement and employment of mortars is a maneuver responsibility. The mortar platoon leader trains his platoon to standards and ensures, with guidance from the battalion commander and S3, that his tubes can support the maneuver force. Of course, mortars are also an integral part of the total fire support system and are, therefore, influenced by the battalion fire support officer. Specifically, the fire support officer ensures that mortar fires are integrated into the battalion fire support plan and that his company and platoon observers use them. Moreover, he must monitor the ability of the mortars to support the force. If the mortars are not in position to shoot, the fire support officer must immediately notify the commander. A *busy commander* is no excuse for failing to announce positioning problems. Each of the leaders with whom we talked said that the fire support officer must do *whatever is necessary* to alert the commander to the problem. They admit that they are busy fighting the battle, but they stress that they would rather have a persistent fire support officer emphasizing the problem than one who allows the mortars to sit idle. Once again, this is current doctrine; the problem lies in execution.

The final question we asked was a simple one: "What do you want the fire support system to do for you?" The answers varied, but they had one common thread—deliver professional support. Infantrymen want aggressive and flexible personnel to man fire support slots. They want these fire support soldiers to do whatever is necessary to ensure that maneuver units receive the fire support needed to accomplish the mission. It's an easy answer to a deceptively simple question, but our ability to respond to that statement of need is a challenge that field artillerymen must meet if they are to be full-fledged members of the combined arms team. 

Major Charles W. Clements II, FA, is also the author of "A Royal Rendezvous: How The King and Queen of Battle Train" on page 16.



Sound Familiar? by Lieutenant Colonel J. M. Gibbs

.... "Well, Captain Jones, there just aren't any lieutenants with enough experience to handle that task. So, I want you to run the range while the division commander is in the area. Turn it over to Lieutenant Smith when the general leaves."

"Major Brown, you'll handle the daily briefing instead of Lieutenant Smith; the division commander may be attending that too."

The battalion commander wants to put on a good show so he loads his senior leaders with the responsibilities normally performed by his junior officers. He has pushed his junior officers aside and robbed them of the thing they need the most—*experience*.

It's easy to see that this commander's junior officers are likely to gain little experience while under his command. Yet in order to mature as officers, these lieutenants and junior captains need to work their way through varied and increasingly difficult tasks. They must have the opportunity to succeed or fail. When they succeed, they must be recognized and commended for a job well done; when they fail, they must be pushed and encouraged to try the task again. The

foremost responsibility of leaders is to present such challenges, and then provide proper guidance and resources to see that the mission is accomplished.

When an officer takes command of a unit he accepts full responsibility for both the unit's successes and failures. He must be able to distinguish the difference between simply putting on a good show and seeing that the unit is truly functional. Each individual along the chain of command must be able to take responsibility and perform his duties. Although the commander's guidance is needed, he must ensure the unit can fulfill its mission despite his absence. In fact, a commander's true success and an excellent indicator of his ability to lead is how well the unit functions

without him. The ideal commander ensures that each individual under his command develops to his full potential and that those soldiers with leadership qualities are identified and nurtured.

There are many ways the commander can instill confidence and a sense of responsibility in his junior leaders. One of the best confidence builders is to challenge the junior officers. The commander should make the junior officers accountable for everything they and their subordinates do. He should ensure that the lieutenants and junior captains receive the proper authority and command backing; then he should allow them to accomplish the mission. The supervisor's job is to provide supervision and guidance, not to complete the task personally. Each individual within a unit has his responsibilities, and he must be allowed to accomplish them—not have them accomplished for him.

Mature commanders have mastered the art of assigning a mission to a soldier and then allowing that soldier to work the mission out in his own way. Good commanders possess trust and patience. Far from shirking his responsibilities, the commander does his duty when he makes assignments to his subordinates and then follows up by providing the means for accomplishing those assignments. In this way, he sees to it that needed leadership qualities are developed and that his major responsibility—training—is accomplished.


One of the American Army's greatest strengths is its policy of training every soldier to be a leader. The concept softens the blow of casualties and reduces the likelihood of loss of leadership. The success of this policy is illustrated repeatedly in history when junior grade soldiers assume responsibilities of fallen leaders and rally the troops to meet objectives in combat. Most well-known examples involve enlisted men taking over officer positions and later being decorated. There are also examples where junior officers have taken charge of battalions. For example, Captain Headley (USMC), though twice wounded, took command of the 3d Battalion, 25th Regiment at Iwo Jima, and Captain Cook (USMC), took command of the 3d

Battalion, 26th Regiment until a major arrived to assume command. These young officers were doing what they had been trained to do.

The US Army has made great strides in attracting intelligent, career-oriented young men and women to the profession of arms. It is imperative that the leaders of today challenge these leaders of the future to accomplish difficult tasks. They will fail at times, but their failures will, with proper coaching, yield to successes. Their mistakes of today are the experiences that guarantee victory tomorrow.

Given the encouragement, junior officers can perform the responsibilities that will challenge them to their full potentials. Patience, confidence, maturity, and competence in our commanders will inevitably generate a scene in poignant contrast to the one that opened this article.

"Captain Jones, your lieutenant did well at the range. The general thought he was doing a super job. You have trained him well."

"Major Brown, the division commander was pleased with the lieutenant's briefing, you must have an excellent leader training program." 

Lieutenant Colonel James M. Gibbs, FA, is the executive officer of the US Army Field Artillery School Brigade, Fort Sill, Oklahoma. After serving as an enlisted man in the Airborne Field Artillery, he received his commission from the Field Artillery Officer Candidate School. Colonel Gibbs is a graduate of the Field Artillery Officer Advanced Course and the Command and General Staff College. His past assignments include commander of the 178th Aviation Company; chief of the Inspection Branch, Office of the Inspector General; executive officer of the Cleveland District Recruiting Command in Ohio; and deputy aviation officer for V Corps. Among his awards Colonel Gibbs has received the Silver Star, Distinguished Flying Cross, Bronze Star, and Air Medal.

Command Update

NEW REDLEG COMMANDERS

MG Eugene S. Korpak
Commandant, USAFAS and
Commanding General, USAFACFS

LTC Tommy B. Youmans
6th Battalion, 10th Field Artillery

LTC John A. Jones
1st Battalion, 12th Field Artillery

LTC James J. Gallivan
1st Battalion, 13th Field Artillery

LTC James S. McCallum
3d Battalion, 18th Field Artillery

LTC Steven J. Pryplesh
1st Battalion, 22d Field Artillery

LTC Virgil W. Stone

1st Battalion, 2d Field Artillery

LTC James H. Kurtz
2d Battalion, 37th Field Artillery

LTC Thomas G. Wilson
2d Battalion, 42d Field Artillery

LTC Herbert W. Reichert
1st Battalion, 81st Field Artillery

LTC John H. Branch
1st Battalion, 333d Field Artillery

LTC Leonard Russ
3d Cannon Training Battalion

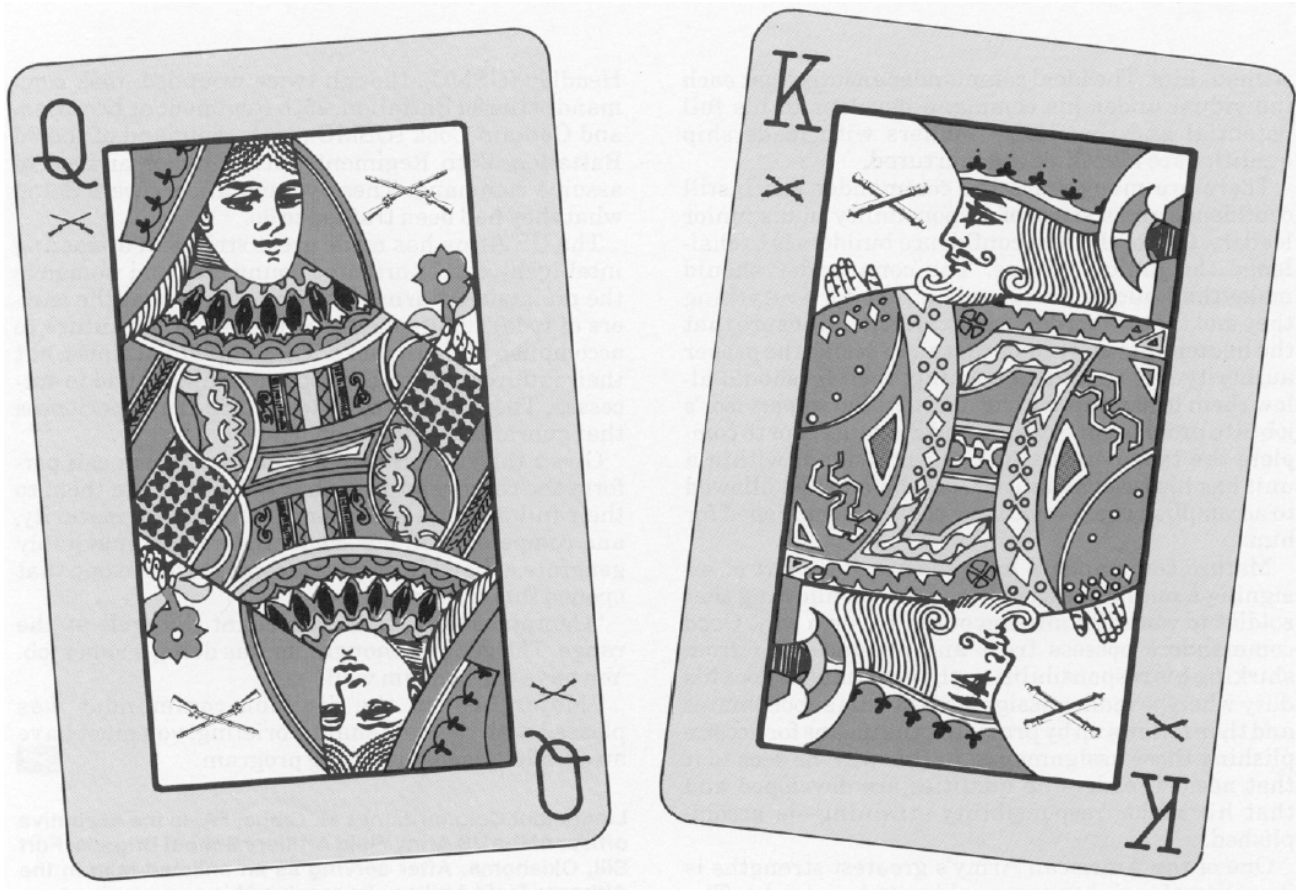
LTC Henry R. Farrell
96th Civil Affairs Battalion

Field Artillery Commands in Training Divisions

3d Field Artillery Brigade, 84th Division
COL Gary W. Orten
1-334—LTC David A. Wouters
2-334—LTC Bruce W. Koopika
3-334—MAJ Robert W. Roth

402d Field Artillery Brigade
COL Louis Bedoka
402d Training Group—LTC William Goos
1-89—MAJ Barry Grable
2-89—LTC Ordie Jones
3-89—LTC Louis Griffis
4-89—LTC Gene Jordan
5-89—LTC Fred Rowzee

In the January-February 1985 issue of the *Journal*, the Commander of the 1st Battalion, 229th Field Artillery (Reserve Component) should have been listed as LTC William C. *Richar*.



A Royal Rendezvous:

How the King and Queen of Battle Train by Major Charles W. Clements II

An infantry commander's ability to integrate indirect fires into his scheme of maneuver is an essential ingredient in generating total combat power. In fact, an infantryman's skill in this critical area may well determine the likelihood of victory or defeat for his unit. Of course, a 13F forward observer meeting his new infantry platoon leader or a new fire support team (FIST) chief greeting the commander of the infantry company he supports can expect that both infantry leaders have received extensive institutional training in the tactics and techniques of maneuver. It is only natural and proper to assume that leaders of the maneuver branches will concentrate on maneuver and become experts in that part of the combat power equation. But a question that each of these fire support leaders is likely to ask is, "How much training have infantry officers received in the firepower aspect of combat power?" The answer will to a considerable degree suggest how comfortable the infantry leader will be with his fire planning procedures and

how readily he will accept the integration of fire support into his scheme of maneuver.

At the US Army Infantry School, fire support instruction is integrated into all levels of instruction for commissioned and noncommissioned officers. To give field artillerymen a better understanding of the fire support expertise they can expect from the infantry leader, this article will outline the fire support instruction that infantrymen receive while in residence at the Infantry School.

Officer Candidate School

Fire support instruction given to Officer Candidate School candidates is brief. Only 6 hours of basic fire support training appear in this branch immaterial program of instruction. Essentially, candidates learn call for fire procedures and become familiarized with weapons characteristics, field artillery tactical missions, and field artillery organizations.

Officer Basic Course and Advanced NCO Courses

The techniques and procedures that an infantry platoon leader and platoon sergeant must know are basically the same. Fort Benning's artillery branch has, therefore, designed their classes along similar lines. Both Infantry Officer Basic Course (IOBC) and Advanced Noncommissioned Officer Course (ANCOC) students start with basic instruction on weapon systems, organizations, and fire support planning and coordination. Neither course is given the detailed instruction that the officer advanced course receives, but both learn about general fire planning guidelines, targeting techniques, and guidelines on the use of fire support coordination measures. Moreover, students in each course discuss fire support personnel and facilities at platoon and company levels and learn how to critique fire plans developed at those levels. To reinforce this training, ANCOC students will participate in a

practical exercise. After the fire planning training, students from each course go to an observation post to observe the effects of different weapon systems and munitions and to practice call for fire procedures. Once they have learned the procedures, several students in each group adjust a few missions. The students then move to bunkers and fire danger close missions. Most students in both courses feel this is extremely valuable training. After all, it gives them a close-up appreciation for the effects of indirect fires.

A graduate of either IOBC or ANCOG should, therefore, have a basic knowledge of the weapon system that will support him. He should know the basic missions and capabilities of the fire support team and especially those of the platoon forward observers. He should have a grasp of basic fire planning skills for both offensive and defensive operations. Finally, he should be proficient in calling for and adjusting indirect fires.

Mortar Platoon Course

Both the Field Artillery and the Infantry Schools agree that the mortar platoon leader plays a key role in providing fire support to the maneuver arms. To ensure that this element of the system is fully integrated into fire support planning and execution, a significant portion of the infantry mortar platoon course (IMPC) is taught by field artillery representatives. Because the mortar platoon leader has to position his element to support an operation, each student in IMPC is given a block of instruction on fire planning and coordination. Students are taught techniques for targeting, plans development for both offensive and defensive operations, and fire support coordination measures. At the completion of this block, IMPC students develop a fire support plan with recommended coordination measures for a company-sized operation.

This fire planning exercise logically leads IMPC students to the next block on the call for fire and how to adjust indirect fires. As with fire planning, instruction in call for fire is more detailed than with IOBC or ANCOG students. After students learn the procedures, they practice using a training set, fire observation (TSFO) simulator. The IMPC graduates know how to plan fires and coordination measures, and they are capable of calling for and adjusting fires at a performance level superior to that found at the normal maneuver platoon.

Light Leader Course

One of the newest courses taught at the Infantry School is the light leader **July-August**

course. This a 4-week school that trains the entire leadership cadre from an infantry battalion assigned to a light division. It concentrates on developing the leadership skills of battalion leaders from corporal to company commanders. As part of the course, students spend 4 hours with the artillery committee and learn how to call for fire and to adjust indirect fires. After instruction, they use their newly acquired skills for a practical exercise by using computer simulations in a TSFO.

Because the light force is particularly well-suited for use during limited visibility, the light leader course also receives instruction on the conduct of illumination missions. The cadre witnesses different methods of illuminating a target (range spread, lateral spread, and so on) and how to conduct a coordinated illumination mission. Although time restrictions limit the student's proficiency in the conduct of illumination missions, time does allow the assimilation of the general features of these missions. Light infantry leaders will know how to integrate illumination in the scheme of maneuver.

Officer Advanced Course

The largest block of fire support instruction presented at Fort Benning focuses on the Infantry Officer Advanced Course. Because these future company commanders must be able to orchestrate maneuver with direct and indirect fire systems, they must have



Infantry School students learn about gunnery procedures in a tracked command post.

the best possible understanding of fire support. During the course, the students receive an initial 8 hours of pure instruction and integrate fire support training during all subsequent tactical exercises. The initial fire support instruction brings IOAC students up-to-date



Students hang a mortar round during Infantry School training.



Students are trained on call for fire procedures before they break down into smaller groups to adjust a few missions.

on artillery systems, radars, organizations, tactical missions, capabilities, and limitations. Given this foundation, the students progress to detailed instruction on the mechanics of the fire support system and the fire planning process. This instruction provides the tools to ensure proper integration of all aspects of fire support in the planning and execution of operations.

Fire planning instruction keys on developing fire plans to support company-, battalion-, and brigade-sized operations. Students learn how to plan fires for both offensive and defensive operations, and they are given a five-step model to evaluate and critique a fire plan developed by a fire support officer. The students also learn which

fire support facilities and personnel are available at each level and what fire planning channels from company to brigade to employ during planning. To ensure he understands how the fire support system can facilitate the engagement of targets, each student learns both permissive and restrictive coordination measures and how fire support coordination is accomplished.

This instruction is reinforced when the advanced course student applies the principles to develop a fire support plan for company-, battalion-, and brigade-sized operations. A recent revision in the IOAC curriculum calls for fire support to be integrated into all command post and field training exercises. In fact, it specifies that fire support plans be developed for each operation. This innovation is a significant step toward convincing future maneuver leaders that maneuver and fire support are optimized only when used together.

Once the students understand basic fire support planning and coordination, they learn special techniques such as military operations on urbanized terrain, dedicated battery, and air-ground operations. Finally, a special section of instruction is devoted to explaining how the tactical fire direction system (TACFIRE) works and how it provides a new dimension of support to the maneuver commander.

In general, Infantry Officer Advanced Course graduates will know basic field artillery organizations and what weapon system will be supporting

them in the various maneuver units. In addition to being familiar with artillery capabilities and limitations, students will have a basic understanding of fire planning and coordination to ensure proper integration with the scheme of maneuver. Students should know how the fire support team and fire support elements are organized and how they will come equipped. Moreover, the students will have a working understanding of the various types of munitions available and their effects.

Senior Leader Training

Because infantry battalion and brigade commanders have received fire support instruction at both IOAC and the Command and General Staff College, the instruction presented during the Infantry Precommand Course (PCC) is merely an update. During a 1-hour presentation, students receive information on new weapon systems and munitions, target acquisition systems, artillery organization changes, and TACFIRE. The new infantry battalion or brigade commander must rely on the training he received in IOAC, but he will know about the new systems and what they can do for him. Two full days of the precommand course focus on tactical exercises. There the new commanders apply the new information to command and control, synchronize, and apply all available combat power.

Conclusion

The Infantry School recognizes that winning on the modern battlefield demands the optimal employment of the combined arms team. Maneuver and firepower must be fully integrated if we are to achieve victory. When a member of the fire support team meets his new maneuver commander, he can rest assured that the infantryman has been exposed to field artillery instruction. The maneuver commander will expect sound advice on the employment of fire support to enhance his scheme of maneuver, and he will be able to critique the recommendation of his supporting artillery personnel. Because of the instruction at the Infantry School, infantrymen gain a healthy respect for the King of Battle, and they know how to call on the King to deliver in combat.



A field artillery officer teaches forward observer techniques to infantry advanced course students.

Major Charles W. Clements II, FA, is the Chief of the Field Artillery Instructional Branch at the US Army Infantry School at Fort Benning, Georgia. He received his commission from the United States Military Academy and is a graduate of the Command and General Staff College. Major Clements' past commands include Headquarters and Headquarters Battery, 212th Field Artillery Group; D Battery, 6-37th Field Artillery; and Headquarters and Headquarters Company, 4th Infantry Division (Mechanized). He was also the Battalion S3 for the 1-20th Field Artillery.

Field Artillery Journal

Curing the Firing Point Syndrome

by Major M. Thomas Davis

While participating in a battalion Army Training and Evaluation Program (ARTEP) last year, I observed an assistant division commander during his visit to a firing battery position. He was there to review the progress of the evaluation, and he was doing so with verve. Unfortunately, it quickly became apparent that he was less than pleased with the battery's occupation of the firing point. Although the chief evaluator explained that firing batteries had to reside on surveyed, approved firing points to conduct live fire exercises, the general was not impressed.

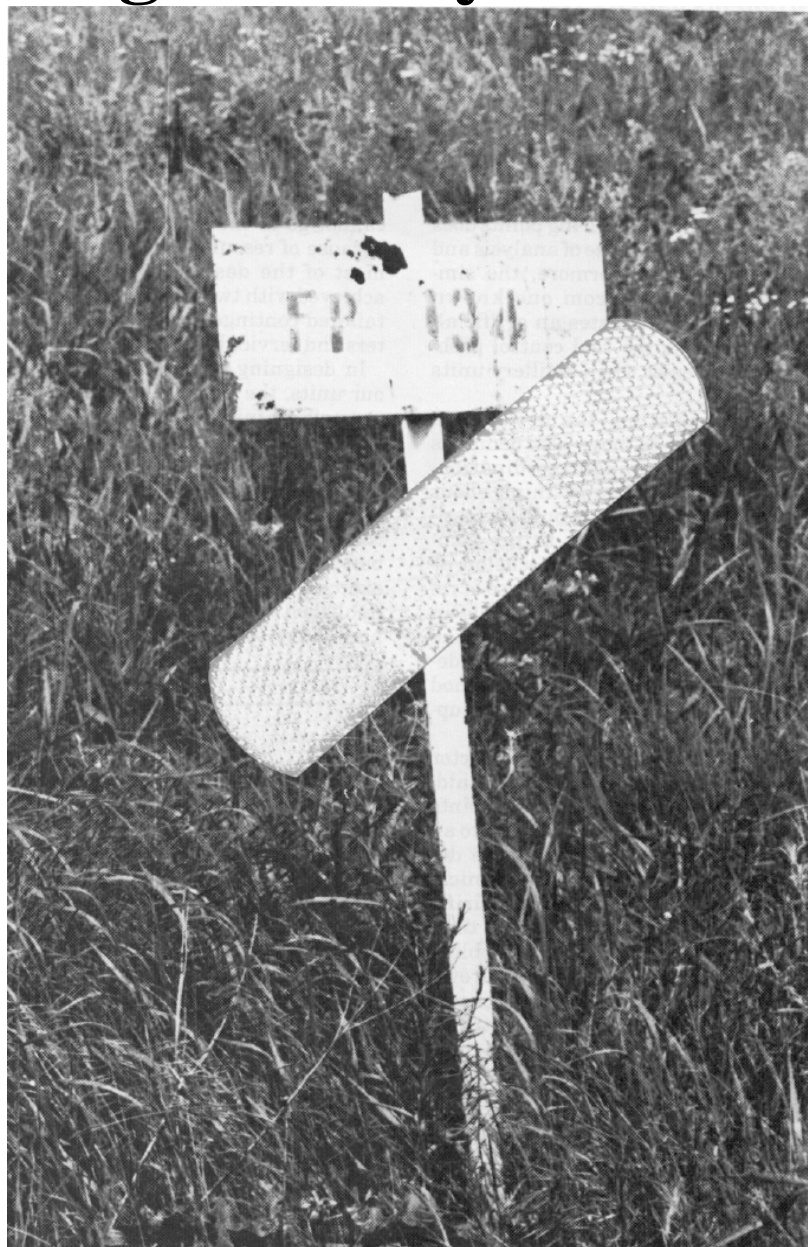
"You artillerymen have a firing point mentality and a firing data fixation to boot," he complained. "You spend too much time going through the mechanics of computing data on these barren points and too little time practicing tactical movements and occupations."

As professional field artillerymen, those of us present were both offended and dismayed by these remarks. In fact, we strongly objected to the general's comments. But as we thought more about it, we realized that he was right. We did spend too much time practicing the timed occupation of firing points and computation of technical firing data, and we were doing far too little training on tactical fire direction and tactical command and control.

Clearly the computation of firing data and its transmission to the guns is an essential step in the delivery of timely and accurate fire support, but it is also the final step in a long series of tactical decisions and actions. Training in these technical areas is relatively easy to do, and gunners are comfortable doing it. After all, gunnery lends itself well to classroom and garrison instruction as do the required steps for servicing the piece. Sections need not go to the field to develop and exercise these vital skills.

Tactical skills, however, are not so easily honed in garrison. The command and staff decisions regarding positioning, moving, and communicating demand practice under field conditions. In consequence, Redlegs are far less comfortable with such training. But even when artillery units do go to the field they often take a comfortable "firing point" approach to training.

Within the battery, such a firing point fixation exacts hidden costs. Occupying



surveyed firing points on open terrain neither challenges the battery commander to deploy his pieces to maximize the benefits of terrain nor forces his crews to perform detailed position preparation and improvement. Because firing points are numbered and always well known, the commander does not have to wrestle with employing road guards, thoroughly briefing the executive officer on his "likely destination," and making arrangements for a guide to lead the unit to the actual position on the far side of some remote field. Yet these are the

challenges that commanders will have to address under operational conditions.

Moreover, tactical fire direction and the associated command and control decisions are the the most important tasks that a direct support battalion commander will have to make. Sound positioning decisions require considerable analysis and practice. The commander must learn to examine the terrain in the assigned sector or zone to locate accessible positions from which his units can provide the required support. The area selected must also afford

Furthermore, the simplicity of moving from one known point to another creates an artificiality that masks the real control problems which exist when artillery units are moving.

subordinate commanders the maximum survivability advantage and allow for alternate, supplemental, and offset positions. Finally, the staff must coordinate with the supported maneuver unit to eliminate positioning conflicts.

The constant use of firing points does not demand this degree of analysis and coordination. Furthermore, the simplicity of moving from one known point to another creates an artificiality that masks the real control problems which exist when artillery units are moving.

After occupation, the decision to move and how to move also demands thought and thorough coordination. The battalion staff must think about the conditions which would necessitate a recommendation to the commander to displace by unit, echelon, or battery. The presence or absence of reinforcing artillery, a key variable in this decision, must be weighed. The manner of displacement will also determine to a great extent the method by which the batteries will be resupplied with fuel and ammunition.

Communications is another factor whose implications are too often hidden on the firing point. Firing points are obviously placed in proximity to an observation post reducing the demands of establishing communications. On the battlefield, where firing positions will frequently be less than ideal, the communications problem will be complicated. There, careful consideration must be given to the employment of the battalion's retransmission equipment. Closing and moving a "retrans station" can be as significant as the decision to move a firing unit.

After looking at all these gaps in training resulting from the "firing point syndrome," our battalion decided to use a series of field training exercises to place as much emphasis on tactical command and control direction as on technical fire direction. In fact, the commander made a conscious decision to emphasize tactical *over* technical training. The final results were most gratifying.

As the newly published FM 25-4, *How to Conduct Training Exercises*, indicates, field training exercises are "high-cost, high-overhead . . . [events] conducted under simulated combat conditions." This being true, the first step the commander must take using the principles of the battalion training management system is to determine whether he has a need for and the resources

to support such training. If he determines after reviewing his mission and training status that he has such a need, his clear responsibility is to get as much as possible from such an expensive investment.

It may be that the entire battalion cannot go to the field for an exercise because of resource constraints. If so, most of the desired results can be achieved with two firing batteries and tailored contingents of the headquarters and service batteries.

In designing the exercises used by our units, the commander and operations officer initially reviewed the missions listed in both the ARTEP and contingency plans and identified and prioritized those collective training tasks to be addressed. They also listed the associated collective tasks at the battery level. They then organized the exercise to train on these tasks and published the training and evaluation plan shown at figure 1.

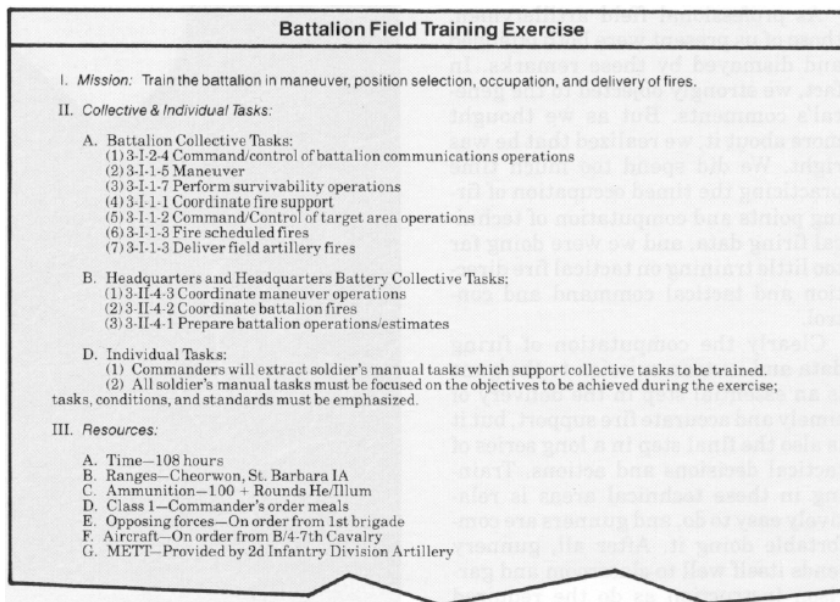


Figure 1. Training and evaluation plan.

In addition to establishing the focus of the training to be accomplished on the field training exercise, the training and evaluation plan alerted staff sections and batteries to the resources that they would require. It also charged the battery commander and his noncommissioned officers with identifying individual training tasks which supported the collective training. This is the essence of the "crosswalk" of individual to collective skills that is at the very heart of the battalion training management system.

The next step was to support the plan by developing a scenario which required the execution of the identified tasks. Ideally, a field training exercise should be conducted with the supported maneuver unit. But because this is rarely possible or practical, the scenario should be driven by a controller acting as the maneuver force headquarters. The brigade fire support officer and his fire support teams (FIST) are well suited to perform this control function.

The battalion commander selected the events for the scenario that closely approximated one of the battalion's likely wartime missions. He and the S3 then integrated the tactical scenario and the training and evaluation plan to produce a controlling document for the entire exercise. This master events list laid out not only the events but also their initiators along with any guidance that the commander felt necessary for the purposes of control, training, or safety.

Figure 2 is an extract from the master events list. The S3 briefed all the battery commanders on the scenario to

help them develop their own plans for individual training, but they were not given copies. This kept them from anticipating the actual sequence of the events.

To achieve a degree of realism, the battalion S2 and S3 produced operations plans, orders, and overlays along with intelligence information. Good tactical training for the S2 and his section is rare. By working closely with the S3 on the scenario, the S2 was able to create a realistic atmosphere for the exercise and to enhance his own training.

11. End to mission-oriented protection posture IV. (1600)	Battalion S3	Decontamination performed by battery not doing the hasty evacuation performed during event 2-9.
12. Reconnaissance of new positions for night occupation. (3-I-1-5; 3-II-2-1; 3-III-1-2) (1600-1800)	Battalion S3	S3 has reinforcing units assume support role for battalion to make unit displacement during night.
13. Battalion commanding officer critique. (1800-1845)	Battalion commanding officer	Critique of days activities and guidance for following days training.
14. Battalion displacement. (3-I-1-5; 3-II-2-1; 3-III-1-2) (1900-2100)	Battalion S3	Move to vicinity of firing point's 180s and 220s
15. Fire missions. (3-I-1-3; 3-III-1-1) (2130-0100)	Battalion fire direction officer	Fire missions conducted as directed by the battalion fire direction center; emphasis on missions to be fired wet during the evening of Day 4; firing battery commanding officers conduct refresher training on cannon firing safety.
16. Night attack. (3-II-1-4; 3-III-1-5) (2200-2400)	Battalion S3	Aggressors as available; batteries place emphasis on reaction force drill, signals, rally points, and prisoners of war.

Figure 2. Extract from master events list.

These missions required the battalion to displace to the rear according to the evolving situation, and the S3 stayed busy issuing fragmentary orders identifying "goose eggs" and azimuths of fire. The rest was left to the battery commanders. They had to perform a thorough reconnaissance and select their precise location. These locations were then forwarded to the battalion headquarters which coordinated and cleared them with the brigade fire support officer acting as the brigade commander.

As the situation changed, the battalion commander directed the production of a new field artillery support plan with overlays. This task gave the S3 section additional experience in generating orders and gave the battery commanders practice in reading them. Initially, battery commanders gave the plans only a cursory glance,

For example, the S2 analyzed the terrain to be covered during the field training exercise, developed a notional opposing force from available literature, and published both an intelligence estimate and an intelligence annex to the operations order. During the course of the field training exercise, he also produced intelligence summaries for the commanders. Typically these summaries emphasized the threat from counterfire, encouraged the location and preparation of alternate locations, and reminded everyone of the possibility of ambush and infiltration.

To make the threat even more realistic, the battalion commander requested and received an opposing force platoon from the habitually associated maneuver brigade. This coordination not only strengthened the cooperative relationship between the artillery battalion and the maneuver unit, but it also gave the infantry brigade an opportunity to provide training for its own soldiers on necessary ARTEP skills. In addition, the divisional cavalry squadron provided a squad to be inserted by helicopter in the battalion's rear area where it would make ground attacks on battery positions. The aircraft used in this operation subsequently would also make simulated strafing runs over other positions and convoys. The cavalry squad would later move to a distant location, rendezvous with its aircraft, and be extracted at night—excellent training in its own right.

The S3 produced a simplified field artillery support plan from the mythical brigade's operations order. The plan called for a defense in the brigade sector, and the brigade fire support officer and fire support team planned appropriate fire missions for this phase.



Photos by Sam Orr

Tactical skills practiced in live fire exercises give soldiers the practical experience needed in battery movement and occupation.

but the realization that the document contained several items of vital information soon sank in. The firing point syndrome was giving way to tactical awareness.

The fragmentary orders were produced in hard copy requiring the S3 section to come up with a system for quickly generating sufficient copies for each interested party. The operations people soon learned that a well-written and complete fragmentary order can be formatted and filled in with relative ease. Having the format on paper also saves considerable time on the radio and on the road.

The second half of the scenario featured an offensive in the brigade zone. A notional reinforcing battalion arrived and complicated the lives of the staff. Now the staff had to support its own units and make movement and positioning decisions regarding another battalion. Again, all plans were "coordinated" with the brigade fire support officer.

During this phase, the battalion S3 and fire direction center section reacted to a situation created by the S2 and an attached AN/TPQ-36 radar section and developed a preparatory fires schedule. The schedule and target list were passed to the batteries and the prep was "dry" fired. Other missions called in by the fire support teams not only supported the scenario, but also exercised all of the required ARTEP missions.

Early on the closing day of the exercise, the battalion received a new mission requiring it to move rapidly to another brigade's sector to blunt the force of a counterattack. This mission was designed to force a total battalion displacement.

Along the route, the service battery refueled and rearmed the batteries with live ammunition. This final movement placed the batteries back on firing points for the live fire portion of the exercise. Only during the waning hours of the exercise did the batteries occupy firing points. In addition to the fire support team controllers, the infantry platoon, and the cavalry scouts went to the hill to call for and observe the fires. With their help the exercise ended with a resounding bang.

When the battalion returned to garrison, the commander sat down with his staff and reviewed the lessons learned in the field. No exercise is complete unless mistakes are analyzed. In our case, the battalion commander published his observations in the form of a letter which highlighted 15 problem areas. Among the weaknesses requiring additional work were the unit's response to crossing contaminated areas and the batteries frequent failures to submit reports in the format required by the battalion standing operating procedure.

Field training exercises such as the one described above are high-cost events. Among other things, our battalion discovered that using the terrain and avoiding firing points increased fuel consumption by approximately 30 percent. Getting permission to use the land was difficult

and simply may not be possible in some locations. Such training constraints must be surfaced at higher headquarters and may warrant an external after action report.

But the results clearly warrant the costs. There are so many small things that have to be done to provide fire support to a maneuver force. As professional Redlegs we think we know what they are; but unless we train and train our subordinates, many subtle tasks simply won't surface. The heat of battle is the wrong place to discover that the position your lead firing battery is rushing to occupy is going to be used as the assembly area for the brigade reserve. If we are accustomed to dealing with and solving this type of problem, it is much less likely to occur.

The field training exercise described and two others like it prepared our battalion well for Team Spirit '84. They provided excellent staff, multiechelon, collective, and individual training. One battery commander published a list of individual tasks to be taught by section chiefs on a daily basis—all tied to collective tasks to be performed during the exercise. His soldiers particularly benefited from their week in the field. As one of them commented after firing the last round on the last day, "This is the best training I've ever had in the Army."

Thanks, general. We're off the firing point!



Major M. Thomas Davis, FA, is a fire support programs analyst at the Office of the Chief of Staff of the Army. He has held a variety of artillery positions in Europe and Korea and most recently was the S3 of the 1st Battalion, 15th Field Artillery, 2d Infantry Division. A graduate of both the Army and Marine Command and General Staff Colleges, Major Davis received his commission from the United States Military Academy and holds a masters degree from Harvard University.

GET THE WORD . . . READ THE FIELD ARTILLERY JOURNAL!



Photo by Sam Orr

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“We Mean Business....”

The “Total Force” places a premium on first-rate leadership. The challenges involved in mobilizing, deploying, and winning in the next war demand no less than capable and efficient leadership dedicated to the execution of excellent training.

by Captain Blaise X. Schmidt and Major Lawrence E. Broughton

The senior leaders of our Army are setting lofty standards. They have created innovative programs like CAPSTONE which aligns Reserve Component (RC) units for planning and training with Active Component elements of the command under which those reserve units would serve in wartime. Moreover, the senior leaders have also established explicit training goals for Reserve Component units. For example, Appendix C to the US Army Forces Command (FORSCOM) Regulation 350-2 outlines in some detail the performance standards expected of Reserve Component field artillery organizations. This article proposes a Reserve Component Field Artillery Training Model (RC FATMOD) which one group of field artillery leaders has employed to realize the standards of excellence articulated by the Army's senior leadership.

The Challenge

The basis for RC FATMOD, as with all good training plans, is a detailed review and analysis of the past year's training and command guidance for the next year. It emphasizes efficient section-level as well as multicache-loned training, and it grapples with the very real constraints experienced by Reserve Component organizations. Specifically, the FATMOD is a chronological resource management program designed to prepare Reserve Component field artillery units to meet the exacting standards expressed in FORSCOM Regulation 350-2. Although the sample program depicted in the figure starts at annual training (AT), the model may be tailored to meet a unit's specific scheduling needs including external nuclear Army Training and Evaluation Programs (ARTEP) during annual training. The model recognizes that Reserve Component units are authorized only 48 unit training assemblies annually and 15

days of annual training. Additional training assemblies and full-time training duty should also be programed and included in the plan, and the following description suggests where they may be most appropriately integrated.

The Context

Of course, Reserve Component leaders have hundreds of “balls to juggle,” but they've got to place their valuable resources where they produce optimal results. Leaders must identify potential distractors, and, if possible, schedule training to minimize their impact on the central program. For example, small arms firing, if conducted during annual training at all, should occur during the last few days. This will allow more training time at the battery level. State and Department of the Army (DA) required training should be scheduled in September, December, and February. Skill qualification tests and major inspections should also be discharged at these times. Annual general inspections, which occur on an 18 to 24 month rotational basis, should be scheduled after the nuclear ARTEP. Advanced coordination with the appropriate CONUSA headquarters can make this happen.

Fire Direction Center Training

A trained fire direction center (FDC) is essential to artillery operations. Without a good fire direction center, a unit cannot hope to achieve satisfactory let alone excellent performance. What's more, adhering to the basics isn't enough! It is essential that fire direction center procedures for special tasks such as simultaneous missions, irregular-shaped targets, illumination, smoke, high-angle, and nuclear missions not only be

reviewed, standardized, and incorporated into the unit's standing operating procedures but also practiced again and again. In fact, the fire direction center training program must focus on these “hard-to-do” missions.

An additional training assembly should be programed for 1 week prior to the October individual training period. This extra assembly will allow units to review fire direction center; firing battery; and nuclear, biological, and chemical (NBC) procedures. The October individual training can then focus on the battery-level gunnery team by incorporating manual meteorological and fire command drills. Obtaining unit advisor or Readiness Group assistance is pivotal at this early stage in the total training program. They can emphasize the need to *time* each element of the gunnery team during every drill. Initial training can concentrate on low angle adjust missions, but it must demand performance to standards. In the absence of advisory personnel the battalion's leadership must step forward to conduct “quality assurance” visits that ensure units are *executing the scheduled training to standard*.

Beginning in March, fire direction center team training should be incorporated into battery-level reconnaissance, selection, and occupation of position training. The emphasis should be on fire commands and ARTEP fire mission standards. The 14.5 subcaliber device is a good training aid to use at this stage. In those instances where lack of local training areas limits the use of the 14.5, Reserve Component leaders should conduct team gunnery drills, emphasizing timeliness in execution by each element of the gunnery team. Every effort must be made to identify the weak segment of the gunnery team. This allows corrective training to occur at a normal rather than a crisis pace.

Battalion-level fire exercises similar to the FORSCOM Gunnery Drill or

AUGUST	SEPTEMBER	OCTOBER
<p>Annual training—2 weeks</p> <ul style="list-style-type: none"> —Second week conduct small arms and crew served weapons qualification/familiarization. —Develop next training year plan after reviewing internal evaluations. 	<p>Individual training</p> <ul style="list-style-type: none"> —State and DA directed training to include skill qualification test (SQT) testing and inspections (approximately 12 hours). —Fire direction center (FDC) section training (8 hours). 	<p>Individual training</p> <ul style="list-style-type: none"> —Battery gunnery team drill (12 hours). —Firing battery (FB) personnel conduct reconnaissance, selection, and occupation of position (RSOP); survey; M31 trainer; maintenance; and SQT training. —Nuclear weapons technical operations (12 hours). —Nuclear, biological, and chemical (NBC) team training. <p>Additional training assembly</p> <ul style="list-style-type: none"> —Leadership review of FDC, FB, NBC procedures; then update SOPs.
NOVEMBER	DECEMBER	JANUARY
<p>Individual training</p> <ul style="list-style-type: none"> —Battalion team gunnery drill (16 hours). —Firing battery conduct RSOP, survey, and perimeter defense training. <p>Additional training assembly</p> <ul style="list-style-type: none"> —Emergency action procedure (EAP) training (initial or sustainment). 	<p>Individual training</p> <ul style="list-style-type: none"> —State and DA directed training. —FDC section training (8 hours). <p>Additional training assembly</p> <ul style="list-style-type: none"> —Nuclear weapons technical operations. 	<p>Individual training</p> <ul style="list-style-type: none"> —Battalion team gunnery drill (16 hours). —Firing battery personnel conduct gunners test, SQT training, and maintenance training. —Technical assistance visits. —Integrate tactical operations center. —CAPSTONE mission. —Other staff sections can train wartime type functions. —NBC team training.
FEBRUARY	MARCH	APRIL
<p>Individual training</p> <ul style="list-style-type: none"> —State and DA directed training. —FDC section training (8 hours). <p>Additional training assembly</p> <ul style="list-style-type: none"> —EAP training (initial or sustainment). 	<p>Individual training</p> <ul style="list-style-type: none"> —Battery gunnery team drill to include firing battery personnel. —Nuclear weapons technical and tactical operations. 	<p>Individual training</p> <ul style="list-style-type: none"> —Battalion team gunnery drill (16 hours). —Firing battery personnel conduct RSOP and include some tactical nuclear play. —Technical assistance visits. —Battalion team gunnery drill can be part of a battalion command post exercise. —NBC team refresher training.
MAY	JUNE	JULY
<p>Individual training</p> <ul style="list-style-type: none"> —Weekend training site with live fire under battery control. —Battalion integrates survey, wire, Redeye, and section training and supports exercise. —Battalion controlled nuclear weapons training to include field storage location, and tactical operations with both air and ground convoys. <p>Additional training assembly</p> <ul style="list-style-type: none"> —EAP message processing refresher. 	<p>Individual training</p> <ul style="list-style-type: none"> —Weekend training site with live fire under battalion control includes survey, wire, Redeye, and nuclear weapons tactical play. —Integrate EAP, NBC, STRIKWARN, etc. —Battalion controls all consolidated nuclear weapons training and concentrates on delivery procedures and firing computations and procedures. 	<p>Annual training—2 weeks</p> <ul style="list-style-type: none"> —If the external Army Training and Evaluation Program (ARTEP) is the second week, the unit needs to conduct battery level internal ARTEPs the first week and concentrate on weak areas. —If there is no external ARTEP, the unit needs to conduct an internal battalion ARTEP the first week and then concentrate on weak areas the second week as well as conduct small arms and crew served weapons firing if necessary. —Evaluate training and develop next year's training plan.

Planning Calendar for Training.

weekend training sites (WETS) subcaliber live fire exercises should be conducted quarterly beginning in November. Where appropriate, the base piece should be included using the 14.5 device. The exercises can be conducted in a convenient and centralized location to conserve transportation funds. When funds are not available to include selected howitzers, the unit should still include howitzer section personnel in a "dry" gunnery exercise to reinforce fire commands and read-back procedures.

For the fire direction center, April is a

critical month. By this time, performance to standard on basic missions should be habitual. Now training should be geared almost exclusively toward special missions. Weekend training site firing should incorporate as many missions as possible with emphasis on meeting ARTEP time standards. Battalion leaders should request their brigade or Readiness Group to conduct in-depth evaluation of the unit during these weekend training sites. The key is to obtain objective, "no-holes-barred" criticism that can yield "on-the-spot" corrections.

Battalion weekend training site firing should also be conducted during May and June; one exercise controlled by the battery commander and the other under battalion control. The major advantage to this schedule is that training will sharpen existing procedures and allow the unit leadership to assess the unit's capability to meet ARTEP standards under weather conditions similar to annual training. Battalion-level training should emphasize battalion adjust low-angle, time on target, schedule of fires, and MET + VE techniques.

Firing Battery Training

Firing battery training must be dynamic and incorporate concurrent training on nuclear, biological, and chemical; communications; and survey tasks. Section-level collective tasks which have time standards should always be timed. By setting the standards early, leaders can expect excellent performance later.

During September's individual training period, common tasks and maintenance training should be stressed. Subsequent drills in October and November should focus on reconnaissance, selection, and occupation of position in local training areas. Leaders should also emphasize fire commands and perimeter defense. Survey operations should also be integrated in the battery programs at this time. December's individual training should reinforce individual skills, section drills, and maintenance. During this drill, battery leaders should use the "gunner's test" to assess the success of the program to date. State and Department of the Army requirements will consume February's training time; but in March, April, and May, the unit can concentrate on AT-oriented collective training focused on ARTEP standards. Gunnery drills; battery reconnaissance, selection, and occupation of position; battalion-level command and control; and field training exercises are but a few good examples of good techniques to employ during this pre-AT "work-up."

Weekend training site firing in May and June should demand that sections and batteries meet ARTEP mission times. Battalion leaders should make optimal use of Readiness Group personnel to identify weaknesses. This "spring training" should also incorporate the battalion's survey teams, wire section, and Redeye teams. Those subelements that fail to meet ARTEP standards must practice until they can perform and then practice some more. If necessary, leaders should conduct remedial training without disrupting section integrity.

Special Weapons Training

Special weapons training is a critical component in the overall program. It must focus on assembly and disassembly, emergency destruction, security, and transportation operations as well as nuclear release procedures. Special weapons personnel including the battalion special weapons officer must be identified and stabilized early in the training year and retained in their positions through the ARTEP and its associated technical validation inspection. The special weapons officer must coordinate mobile training team requests

with the supporting Nuclear Weapons Support Branch, supervise technical training, and maintain critical publications. His duties must be well-defined, and he should report directly to the battalion S3 or executive officer.

Special weapons training should be decentralized with two or more battalion-level consolidated training assemblies scheduled during the training year. Battalion-level training should include battalion field storage location operations, emergency destruction procedures, and ground and air convoy missions. At least one additional training assembly in December should focus on technical operations. Each firing battery must be capable of performing all nuclear tasks. To ensure optimum support and skill retention, mobile training teams should be programmed throughout the year and technical assistance visits by higher headquarters experts should be sought biannually in January and April.

During the first week of annual training, multicelchon training should emphasize ground and air convoy operations as well as emergency action procedures. Remember, a technical validation inspection administered by FORSCOM will occur within 90 days of the ARTEP.

Beginning in 1985, emergency action procedures will be evaluated during the ARTEP. An initial 16-hour block of training will be conducted by Readiness Group experts. Such training is leadership intensive, and units should consider adopting special scheduling procedures to optimize use of their leaders. Specifically, additional training assemblies should be scheduled in November, January, and February to complement unit training in this difficult area. Sustainment training should be conducted repetitively, particularly in June and during

the first week of annual training. Emergency action procedure packets developed by Readiness Group personnel can prove extremely useful during this intensive pre-ARTEP "work-up." Moreover, emergency action procedure training should be integrated into all command post exercises and gunnery team drills throughout the year.

Additional training assemblies should also be used to develop specific operating procedures focused on emergency action procedure message traffic, communications procedures, security, and fire mission processing. During the first week of annual training, the battalion's leadership can test these as well as gunnery and tactical tasks during 3-day *internal* ARTEP exercises. Readiness Group and advisory personnel are generally available to train leaders and assist in such ARTEPs. Field artillery brigades should be asked to control the tactical play of these exercises, particularly during live fire scenarios.

Conclusion

The Reserve Component FATMOD integrates Readiness Group and advisory assistance as well as mission training throughout the year, especially during battalion gunnery team drills and battalion tactical operations center command post exercises. If executed with determination and competence, it can yield a remarkably fine product. By exploiting the full potential of FATMOD, Redlegs will give credence to General Bernard W. Rogers' statement that:

"... We mean business when we say that we will strive to enhance the readiness of the Total Army. . . ."



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Beating the Malfunction Blues

by Lieutenant Colonels L. Kirk Lewis and George H. Stinnett

A critical 3-day field training exercise is rapidly approaching! You, unit commander, have recently received a new weapon system. Materiel fielding and new equipment training are complete. You are on your own now, and you are about to take your unit to the field to prepare for a brigade administered Army Training and Evaluation Program.

You and your officers and sergeants have been planning for this exercise for more than 5 weeks. Ranges and maneuver areas have been identified; classes and briefings have been given; and equipment has been checked for completeness and operability. And your most finite resource—time—has been "blocked" by your battalion headquarters and "locked-in." This is going to be prime-time training!

As the unit moves to the field, your soldiers are present, their equipment is emplaced, and planned training begins. Unfortunately, within minutes the operator's console displays that dreaded bright red readout—MALFUNCTION! Operators meticulously check the system against the manual; unit leaders search for a clue to the problem. But the equipment simply will not work.

Maintenance technicians arrive with their volumes of wiring diagrams and diagnostic gear. They're having a field day and are up to their elbows in computer cards, modules, and a spaghetti of wiring harnesses. It's great training for them, and they relish it.

But training has stopped for the other 95 percent of your soldiers! As time passes, no clear idea surfaces about when, or if, the equipment will become operational and planned training will resume.

Do you cancel this critical training event or do you wait until the weapon system is fixed? Have you planned for this eventuality or are your soldiers languishing in paperbacks, magazines, and playing cards instead of being engrossed in hip-pocket training?

The Challenge

High technology and sophisticated new equipment is rapidly being introduced for use on today's battlefield. Units are receiving Pershing II missiles, Blackhawk and Apache helicopters,



M1 Abrams tanks, M2 Bradley fighting vehicles, the multiple launch rocket system, and the Patriot air defense system, to name but a few.

This high tech environment demands not only new tactical and technical skills but also greater training initiative and imagination. Our Army has made a concerted effort to put into the hands of its soldiers the best state-of-the-art weaponry. It is equipment with unprecedented reliability and maintainability. One might logically infer that training should be easier; however, with this new equipment comes a new set of complex training challenges.

Today, commanders may, for example, have to decide to use simulators rather than an actual system if equipment

is less than 100 percent operational. They must also be able to determine how many practice devices will be required to provide sufficient training.

With microcircuitry and other high tech engineering in closed-component modules, the equipment will function very well or not at all. With older, less sophisticated, and open-component equipment, often the experienced and courageous maintenance technician could circumvent a malfunction with the proverbial and typically mythical "paper clip."

Most new equipment relies on "black-box" replacement, where technicians exchange major components rather than repair smaller integral parts. This facilitates and simplifies

Some Solutions

Trainers must be technically proficient and must thoroughly understand their new systems' capabilities and limitations. They must be able to anticipate conditions that will cause a loss or waste of training time. Their planning must include multiechelon alternate training for times when equipment is not operational.

Today's training must be dynamic in its application, and it must be easily and quickly modified to accommodate equipment failures. The key is still a concerned, dedicated teacher determined to make the best of every training opportunity. That's right; your personal leadership is the critical factor. It is difficult to tell sergeants and soldiers they have the best equipment but they must plan activities to ensure training doesn't stop when that great equipment breaks. Yet that's exactly what you have to do.

One has only to observe the traditional training of various missile units to see that when equipment malfunctions the crew members and trainers back off to let the warrant officer or enlisted technicians troubleshoot. As the level of sophistication increases, so do the occasions and time for troubleshooting.

With black box or major component changeouts, there are times when the problem will be quickly remedied. But more often than not, 30 minutes to 1 or more hours will pass before training resumes. These are precious minutes and hours that can never be recaptured.

Often with new systems, technicians don't have the experience to provide accurate repair estimates. Furthermore, trainers are always too hesitant

to switch to other training or to use other operational components of the existing equipment to alleviate the instant problem.

Planning for alternate multiechelon training and leader flexibility are parts of the answer. Such planning provides additional opportunities to make maximum use of training time should one level of individual or collective activity be stopped. The level that is temporarily derailed may be integrated into a continuing level. All soldiers benefit from knowledge of various levels of individual training, and that is clearly more acceptable than no training at all.

Another often overlooked dimension that must be considered is the out-of-service time of new equipment resulting just from its newness. Experience has shown almost all new systems require correction. Some changes will be immediate, others routine and some will be very extensive. Unit commanders need only look at the large number of modification work orders to be installed on their new equipment to bring on that uneasy feeling that even operational equipment will not always be available for training.

What, then, is required to ensure training is accomplished?

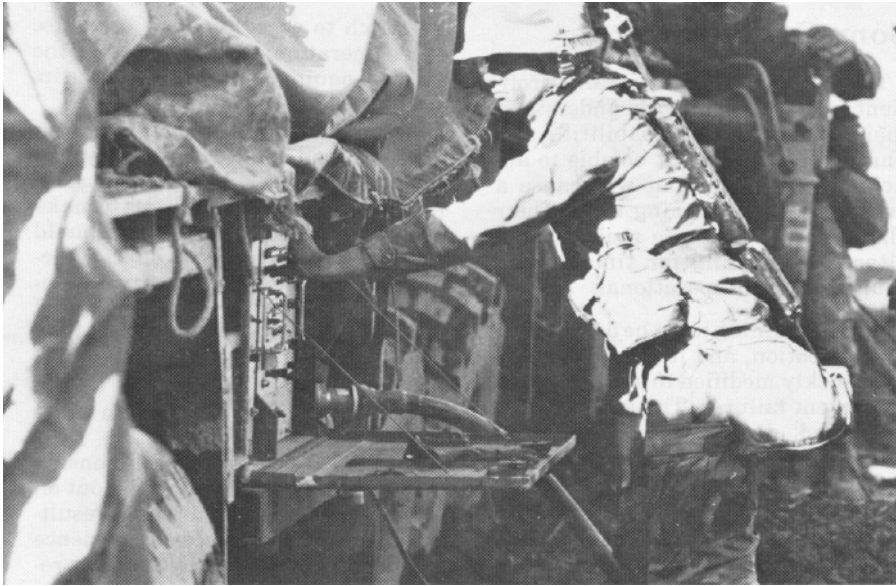
- Most important, have the desire to train!
- Learn about your new equipment quickly. Know what can break or malfunction and how long it normally will take for repair.
- Plan and be prepared to train in a degraded mode with whatever components of the system that remain operational.
- Know the standards for achievement and results desired for each mission-critical individual and collective battle task.



the fix-forward doctrine. But now the number of spare components for the newly fielded equipment becomes a critical training issue. With few available spares, required equipment can quickly become nonoperational for supply. As a result, deadlined equipment must sit and wait while training flounders.

For the unit commander and first line leader, inoperative equipment may disrupt the best made training plans and waste an irretrievable resource—time! For the trainer and the unit to succeed in their numerous training and operational tasks, the commander must plan to get the maximum training value out of the available time—a challenge much easier recognized than overcome.






- Be flexible and innovative. Create training opportunities *around* whatever obstacles exist!

- Don't waste time waiting. Switch quickly to a different training mode.

- Plan for maximum use of multiechelon training. It's the only way to do business—with or without equipment failures.

Training remains our Army's top priority, and time is still the unit commander's most finite resource. Commanders and trainers who aggressively apply their authority and skills to executing the principles mentioned above will keep their priorities in perspective, their resources under control, and, most importantly, never miss the opportunity to train soldiers. 

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Lieutenant Colonel George H. Stinnett, FA, is the S3 for III Corps Artillery at Fort Sill, Oklahoma. He was commissioned through ROTC at Oklahoma State University and has completed the Command and General Staff College. Lieutenant Colonel Stinnett's past command and staff assignments include command of a firing battery in Vietnam and S3 of a Pershing battalion in US Army Europe. He also served as an action officer in the Office of the Chief of Public Affairs, Headquarters, Department of the Army; and executive officer of the 3d Battalion (Pershing), 9th Field Artillery.

View from the Blockhouse

FROM THE SCHOOL

Journal Notes

Many *Journal* readers were understandably grieved to learn of the retirement of Mrs. Mary Corrales, the magazine's managing editor since 1975. Fortunately, your professional periodical has acquired the services of yet another eminently capable editor—Ms. Tammy D. Hawthorne. The daughter of an airborne gunner, Ms. Hawthorne grew up among Redlegs of every persuasion. Following her graduation from the University of Oklahoma in 1983, this Phi Beta Kappa key holder rejoined the ranks when she went to work as a technical editor in the Field Artillery School's Directorate of Training and Doctrine. An accomplished writer and an extremely knowledgeable member of Fort Sill's doctrinal team, she is a splendid addition to your *Journal's* staff.

Updating Doctrine

A recent revision of TRADOC Regulation 11-7 has resulted in changes to the doctrinal literature management system. These modifications will not only affect doctrine writers at Fort Sill but also soldiers in the field. One particularly significant change requires manuscripts that

heretofore were sent to units for review as coordinating drafts to now be sent as field circulars. Such field circulars will be clearly marked with a suspense for review and comment. The first manual to be staffed under this revised procedure is FM 6-20-1, *The Field Artillery Battalion*. It should arrive in the field by the end of August.

Another change in the system is the method used to send literature packages containing manual purpose, scope, and topic outline statements to units. A letter rather than an electronic message will convey the packet. In fact, the US Army Field Artillery School (USAFAS) recently mailed the first such letter to announce the revision of FM 6-2, *Field Artillery Survey*. It arrived in the field during March.

The Doctrine Management Office would also like to alert units to another significant departure from standing operating procedures. The field circulars developed to support the fielding of the backup computer system were distributed differently than other publications because of new equipment fielding requirements. To ensure units would have the training materials on hand when the equipment arrived, USAFAS made two separate distributions. The School not only made a normal unit mailing but also provided sufficient copies to the US Army Armament,

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Munitions, and Chemical Command to be packed with each piece of equipment. Both distributions were completed in June.

Other letters and manuscripts should reach units in the month shown in parentheses.

Letters Announcing Topic Outline

FM 6-121 (Change 1) Field Artillery Target Acquisition (September)
FM 6-999I Remotely Piloted Vehicle (October)

Coordinating Field Circular

FM 6-2 Field Artillery Survey (October)
FM 6-11 (Change 1) Pershing II Battery Operations (September)

FM 6-20-1 (Change 1) Division Artillery, Field Artillery Brigade, and Corps Artillery Headquarters (September)

The Doctrinal Management Office will continue to develop creative methods to ensure that field artillery literature is dynamic and reliable. However, field artillerymen serving in units must also provide impetus to improve artillery employment doctrine. Become a part of the process by responding to the outlines and circulars mentioned above; or send your comments, suggestions, or questions regarding doctrinal literature to the Department of the Army, Commandant, US Army Field Artillery School, ATTN: ATSF-DD, Fort Sill, OK 73503-5600. You may also call at AUTOVON 639-4225/4240.

Bringing BUCS to Battle

Current field artillery data systems provide artillerymen with rapid and accurate solutions to the gunnery problem. These systems take advantage of huge quantities of stored information, and they provide users technical answers which enable them to support highly mobile, modern forces. In fact, technical problems which took several minutes or even hours to solve using manual computations and hand-held calculators (HHC) can now be solved in a matter of seconds.

To date, the weak link in the automated system has been the lack of a suitable backup. Despite impressive technological advances, the specter of equipment failure or loss looms larger over equipment operators. They need redundancy. Unfortunately, the levels of sophistication required in artillery data systems give rise to high costs. Moreover, the need to field as many primary systems as possible has precluded the luxury of fielding more backup systems.

Nowhere was the need for technical backup more apparent than in the development of the technical fire direction system (TACFIRE) including the battery computer system (BCS). With BCS the battery fire direction center can compute individual weapon solutions using modified point-mass equations which correct for a variety of nonstandard conditions. Furthermore, the costly BCS computes zone-to-zone conversions and can assign individual aimpoints to each of 12 weapons.

But what happens when the BCS "goes down"? The temporary solution for backup data to the BCS has been a combination of manual and TI-59 calculator techniques. Unfortunately, to provide accuracy approaching that of the BCS, the manual backup system would have to employ a met-to-target computation from each weapon to its manually determined aim-point. While such solutions are possible, they are unresponsive. In order to provide a semblance of adequate backup, manual procedures have been augmented with the TI-59. This allows platoon solutions and piece corrections. But such hand-held calculator

July-August



Photo by Jill Fouto

The backup computer system features the Hewlett-Packard 71-b hand-held computer as its hardware.

solutions still do not agree with the battery computer system solution.

The field artillery needed a permanent solution; it needed a backup system that was:

- Low-cost.
- Accurate.
- Responsive.
- Easily assimilated and used.

The advent of increasingly sophisticated hand-held or lap computers with programable capabilities provided the breakthrough needed. Such small, inexpensive computers allow a broad application throughout the artillery environment.

The initial proposal for the cannon application of this emerging technology was reported in the March-April

1983 issue of the *Field Artillery Journal*. The original program was developed by Mr. Don Giuliano of the Research and Analysis Division of the Gunnery Department at Fort Sill. Using a Hewlett-Packard 75 hand-held computer, Mr. Giuliano demonstrated the feasibility of the cannon application, and he dubbed the program the backup computer system (BUCS). The Armaments Research and Development Center (ARDC) at Picatinny Arsenal continued the development of the software which still retains its original name.



Figure 1. Backup computer system General.



Figure 2. Backup computer system Special.

Hardware

BUCS uses the Hewlett-Packard 71b hand-held computer as its hardware. As with the TI-59, the HP-71b is commercially available. The characteristics of the computer include:

Size:	8"×4"×1/2"
Weight:	12 ounces
Power:	Four 1.5V AAA batteries

Operating Temperature:	32°F to 113°F
Memory:	Up to 256K Read Only Memory (ROM); 17.5K Random Access Memory (RAM)

BUCS will be issued in two configurations—the BUCS General shown in figure 1, and BUCS Special shown in figure 2. The only difference between the two is that the Special includes a printer with all the necessary interface devices. BUCS Specials will be issued to Lance units and survey information centers at division and corps artillery levels. Other units desiring a printer will have to order it from the additional authorizations list (AAL).

The printer for BUCS is the Hewlett-Packard 2225B Inkjet. It is a 150 character per second, bidirectional printer that can use 8-1/2 × 11 inch computer fanfold or single sheets of paper. It prints using a small ink bladder that sends a stream of ink onto the paper.

Cannon Application

In its cannon application, BUCS will replace the TI-59 hand-held calculator as well as the Field Artillery Digital Automatic Computer (FADAC) in those units that have received the battery computer system. It will also function as the primary and backup computer system until the battery computer system is received.

Once the appropriate programed module is installed in BUCS, the system will provide the following functional capabilities for the specific weapon system:

- Conduct area fire missions.
- Locate targets using grid coordinates, polar coordinates, laser polar coordinates, and shift from a known point or target techniques.
- Compute firing data for high- and low-angle trajectories.
- Compute firing data for all current shell and fuze combinations (with the exception of Copperhead).
- Conduct precision, high-burst/mean-point-of-impact (HB/MPI), and radar (Firefinder and Q4) registrations.
- Perform zone-to-zone transformations.
- Update M90 average muzzle velocities to account for nonstandard projectile weight and propellant temperature (replaces MVCT M90-1).

- Convert a computer met into a ballistic met.

In addition, BUCS can store:

- Eight howitzer locations.
- Sixty targets or known points.
- Thirty observers.
- Eight sets of registration corrections.
- One ballistic met and one computer met.
- Muzzle velocity variations (MVV) for each howitzer for each projectile and powder family combination.
- Twenty six projectile lots.
- Twenty six propellant lots.
- Map information (MAPMOD).

The system does have a number of limitations:

- No communications interface.
- Only one active mission capability.
- Cannot execute fire plans.
- Cannot store no-fire areas.
- Cannot maintain ammunition accountability.
- Uses a ballistic met rather than a computer met in its technical computations.

Furthermore, BUCS will not currently compute data associated with the Copperhead projectile. This capability will become available with the issue of an M109/198 revision subsequent to initial fielding.

Survey Application

In the survey application BUCS will replace the TI-59 hand-held calculator. Unlike the TI-59, BUCS will make maximum use of operator prompts in order to simplify survey computations.

Once the appropriate programed module is installed in the BUCS the survey functions will enable the following computations:

- Azimuth and distance between two known stations.
- Grid coordinates, height, and azimuth for 40 consecutive (main scheme) traverse stations.
- Total height correction, total traverse distance, azimuth error, radial error, and accuracy ratio of any traverse scheme.
- Traverse adjustment of any traverse scheme.
- Conversion to common control.
- A single or chain of triangles.
- Triangle closure.
- Three-point resection.
- All field artillery methods of astronomic observation, and provide rejection data with conversion to grid azimuth.
- Fourth or fifth order specifications in all programs.
- Conversion from geographic to universal transverse mercator (UTM) coordinates.
- Conversion of UTM coordinates to geographic coordinates.
- Zone-to-zone transformation.
- Distance by trig traverse or subtense.
- Any number of targets (intersection) from two observation posts.

Each subprogram carries the operator through the survey computations with user friendly display prompts. Moreover, the capability to page backwards or recall previously entered data and correct errors is integral to each program as is the capability to abort.

BUCS will be issued to conventional survey parties and to survey information centers at division and corps artilleries. The basis of issue will be two BUCS Generals for each survey party and one General and one Special for each survey information center.

July-August

Lance Application

BUCS will also be issued to Lance units to replace the TI-59 hand-held calculator and to provide backup for the Lance fire direction system (FDS). In the Lance application, BUCS will have the following capabilities:

- Provide a nuclear and nonnuclear fire mission technical solution.
- Store and recall a MAPMOD.
- Maintain the status of six fire units.
- Maintain ammunition accountability.
- Store 36 firing points.
- Store 20 targets.
- Store and use met data.
- Automatically compute zone-to-zone transformation during fire mission computation.

The basis of issue for Lance will be three BUCS Specials for the battalion fire direction center and two BUCS Specials for each battery fire direction center.

Fielding

BUCS will be fielded using the total package/unit materiel fielding (TP/UMF) concept. This is a "push-package" procedure under which a team will go to the gaining unit and "hand-off" all the equipment needed to include the authorized stockage list and prescribed load list spares. In the case of the Active Component, units will be fielded by division artilleries and field artillery brigades. For the National Guard, equipment will be handed-off to each state property officer.

Training

The fielding of BUCS will include a modified new equipment training team (NETT). Because of the user friendliness of BUCS, a lengthy training period is not necessary. The BUCS NETT for the Active Component will consist of an 8-hour block of instruction that will cover:

- Care and maintenance of the system.
- Operation of the system in cannon, survey, and Lance modes as appropriate.
- Conduct of sample problems.
- Question and answer periods.

The anticipated size of each class is 30 students (15 for cannon, 15 for survey). This approach should allow one person from each firing battery and one person from each survey section to attend the new equipment training. Those receiving the training will receive training packets to take back to their units to assist in the training of other soldiers. Furthermore, the field circular that comes with BUCS will contain sample problems and explicit operating instructions for the system.

National Guard and Reserve personnel from the various readiness regions will come to Fort Sill for

training on the system. They will then provide training to the units in their geographical areas of responsibility.

At Fort Sill, BUCS will be incorporated into a wide variety of programs of instruction. However, the training will require no additional curricular hours. In fact, manual gunnery will be curtailed, and the hours currently given to TI-59 will be reallocated to BUCS.

Future Applications

Several enhancements have already been planned to increase the capabilities of BUCS. Foremost among these is the addition of Copperhead to the M109/198 software. Software modules are also planned for the L119 British Light Gun (BLG) which will be used in the light divisions. Both of these improvements will be available approximately 1 year after the initial fielding of BUCS. Planners also envision a safety program. Using this routine, BUCS will contribute to unit training even more.

Conclusion

Initial fielding of BUCS began in June. The current timetable calls for the Total Force to receive the system by the end of December. BUCS will allow BCS-equipped units to have a reliable, accurate backup, and it will allow non-BCS equipped units to achieve a greater degree of accuracy. It will also allow them to exploit more advantageous terrain gun positions and thereby enhance survivability. Easy to use, easy to maintain, and easy to train, BUCS will provide a standardized, automated system throughout the force and will provide it now!

If you have any questions about BUCS contact:

Commandant
US Army Field Artillery School
ATTN: ATSF-CT (CPT Mitchell)
Fort Sill, OK 73503-5600
AUTOVON: 639-4867/5607/5960/6067

(Story by CPT Randy Mitchell and CPT Al Cunniff)



The medium combat truck is being considered as the prime mover for the M198 howitzer and the AN/TPQ-36 and AN/TPQ-37 radar systems.

BATTLEKING Projects

BATTLEKING needs input from the field. Ideas on quick-fixes for troublesome equipment, techniques that make a job easier, or concepts about doctrine should be sent to: President, US Army Field Artillery Board, ATTN: ATZR-BDW (BATTLEKING), Fort Sill, OK 73507-6100. The submissions need not be formal, but Redlegs should enclose all details available. If you have a working model, send it or a drawing or photograph. Please identify who took the photographs and who is in them.

Here is another important BATTLEKING project currently underway.

- BK 60-84, Medium Combat Truck Evaluation (Source: Standard Manufacturing Company, Incorporated.) The medium combat truck is a 3½-ton, 8 by 8 vehicle using a trailing arm drive suspension system. It is capable of towing up to 20,000 pounds and has a 7,000-pound payload capacity. The medium combat truck was evaluated by BATTLEKING as a prime mover for the M198 howitzer and AN/TPQ-36 and AN/TPQ-37 radars.

The evaluation results are now being used by the Directorate of Combat Developments at the US Army Field Artillery School to determine the field artillery's use for the vehicle.

The Accident in Heilbronn

On 24 April 1985, the Department of the Army made public its investigation findings concerning the 11 January 1985 Pershing II accident in Heilbronn, West Germany. The accident killed three and seriously injured nine persons. The investigation team's conclusion: That electrostatic buildup in the equipment caused the rocket fuel to ignite. Pershing missilemen may ask: Why was protection against such occurrences not built into the system, and what is the Army doing to prevent another accident of this type?

The weapons development and testing community works hard to protect soldiers from operational hazards. In its development, the Pershing II system was tested by state-of-the-art scientific procedures, to include measuring the electrostatic effects of simulated lightning strikes at levels up to two million volts. Cold, as a factor in rocket motor sensitivity, was also extensively tested without adverse effects. However, the accident investigation team has since discovered properties of the Pershing II rocket propellant not previously known by missile scientists and the propulsion industry. A particular combination of temperature and humidity conditions makes the propellant more sensitive to electrostatic discharge; conditions which, the evidence shows, were created by the field environment in Heilbronn.

Immediately after the accident, the Army imposed precautionary measures and modified its Pershing II training activities, but important operational capabilities were sustained within constraints. During the accident investigation, team members not only sought the cause of the accident but also developed solutions to the electrostatic discharge problem. They were able to develop corrective hardware modifications to Pershing II equipment. These corrections have already been introduced into the missile production line. Fielded Pershing II equipment is being modified in place.

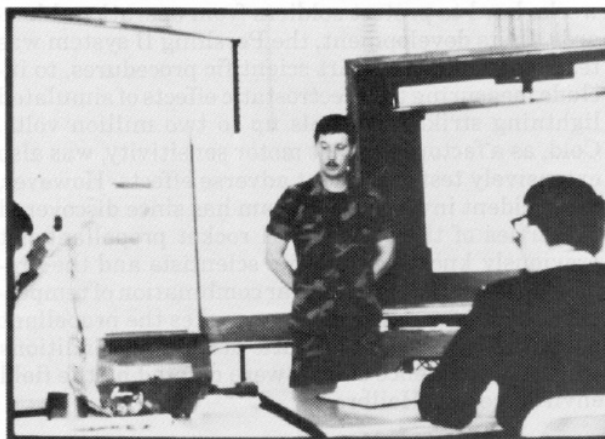
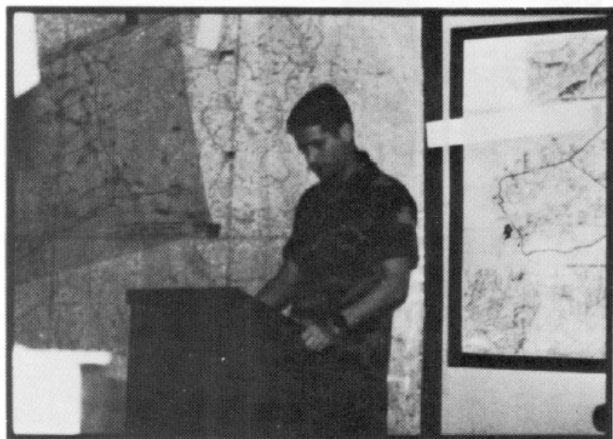
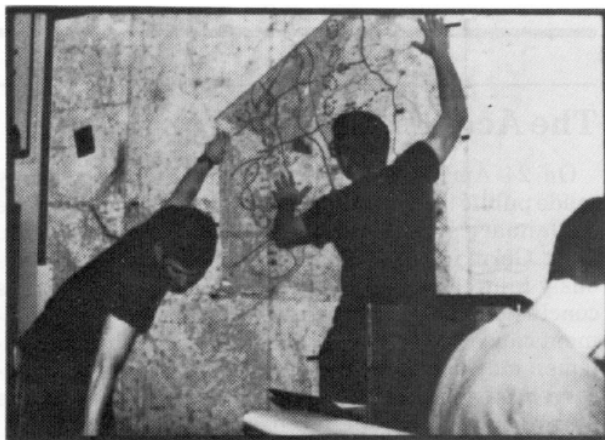
Our Pershing missilemen may be reassured that Pershing II is now and will continue to be as reliable and safe a system as our research, development, and scientific community can produce. Furthermore, the deployment of Pershing II missiles in accordance with the 1979 North Atlantic Treaty Organization dual track decision will not be affected by modifications to training and equipment.

It is tragic that the discovery of the Pershing II propellant phenomenon had to come at such a high cost in human life and individual suffering as occurred in Heilbronn. This event is yet another grim reminder that in the military profession, there is no absolute level of safety. Even conducting oneself with the utmost professional concern cannot preclude every accident. The sacrifices made by the missilemen involved and their families did not result from neglect in the

July-August



weapon's development. The Army is doing all that it can with available technology to lessen risks and to make Pershing II even more secure in its role as the most powerful system in the field artillery's arsenal. (Story by Captain Gary A. Green)



CAS3 Anyone?

by Lieutenant Colonel Joe Snow

Who are CAS3 students? Where do they come from? What do they do? Why would you want to be one?

A Combined Arms and Services Staff School (CAS3) student is an officer with between 6 and 10 years of commissioned service who is learning to function better in a staff position with the Army in the field.

These officers come from all over the world, wherever Army captains are stationed. Advanced course graduates may enroll in the first half of the program, which is the nonresident phase. This phase consists of 14 self-paced modules which the officer completes on his own time. It takes about 136 hours to complete all 14 lessons.

As each lesson is completed, the officer takes the test and sends the answer sheet to the Extension Training Management Division at Fort Leavenworth, Kansas.

Upon completion of all 14 lessons, the student receives an open-book, comprehensive exam. After passing the exam, the officer is qualified for the resident phase of the course at Fort Leavenworth.

All nonresident phase qualified officers in year groups 1977 and beyond will be considered to attend phase II. However, the specialty branches, including the Army Medical Department as well as the Chaplain and Judge Advocate General Corps, may select less than 100 percent of their officers to attend.

Upon arrival at Fort Leavenworth the officer inprocesses and receives an assignment to a 12-person staff group. The staff group works with a senior field grade officer, normally a lieutenant colonel who is a former battalion commander. The group stays together throughout the entire 9-week course.

During the resident phase students work together to accomplish the following goals:

- Improve their ability to analyze and solve problems.
- Improve their ability to interact and coordinate as a member of a staff.
- Improve their communications skills.
- Improve their understanding of Army organizations, operations, and procedures.

The 34 problem-solving lessons grouped into seven exercises threaded together by a common course-long scenario provide the mechanism for accomplishing the goals. The general scenario focuses on assignment to a mechanized infantry division stationed in Kansas.

Students first act as participants in an accelerated 8-day divisional training

exercise which familiarizes them with problem solving, time management, and basic staff techniques. The techniques include writing military and nonmilitary letters, disposition forms, messages, fact sheets, memoranda, and a staff study. They also include quantitative skills such as statistics, linear programming, decision trees, program review and evaluation technique diagrams, regression analyses, and calculator and computer operations.

During this division-level training, each student also prepares and presents a complete information briefing. Upon completion of the training exercise, the scenario continues as the officers are assigned to a notional battalion within the division. Here, they conduct a state-of-training analysis; prepare short- and long-range training programs; resource the long-range plan in terms of dollars and petroleum, oils, and lubricants; and plan for a battalion field training exercise.

The next exercise focuses on managing limited money and manpower resources to accomplish assigned missions. As a member of a directorate of industrial operations maintenance division,

each student formulates a budget based on written and verbal budget guidance. As part of the training scenario, the world situation worsens and the division, composed of two Active brigades and a Reserve Component roundout brigade, mobilizes. Students develop selected portions of mobilization plans with the objective of developing an understanding of the basic staff considerations associated with the mobilization procedure. In the mobilization process the student plays the role of a staff officer of the mobilizing brigade or of a staff officer on an installation staff. Both staffs plan for the support and reception of the mobilized units.


After mobilization, the students focus on planning combat operations in a North Atlantic Treaty Organization setting. They prepare individual staff estimates and a division operations

Lieutenant Colonel Joe Snow, AR, is a staff leader for CAS3 at Fort Leavenworth, Kansas. He received his commission through ROTC at Boston University. He has attended the Armor Officer Basic Course, the Infantry Officer Advanced Course, the Command and General Staff College, and is enrolled in the War College Corresponding Studies Program. Lieutenant Colonel Snow has commanded the 3d Battalion, 66th Armor and served with the Strategic Plans Section of the Deputy Chief of Staff of Logistics.

plan. Moreover, they formulate the deployment plan and the logistics support plan for the division's movement.

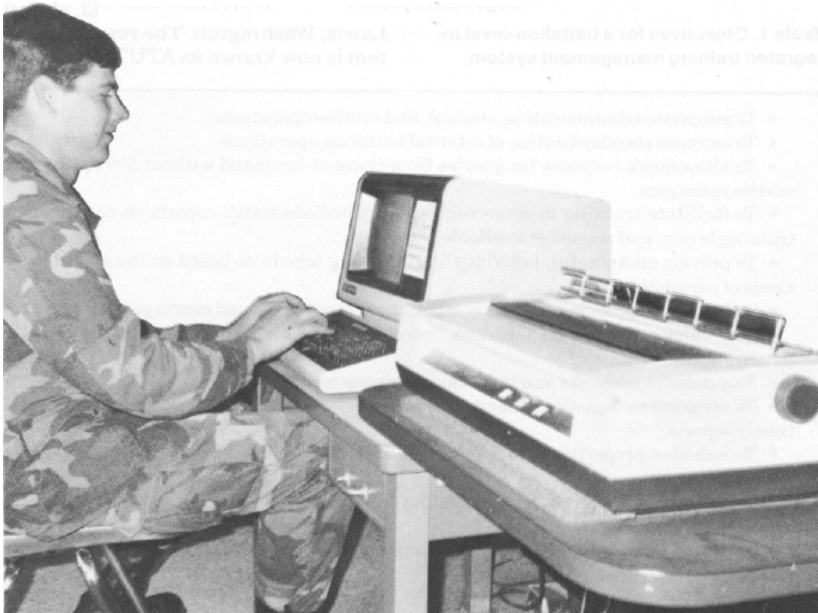
Finally, the student staff goes through the entire staff planning sequence and the execution of two division-sized operations.

Upon completion of CAS3, the graduating officer will have analyzed, coordinated, solved, and communicated during more than 60 complex individual and group problems. Throughout the course the officer is given numerous formal and informal performance reviews, and each student receives at least three detailed written evaluations.

CAS3 graduates learn how to analyze and solve problems as well as coordinate and communicate solutions. These abilities allow CAS3 graduates to perform better where it really counts—with the Army in the field. 

Computerized Battalion Training Management

by Major Ronald R. Cochran



Ask any school-age child if he has ever operated a computer. He'll probably look at you in amazement. He knows everybody in his class can operate a computer. Such machines are now commonplace at school, work, and home. In fact, it is unusual in today's Western society to find a person who is not directly affected by computers in some way.

In the military, computer technology is changing the way we do business. The defense industry is daily demonstrating the increased potential and lethality of weapon systems dependent upon computers. Command and control systems as well as personnel, training, and logistical support agencies rely heavily on automated data processing systems. Agencies throughout the defense establishment are continually upgrading and expanding their computer system capabilities and efficiency.

But what about the training officer in an infantry company, the supply sergeant in an artillery battery, or the personnel staff noncommissioned officer in a signal battalion? What is being done with computers to make these jobs easier and more efficient? The advanced technology unit training management system is what is happening!

The Need

Force modernization has been a major factor affecting battalion operations and functions during the last 5 years, and the impact of fielding new systems and organizations will continue at a high level for at least another 5 years. These new, modern pieces of equipment and versatile unit structures require soldiers capable of operating at unprecedented levels of competency. This situation has naturally caused a dramatic increase in training management requirements.

Commanders must struggle to ascertain individual competencies and plan meaningful individual and collective training. In consequence, their training information management needs have soared. The battalion training management system (BTMS) has given the commander a logical methodology for prioritizing and coping with the volume of required tasks; however, the manual application of the system is often next to impossible. Automation offers some hope.

The Answer—Automated Training Management

In fact, effective training management demands automation. The commander simply must have an information system with which to control personnel and logistical resources as well as to plan, coordinate, execute, and evaluate training across his unit. In effect, he needs a battalion management system. The advanced technology unit training management system (ATUTMS) is a prototype for such a system. It has taken the Army a while to develop, but its promise is tremendous.

System Characteristics and Distractors

Battalion management requires the merging of personnel, training, and logistic data bases in order to provide information from which commanders and staffs can formulate meaningful training guidance and direction. ATUTMS delivers this capability.

Unfortunately, there are those who scoff at the very idea of putting computers into tactical units. These cynics view computers as complex, electromechanical devices that require sophisticated operators and unrealistic training. Such naysayers never tire of accusing the computer of being unable to withstand the rigors of combat and of demanding manual backup systems.

The soundness of such arguments should be examined in light of what is

actually occurring in units throughout the Army.

- Computerized fire control systems are appearing everywhere.
- Air defense systems rely heavily on computerized systems.
- Army aviation has used computerized systems for years.
- Field artillery units have computerized tactical fire control and battery computer systems.
- Target acquisition units have computerized radar systems that communicate digitally with firing units.

The capabilities of these systems provide the combat multipliers we need when combat ratios are unfavorable. Certainly, operator training and equipment reliability and supportability have been problematic. However, with each succeeding generation of equipment we find technological advances have geometrically improved the performance and the capabilities of equipment. Size reduction, human engineering, and improved reliability continue to make new computerized systems easier to learn, operate, and support.

Such trends improve the potential for other computer applications within battalions. When all is said and done, the skeptic's hesitancy to endorse a battalion management system, which makes possible a more meaningful assessment and management of training and combat potential, is simply illogical.

Another apprehension commonly held by opponents of automation is the fear that computerized systems will preclude chain of command analysis and hamper conscious direction of unit functions. Certainly there are computer

routines and mechanisms which will allow predefined actions to occur automatically but only when they are consciously built into the system. The ability of decision makers to make better, more informed decisions is in fact directly related to the information available to commanders, and computers can make more information available.

Computers won't necessarily make commanders better leaders, but they can provide them more timely and accurate data with which to make decisions. Better intuitive leader decisions can be made with a computer system than without it. For example, with automation the commander can know what resources are available to him and can, therefore, allow him to maximize training opportunities. Previously, intuitive decisions were based on less information which was less timely and subsequently less valid. Furthermore, computer assisted information management allows more immediate feedback and evaluation of leader decisions. Automation actually promotes greater system integration and facilitates the soldier's ability to cope with continuing change.

The System's History and Objectives

Historically, the need for an automated battalion-level system originated from the 78-79 Army Training Study of the Battalion Training Model (BTM). The Army Research Institute (ARI) and the Army Development and Employment Agency (ADEA) initiated a developmental program to test the concept of a high technology integrated database management system at battalion level in June 1983, at Fort Lewis, Washington. The resulting system is now known as ATUTMS.

Table 1. Objectives for a battalion-level integrated training management system.

- To automate administrative, clerical, and routine operations.
- To increase standardization of internal battalion operations.
- To allow quick response for queries from chain of command without disruption to middle managers.
- To facilitate training management with immediate status reports on personnel, training levels, and resources available.
- To provide meaningful, individualized training schedules based on the evaluated needs of personnel.
- To facilitate deployment management, that is load plans and contingency stocks.
- To provide a systemized battalion, "corporate memory" independent of personnel turnover.
- To automate job books and individual training records.
- To streamline logistical functions and interface to produce more accurate and timely reports.
- To enhance property accountability and inventory with real time hand receipt printouts.
- To allow queries by individuals across functional areas with more assurance of accuracy.
- To provide instantaneous assessment of combat potential based on desired parameters.
- To provide growth potential.

As development of ATUTMS progressed, the Department of the Army gave ADEA the further charter of identifying and evaluating all training management systems planned or in existence. ADEA was to recommend a course of action to curtail the proliferation of unrelated computer systems and design a battalion-level integrated training management system with the necessary interfaces to meet the needs of various system proponents. Specifically, the system's requirement included the objectives shown in table 1.

System Development

From the outset, hardware was not to be an evaluated item. Rather, software was the focus. Program managers felt that if the concept of computer-assisted battalion management proved viable, then adaptation of the developed software could be made to state-of-the-art hardware. Nevertheless, program analysts did consider one hardware area—the number of required work stations and their availability to potential users. The evaluation quickly showed that system capabilities were being used in direct proportion to the accessibility to terminals.

Thirty remote terminal locations in

Table 2. Menu-driven selections available through ATUTMS.

Training Management System

- Personnel
- Logistics
- Training
- Utilities
- Exit

Personnel

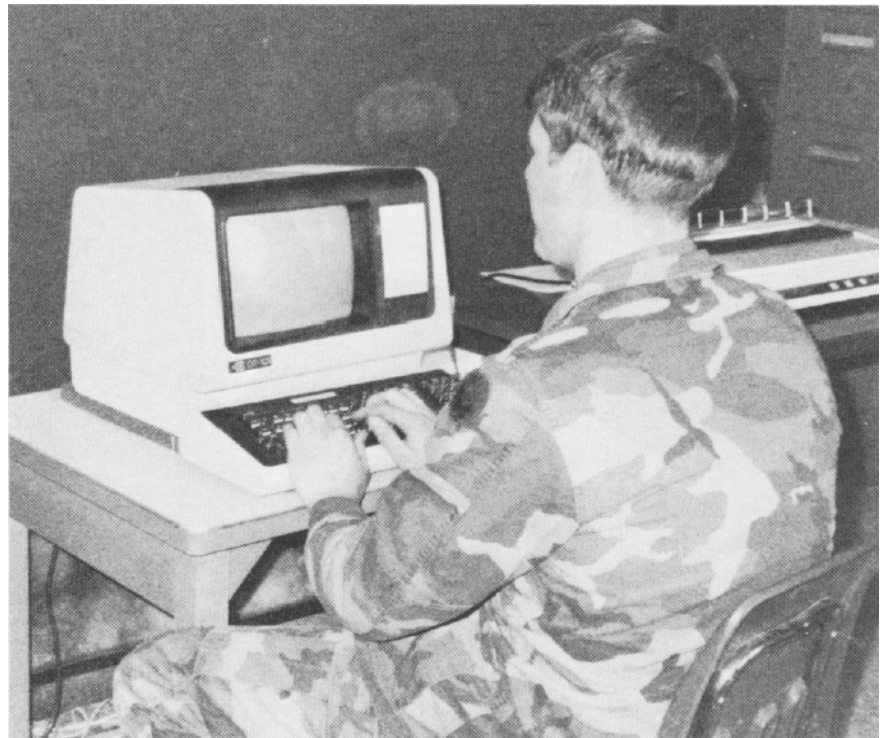
- New Soldier Arrival
- Update/Retrieve Soldier Data
- Daily Status Input
- Special Rosters
- Reports
- Query Supporting Data
- Mail
- Exit

Report Menu

- Daily Personnel Status
- Roster
- PRP
- Unit Manning Report
- Skill Inventory
- Individual Personnel Record
- MTOE (Personnel Portion)
- Exit

Roster Menu

- Drivers
- Personnel Reliability Program
- Special
- Exit



Typical workstation consisting of a terminal and a printer.

five buildings in the battalion area were all hard-wired into the VAX 11-750 mainframe computer. Up to 14 of the 16 remote terminals as well as a letter quality printer and an external modem could operate simultaneously.

Training

- Schedule
- Unit Records
- Reports
- Reference Data
- Exit

Soldier Training Records

- Job Book
- PT Qual Lookup Scores
- PT Qual Enter Scores
- Weapons Qual
- Exit

Training Reports

- Schedule
- Unit Training
- MOS/Common Skills
- Exit

Training Schedule Reports

- Schedule
- Detailed Schedule
- Instructor Schedule
- Event Summary
- Roster of Participants
- MOS Score Sheet
- Unit Score Sheet
- Exit

Training Reference Data

- ARTEPs
- Mission/MOSs
- Tasks
- Report on Tasks
- Exit

In total, some 70 battalion personnel learned to use this equipment to varying levels of expertise.

Table 2 summarizes the information available to these leaders and operators through menu-driven selections.

Logistics

- DOC-Docment Register
- MAINT-Service/Repair
- PLL-Parts
- PROP-Property
- EXIT-Exit Application

Service & Repair

- SER-Service Schedule Update
- REP-Repair History Updated
- SDU-Service Due
- RHI-Repair History
- BAC-Backside of 2406
- FRO-Frontside of 2406
- EXIT-Leave This Menu

Property

- HAND-Hand Receipts Menu
- ROLL-Roll-up Menu
- LINE-Line Number Information

Property Roll-Up Menu

- STA-Property Status
- ROL-Battalion Roll-up
- TOE-Table of Equipment
- EXIT-Leave This Menu

Utilities Menu

- Mail
- User names
- More to Come



Portable "grid compass" computer.

A Typical Day with ATUTMS

By any measure, ATUTMS is an unqualified success. Battery commanders and staff officers strongly endorse the system and foresee even greater potential for its use. They heartily concur that the system has contributed to increased levels of proficiency throughout the battalion. The following chronology is a simple example of some of the activities performed using the system during a typical training day in the battalion.

By 0630, a first sergeant and his training noncommissioned officer (NCO) have entered daily personnel status changes; and by 0900 some 12 to 14 operators are "on line." Standard Installation/Division Personnel System (SIDPERS) transactions are entered in the system at the same time as a personnel and administration clerk uses the word processing capability to type drafts of enlisted and officer efficiency reports. The personnel staff NCO uses the system to decide the priority of fill for new 63B40.

The tasking NCO in the S3 shop queries the system to determine how many tents are available and who owns them. The battalion operations NCO programs skill qualification tests into next month's training plan. A battery training officer builds a draft training schedule and asks the

S3 to review it via electronic mail. A battery commander reviews his unit's Army Training and Evaluation Program (ARTEP) results to help him plan an upcoming field training exercise while his battery executive officer inputs the evaluation of completed leader training tasks into the historical training schedule. A section chief uses a computerized task list to evaluate his section's training.

The S4 reviews a battalion "roll-up" to submit an "over and short" property list to division artillery. The battalion motor officer reviews the automated deadline report at the same time as a battery prescribed load list clerk searches the excess property list before ordering parts on the system's document register. Another section chief inventories section equipment using computerized hand receipts which include a component listing, and the battalion commander queries the system to determine how many of his soldiers need to raise their general technical (GT) scores prior to reenlisting.

Major Ronald R. Cochran, FA, is currently the battalion executive officer for the 1st Battalion, 11th Field Artillery at Fort Lewis, Washington. He is an ROTC graduate of the University of Iowa with a degree in economics. He has completed advanced work in business administration from Boston University and educational psychology from the University of Oklahoma. He has served in artillery units in Germany, Korea, and Fort Sill, Oklahoma. Major Cochran was program manager for development of the tactical fire direction system (TACFIRE) Training Program at Fort Sill and more recently helped design and build the TACFIRE Training Facility at Fort Lewis. He orchestrated the development of the advanced technology unit training management system.


Where to Go from Here

The natural evolution of this promising system should be to use it as a test bed for the development of an Integrated Training Management System (ITMS). The hard lessons learned and the start-up costs associated with ATUTMS should not be lost due to inaction or misguidance at this point. Future developments of the system should continue to be done in a unit context to ensure the efficient translation of conceptual ideas into usable software applications. Work done in isolation and brought to a host unit for testing as was done in the early stages of ATUTMS, even with close coordination, inevitably necessitates significant rework.

ATUTMS refinement could and should be started now on the equipment existing in the ATUTMS test bed unit, and procurement and transition to the desired fielding hardware should be initiated as soon as possible. Such a transition would allow translation of the ATUTMS software into a final system even as definition of external interfaces is being accomplished. Lastly, identification of hardware and software specifications for external integrated systems must be completed so that necessary "black box" interface development can begin. Given sufficient attention and resources, a completed ITMS system could be fielded starting within 3 years.

Conclusions

A genuine need exists for a computerized integrated battalion management system to handle the management requirements of today's Army battalions. No longer can we be content with *what was*. We must employ the tools of technology both to train for and win the next battle. Nothing less will give us the force multipliers we need.

An integrated training management system is within our grasp. All we need to do is continue the orderly process already underway and simultaneously prepare present and future leaders of our Army to accept such a system *now*. 

Fragments

FROM COMRADES IN ARMS

Photo by Hughes Aircraft



Using a new night vision device, Cobra will soon be able to fly around-the-clock.

Cobras Stalk the Night

Pilots of many US Army Cobra attack helicopters will soon be able to fly combat missions around-the-clock using a new night vision device.

Hughes Aircraft Company recently received a contract from the US Army Aviation Systems Command for modifications that will give the Cobras a forward-looking infrared (FLIR) system, part of an effort underway to make the helicopters more combat effective through the 1990s. Modifications will also be made to enable the Cobras to fire and guide the new tube-launched, optically-tracked, wire-guided (TOW 2) missile, day or night. TOW 2 features a more potent

warhead, designed to defeat advanced enemy armor, and an improved guidance system.

The FLIR device, which makes it possible for gunners to see through darkness, smoke, or haze, will be installed in the telescopic sight for the Cobra's airborne TOW missile system. During official tests conducted at several Army installations, gunners used the system to score hits more than 90 percent of the time in both day and night TOW missile firings. In addition to firing the missile, the sight will be used to direct cannon and rocket fire.

The Army will retrofit about half of its Cobra fleet, which will affect approximately 500 helicopters. Deliveries are scheduled to begin in 1986.

Testing the AT-4

The AT-4 antiarmor weapon, a possible replacement for the light antiarmor weapon (LAW) currently in use by the US Army and Marine Corps, is undergoing testing at the US Army Test and Evaluation Command. The AT-4 is an 84-mm recoilless, disposable, shoulder-fired weapon capable of delivering antitank and other types of rounds at ranges in excess of 300 meters. The AT-4's barrel is made of reinforced plastic and aluminum. The total system weighs 14½ pounds including the 4-pound projectile which is carried in a self-contained, throw-away launcher tube.

Not only does the AT-4 have about three times the range of the light antiarmor weapon, but it also has a shorter time of flight. The AT-4 can penetrate up to 405 millimeters of rolled homogeneous armor plate. After the armor has been penetrated, an incendiary gas jet associated with the detonation of the warhead can detonate fuel or ammunition stored inside the target vehicles.

The AT-4 will be evaluated under varying climatic conditions as well as against various types of armor plate. A decision on purchasing the AT-4 system is expected in August.

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Weighing 14½ pounds, the AT-4 has a 4-pound projectile which is carried in a self-contained, throw-away launcher tube.



The large field pack and tactical load bearing vest.

Pack-Man: High Fashion for Soldiers

When a soldier goes out to the field he can look like a peddler displaying his wares. Ammunition pouches, canteens, a poncho, a flashlight, a knife, and a protective mask hang about his waist. An entrenching tool, a sleeping bag, and a pad are strapped to a cumbersome rucksack which is strapped to his back. As he walks, the sleeping bag and other assorted equipment bang against his body. With a weapon in his hand and extra ammunition stashed, he is outfitted to engage the enemy, right?

The British Syndicate

The British Army's Syndicate Training System gives both commissioned and noncommissioned officers the opportunity to think through and solve problems by exchanging ideas. Guided by an instructor, 10 to 15 students in the syndicate participate in classroom discussions, cloth model exercises, and tactical exercises without troops. A sample syndicate training progression would be:

- Classroom instruction to teach the basics.

The researchers at the US Army Natick Research and Development Center think they have found a better way to carry the load. They have recommended that the Army Clothing and Equipment Board approve two new items: a tactical load-bearing vest and a large field pack.

The tactical load-bearing vest, which weighs a mere 1.8 pounds empty, was designed to be a more efficient method for carrying individual fighting equipment. Instead of having a lot of equipment around the waist, there are cargo pockets on the vest front which distribute the weight over the upper torso. There are also permanently attached grenade and ammunition pouches on the vest which leave room on the belt for other equipment.

For comfort, the design incorporates laces and straps which allow adjustments in torso length and girth. And for protection the nylon fabric is printed in a woodland camouflage pattern.

The large field pack is designed to allow the combat soldier to carry his essential load under all environmental conditions. With an internal capacity of 7,500 cubic inches, the pack has several side pockets. Furthermore, compression straps located on each side of the pack allow the soldiers to carry long narrow objects.

Besides being roomier than the current rucksack, the large field pack features a separate zippered compartment for the sleeping bag. The compartment allows easy access to the sleeping bag and protects it in bad weather.

As an added feature, the top flap pocket of the pack is removable and can be attached to the tactical load bearing vest as a combat patrol pack.

A unique suspension system allows the pack to be custom-fitted to most soldiers, and a torso bar allows the pack to be adjusted to match the contour of a soldier's back. Although it may sound as if the added features also add weight, the large field pack is a light system.

Innovative field tests of the system were conducted last summer at the Yakima Firing Center in Yakima, Washington, and at Camp Ethan Allen in Vermont this past winter. According to Natick officials, test reports indicate that both the large field pack and the tactical load-bearing vest have good potential for military use. (Story and photos by SP5 Lori Goodrow)

- Syndicate classroom discussion.
- Cloth model exercise in syndicates.
- Tactical exercise without troops.
- Full-scale exercise with troops.

The syndicate system provides students with realistic training in battle reconnaissance, proper battle appreciations, and correct procedures for the preparation and presentation of verbal orders. Because of the small number of troops, nondesignated training areas are often used. (Story by Lt Col N. J. Bird, British Liaison Officer)

Redleg News

ITEMS OF GENERAL INTEREST

Who Has to Go to CAS3?

The Army has a new policy on who will attend the Combined Arms and Service Staff School (CAS3).

Beginning with year group 79, all Officer Personnel Management Directorate (OPMD) officers *must* attend CAS3. Year group 77 and 78 officers may still be scheduled for attendance, but they are no longer required to attend.

The classes will be taught 9 times per year in 9-week resident courses, beginning in fiscal year 86.

The class dates are:

<u>Class Number</u>	<u>Date</u>
86-1	8 October-13 December 1985
86-2	8 January-14 March 1986
86-3	29 January-4 April 1986
86-4	20 March-23 May 1986
86-5	10 April-13 June 1986
86-6	29 May-1 August 1986
86-7	19 June-22 August 1986
86-8	1 August-10 October 1986
86-9	27 August-31 October 1986

Quotas given to the major commands of the Army to fill each class will vary based on permanent change of station periods and assignment cycles.

Officers will attend CAS3 either on temporary duty and return from their units, or en route to a new assignment.

The completion of the nonresident instruction (Phase I) is still a requirement prior to the course. It is the officer's responsibility to enroll in Phase I and complete the 14 modules as soon as possible.

Direct questions to the US Army Military Personnel Center, Field Artillery Branch (Major Biggs) AUTOVON 221-0187/0116, or the Professional Development Section, Combat Arms Division (Mr. Melendez) AUTOVON 221-9846/9847.

Face-Off

Face-to-face discussions are now required between raters and rated officers according to the US Army Military Personnel Center.

As of 30 January, Army Regulation 623-105 requires a meeting within the first 30 days of a rating period to discuss the rated officer's duties, responsibilities, and performance objectives.

The change was made in response to a letter that Army Chief of Staff General John A. Wickham, Jr. sent to rating

July-August

Want to grow? Let them know!

Enlisted soldiers who are being considered for promotion or school selection can write directly to the President of the appropriate Enlisted Promotion Board, according to the US Army Military Personnel Center's (MILPERCEN) Enlisted Records and Evaluation Center (EREC) at Fort Benjamin Harrison, Indiana.

Soldiers can write a letter correcting errors, updating their files, or supplying missing information. A complete promotion file consists of:

- The performance fiche from the soldier's official military personnel file.
- DA Forms 2A and 2-1, *Personnel Qualification Record*.
- The personnel data sheet, which EREC produces for the board.
- The latest photograph of the soldier.

Because boards use these items to choose soldiers for promotions and schools, it is to a soldier's advantage to make sure his or her file is complete and flawless. According to MILPERCEN, items submitted with letters are considered part of the board proceedings, and they will not be used to update the soldier's official military personnel file.

The letters to the board president should be written in military letter format following the procedures in AR 340-15. They should be brief and factual and should not contain information already in the soldier's official file. They may not be used to express grievances or boasts or to justify past misconduct. Letters will not be accepted from third parties, or if they contain derogatory information about other parties.

Soldiers are encouraged to have their letters reviewed by someone who is familiar with military correspondence procedures and who can check for grammatical and spelling errors. A well-written letter can benefit the soldier, and a poorly-written one can be detrimental.

Letters should be mailed in time to arrive before the cut-off date, which is normally 10 days before the date the board convenes.

officials. According to a recent survey, Wickham said, "80 percent of raters believed they had . . . discussed objectives with the rated officers . . . yet only 31 percent of the rated officers acknowledged an adequate discussion."

The officer evaluation report (OER) Support Form (DA Form 67-8-1) is also being changed to include a record of this face-to-face discussion. The rated officer and rater will have to initial the form to verify the date the discussion took place. The revised form will also include more space for the officer's performance objectives and significant contributions.

Training the Winners

by Major Terrence R. Redding



It is dark outside, but the barracks are full of activity. Apprehension mounts. Private Smith, with just 11 weeks in the Army, is excited by the possibility of moving out, occupying a hide position, and making final preparations for combat. He and his new buddies have great confidence in Staff Sergeant Anderson, their platoon sergeant; they know that he has prepared them for what is to come.

As he made the transition from civilian to soldier, Private Smith learned a new meaning for the word "teamwork." He learned to react to each and every situation as a member of a team—a team comprised of individuals who are increasingly self-reliant and at the same time increasingly proud of their uniform. Private Smith is confident in the knowledge that as a team, the members of his platoon are becoming the best trained soldiers in the world.

The professionalism of Private Smith's drill sergeants and the noncommissioned officers that comprise the individual training committees has impressed him. They are his new set of heroes. Surprisingly, he finds that he enjoys his daily routine of rising well before the crack of dawn and launching into an aggressive program of physical training. At first, his days were filled with aching muscles, and he never had enough time to rest. But by the end of the second week, his growing satisfaction with his own abilities gave the new Redleg newfound energy.

He is also surprised at the number of skills that he has learned. Looking back, he realizes that all of his training has served a purpose. He learned to take care of his weapon and memorized aids to remind him what to do whenever he engages a target. He learned about crew-served weapons and claymore mines. He now knows the importance of thinking through a situation as well as simply following orders.

He is most proud of his new personal skills. These are the ones that permit him to take care of himself, and if need be, his buddies. Before he came into the Army, he had never thought about such things as camouflage, night vision, or first aid; but now he finds these topics occupying his waking and sleeping hours.

During the last few weeks he has finally begun training in earnest on self-propelled howitzers. Boy, is it great—no ground pounding for him! He is glad not to be a "desk jockey." He is proud to be a field artilleryman. The best gun and the best section—those are becoming his personal goals.

And this week—"tactical week"—he gets to put it all together. In the field—night



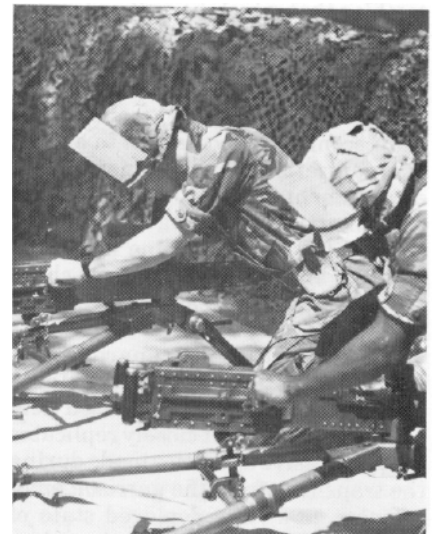
The Self-Propelled and Towed Committees provide training for the units during tactical week.

and day—he puts his previous training to use. Guard duties take on a new meaning for him as he protects his own perimeter. The chance to take prisoners and the risk of becoming a prisoner haunt his thoughts. Firing missions all hours of the day and night, making multiple moves, remaining flexible, and planning ahead; he knows he can do these things. Move, shoot, and communicate—it's super!

Even though the terms are still new to Private Smith, the battery commander's briefing impressed on him the importance of checking and double-checking to ensure that the battery has enough equipment and supplies to sustain itself while in the field. Private Smith plans on grabbing a few extra pieces of fruit to tide him over until his next visit to a real mess hall.

A Prelude to Tactical Week

This homespun little story captures the thoughts of literally hundreds of soldiers during their 12th week of initial entry training at Fort Sill's Field Artillery Center. Prior to tactical week, the soldiers learned numerous common skill level one tasks to qualification standards. They performed with ease tasks such as first aid, weapons firing, preparation of individual



Prior to tactical week, soldiers work on numerous tasks to build on their field artillery skills.

fighting positions, establishment of communications, and installation of claymore mines. Moreover, they can perform the duties learned in the previous 3 weeks of field artillery cannoneer training. But tactical week is their chance to build on those skills and at the same time tie together all of the training to date.



Participating in .50 caliber live firing adds realism and underscores the basics.

Tactical Week

Through its realistic exercises, tactical week provides an excellent transition from the training environment to the soldiers' initial duty assignment. In fact, it is a training situation that exposes the initial entry training soldier to an environment that closely resembles that which he will encounter when assigned to an artillery unit stationed in West Germany. It not only exposes him to more realistic training but also, by following a "transition to war" scenario, exposes him to a table of organization and equipment (TOE) environment similar to the one he will encounter upon reaching his initial assignment. The bottom line is that he will find adjustment to his new chain of command much easier because he understands its structure.

The tactical week scenario is designed to parallel the increased stages of alert that the European-based field artillery unit uses. It closely replicates the progressive activities made during the transition from the garrison environment to a fully deployed state of readiness. Tactical week begins when the soldiers receive instructions from their chain of command to prepare to move to the field. On Monday morning they move from the barracks to the howitzer park and upload section and personal equipment. After receiving their battery commander's briefing on the threat and the immediate plan of action, the soldiers pull preventive maintenance and road-march to a local dispersal area (LDA).

At the LDA, the sections perform battle drills and conduct collective

training as a battery. There various training committees conduct training on day and night occupations and teach classes on night lighting devices and the proper employment of camouflage nets. They also participate in common skills training using the tactical scenario to add realism and underscore the importance of the basics. For example, the battery establishes a perimeter which provides a training vehicle for teaching and practicing passwords, challenges, and response techniques; taking prisoners; constructing fighting positions; using individual and crew-served weapons; and camouflaging personnel, equipment, and positions. The training battery is as complete as possible so that the initial entry training soldier gains an appreciation for the complexity of a field artillery battery fully deployed.

The actions taken in the realistic local dispersal area impress upon the soldier the necessity of conducting himself correctly in a tactical situation. He learns that failure to maintain a proper sense of urgency and unflagging attentiveness may well lead to disaster. An overnight bivouac is conducted following the night occupation.

Tuesday begins with a stand-to and a heightening of the soldier's tactical awareness. The battery commander provides a critique of the unit's efforts and gives a tactical update which lets the soldiers know that the situation has worsened and that the unit will be conducting a tactical road march to its initial position. The training committee selects gun guides and briefs the

soldiers on advance party activities. Then, the unit moves. Depending on the situation, the soldiers may upload ammunition en route or at the first position. The battery makes a total of three moves, and each displacement provides its own opportunities for constructing and executing tactical training situations. Both firing units, towed and self-propelled, perform three daylight and one night occupation prior to the conclusion of activities for the day. Following each occupation, live firing missions are completed, and critiques of training are conducted by the Soldiers' Chiefs of Sections. At dusk, the tired soldiers complete the last move, which becomes their night firing position and bivouac site.

Wednesday is a repeat of Tuesday training. It provides additional opportunities to rotate the soldiers through the different duty positions during a variety of training situations and fire missions. It ends with night firing and in a bivouac position.

During the tactical morning meal on Thursday, a planned attack of the battery position by an aggressor force takes place. This event ends the tactical portion of the training and is followed by a final critique by the battery commander. The unit then moves to a direct fire firing point (the towed unit conducts an air assault operation) and conducts direct fire training with 105-mm and 155-mm howitzers as well as .50-caliber machine guns. After the unit completes the direct fire training, it moves back to the howitzer park, down loads, cleans equipment, and pulls preventive maintenance.

Tactical week increases significantly the total amount of time that initial entry training soldiers spend on the guns and at the same time enhances the realism of the training environment. Moreover, it improves the soldier's ability to make the transition from the Fort Sill training environment to his first unit.

The Trainers

The units which provide tactical week training are the Self-Propelled Artillery Committee, a composite battery, authorized 162 personnel, 59 M109A3 howitzers, 15 M110A2 howitzers, 16 M548 cargo carriers, and two M578 recovery vehicles; and the Towed Committee. The unit also furnishes instructors and equipment for phase II (field artillery phase) of the 13B program of instruction under the one-station unit training concept.

By virtue of the densities of equipment

that the battery owns (equal to that normally found in 12 normal batteries) the unit is unique. The battery trains 65 percent of the field artillery force produced annually. Its committee training concept results in a significantly better trained field artillery soldier; and its cadre members are justifiably proud when they say, "We train the winners!"



Major Terrence R. Redding, FA, is assigned to J3 US Southern Command, Panama, as an operations officer. He received his commission through the Officer Candidate School and has a bachelors of science degree in general education. Major Redding is a graduate of the Field Artillery Officer Advanced Course and the Command and General Staff College. He served in Vietnam with the II Corps (Forward) as the Installation Adjutant, Base Development Officer, Deputy Installation Commander, and Headquarters Commandant. He served in Germany with the 1st Battalion, 30th Field Artillery, as the assistant S3 and fire support officer. He has also commanded four times to include a headquarters, headquarters company of an infantry brigade; a 155-mm towed artillery battery; a target acquisition battery; and a composite self-propelled 155-mm battery. In addition, Major Redding served as a target acquisition instructor and as chief of the Self-Propelled Field Artillery Committee.



Sounding the Depths of the New Manning System

by Captain Randy D. Gebhardt

You and I share a serious problem. And we pay far too little attention to it. Various constraints prevent our peacetime military forces from expanding significantly. Logically, if we must improve capabilities without increasing in size, then we must improve the overall quality of the force.

Military forces can be said to consist of at least three significant parts—personnel, equipment, and doctrine. Improvements are possible in all three areas, but in this article I will focus on an attempt to upgrade the quality of only one of those dimensions—personnel.

Paradoxically, this area has historically been the most neglected element of the three. In fact, few of the world's armies spend more time than we do trying to keep our major equipment abreast of recent technology; and few nations invest more intellectual effort

constantly reevaluating tactics and doctrine.

On the other hand, we in the Western world have generally taken our soldiers for granted; we have been confident that our warriors are the finest anywhere. It is true that the average American fighting man possesses an education superior to his most likely adversaries, and that his mechanical acumen and spirit may also be comparatively high, but we can ill afford to neglect an opportunity to improve the quality of our soldiers.

After all, the demands placed on the average soldier are steadily mounting. He must not only be a fearless rifleman in top physical shape but also an innovative, adaptable warrior capable of driving a sophisticated vehicle, talking on a computerized radio, and operating as part of a highly flexible combined arms force. How does the Army

produce such talented men and women? One way currently under consideration is a promising project called the new manning system (NMS).

Overview

The new manning system is a success story in the making. Everybody involved—Department of the Army, Training and Doctrine Command, Forces Command, and branch schools—wants to claim some ownership. And everyone concerned is convinced that the key to the new system's success at all levels is teamwork.

This article provides an accurate description of the new manning system and gives an example of how the various team members might work together to realize the tremendous promise of the program's two main parts: the COHORT program and the regimental system.



COHORT trainees undergo nuclear, biological and chemical training as part of the new manning system strategy.

The Regimental System

The regimental system is the second major part of the new manning system. The regiment is an organization without an operational mission or commander. It is perhaps best regarded as a grouping of like battalions to facilitate battalion rotation and the parent organization of all affiliated personnel. The regiment has no tactical role; the field artillery battalions of a particular artillery regiment will function tactically exactly as they always have, usually as components of a division or corps artillery. The significant difference under the new manning system is that the battalion will arrive in the gaining command as a unit, will replace a sister battalion which was previously there, will remain for a period of time, and then in turn will be replaced.

The COHORT Program

Under the cohesion, operational readiness, and training (COHORT) program, field artillery recruits enlist for a particular unit and, upon arrival at the Field Artillery Training Center, are assigned to a specific COHORT battalion. They are subsequently grouped in training batteries which are affiliated with their ultimate units of assignment. Meanwhile, the US Army Military Personnel Center selects an operational battalion chain of command and assigns it at least 60 days prior to the formation of the unit. During training, the new soldiers meet many members of their future chain of command.

A formal graduation marks the hand-off from the training center cadre to the operational chain of command. The COHORT unit proceeds to its new home installation, where the

battalion may be "fenced" off from installation support requirements for several weeks—long enough to achieve unit training proficiency. After a period of time at its home installation in the Continental United States, the unit carries out an overseas deployment according to one of two models.

- **The German Model.** This model has a 6-year life cycle. The battalion spends 3 years at its home base, which is always in the Continental United States, and then rotates to the Federal Republic of Germany for 3 years before rotating back to the United States. Chain of command personnel rotations will be staggered throughout this 6-year period. First-term soldiers are protected by regulations from having to serve overseas for 3 years; so, it becomes necessary to "reload" the battalion with new soldiers 18 months prior to the overseas deployment. These soldiers then serve with the unit for 3 years—18 months at the home installation and 18 months overseas. The unit is then reloaded with first-termers. At the end of 6 years, the unit chain of command is replaced while the first-termers, nearing the end of their commitment, provide continuity.

- **The Korean Model.** This model has a 3-year life cycle due to the shorter South Korean tour length. The battalion spends only 2 years at its stateside home station and then 1 year in Korea. Both the chain of command and the first-termers are stabilized for the entire period.

Training Strategies

The training strategy to support new manning system concepts takes advantage of the lessons learned from the battery-level COHORT program and an analysis of the implications of

battalion-level COHORT. For example, the training center produces better-trained soldiers when the trainees know that they will be together for long periods and that their future chain of command is taking an interest in them even during initial entry training. History teaches us that these soldiers tend to be more knowledgeable, more positive about the Army, more innovative, and far more enthusiastic than those generated by the individual replacement system. All of these improvements may not be totally attributable to the COHORT program, but the fact remains that the training center is providing an exceptional product.

One problem with the new manning system is the preparation of operational chains of command. Given the personnel system's ability to assign the chain of command at least 60 days prior to unit formation, some time should be available for the sergeants and their commissioned leaders to be refreshed on skill level one tasks; oriented on the new manning system, personnel actions, and so forth; provided workshops on leadership; and immersed in the battalion training management system.

Unfortunately, during the chain of command training program there will be insufficient time to come to grips totally with COHORT unit training management. This may well produce the gravest problem a COHORT leader must face. The standard, Army-wide approach to training management assumes that the commander starts with personnel who have military experience as well as some measure of experience working with one another. The commander of a conventional unit can assume that his organization possesses some positive level of collective proficiency even as individuals cycle through. The new COHORT unit commander cannot. He starts from scratch.

Certainly, the new COHORT battalion has a broad base of first-term soldiers who will have an excellent handle on individual tasks, but their knowledge of collective tasks will be slim albeit better than under previous training strategies. The members of the new chain of command will, if they are lucky, have shaken hands for the first time a short 2 months before. It will take weeks before this unit is ready to conduct battery Army Training and Evaluation Programs (ARTEP) and more weeks before a battalion ARTEP will be useful.

To help with this dimension of the training management problem, each branch is developing an umbrella training strategy for the COHORT battalion. This can be called a life cycle

training strategy, a descriptive approach to COHORT training, or a mission training plan. Whatever its title, the plan will provide the commander with a school-house recommendation on how best to progress from individual through section to battery ARTEP tasks, and from a more or less decentralized and sequential training methodology to a carefully orchestrated multiechelon training methodology.

Other Issues

The new manning system has been under development for a long time. In some measure it grew out of external criticisms of the individual replacement system. But, as already noted, conversion to a unit replacement system is not without its problems. The question remains, "How should the Army minimize the negative effects and maximize the positive aspects of the new manning system?" At this moment some very far-reaching answers to this question are being developed in Washington, D.C., at Fort Monroe, Virginia, and at Fort Sill, Oklahoma.

- **Wraparound.** One significant controversy is the issue of *chain of command wraparound*—the participation of the operational chain of command in initial entry training. The specter of dual chains of command concerns some people. Today's plan calls for the training center to retain administrative control of the trainees during a proposed final field exercise, which is carried out entirely under the tactical control of the operational chain of command. The exercise will have pivotal importance; it will give the new soldiers a first impression of their leaders and will give leaders a chance to see their new charges in action.

- **Fencing.** The so-called fenced off period is also problematic. It is very difficult to isolate a unit, particularly a whole battalion, from installation support; yet the COHORT unit needs this hiatus precisely because it is not yet, in the conventional sense of the term, a unit. Obviously, fencing one unit will increase taskings on other units. Such unfortunate organizations will experience a consequent training degradation. Yet to open the COHORT unit to tasking is to preclude the COHORT from achieving its full potential. Experience has shown that COHORT units do possess greater potential than do conventional units. The purpose of the new manning system is to realize that promise, and to pursue policies inconsistent with that goal is not in the best interests of the Army.

- **Tour Length.** As pointed out earlier, regulatory constraints exist on the overseas tour lengths of first-term soldiers. This rule resulted in large



COHORT trainees site in on the M16 rifle range during basic training at Fort Sill.


measure from post-Vietnam morale problems in Europe. With the success of the all-volunteer force and the improved emotional stability of today's soldiers, the rule may already be obsolete. Certainly, in a COHORT unit, a potential for *elan* exists which is either partially or wholly absent in conventional units. In fact, the chain of command is normally far more concerned and involved in the family life of the soldiers. Perhaps the rule ought to be either suspended with respect to COHORT units or abolished altogether. The alternative is to accept a complete replacement of all first-term soldiers midway through an overseas tour, with a resulting decrease in unit readiness.

- **Wartime Application.** Is unit replacement feasible in wartime? Every conference regarding the new manning system labors with this issue. History suggests that such a system is usable. The German Wehrmacht employed a very successful unit replacement scheme to achieve a superb degree of small-unit cohesion. However, opponents are quick to point out that the German Wehrmacht was defeated. Ironically, their defeat had little to do with unit cohesion; it remained excellent up to the end. Moreover, both the British and Soviet Armies use versions of unit replacement with unflagging success.

- **Regimental Advanced Individual Training.** At present the Field Artillery School and the training center do not cover all skill level one tasks during initial entry training. The reason is inadequate resources. Many contend that units, given some additional resources, would be capable of conducting such training. They advocate transferring some of the School's resources to the operational unit along with the entire responsibility for advanced individual training. In the COHORT unit where everyone is theoretically near the same level of training and initially fenced-off for training, perhaps regimental advanced individual training can become a reality.

A regimental depot is one possible venue for such training. After all, the regimental battalions are theoretically identical and the present "national" regiment has no conflicting missions.

The new manning system is a program which has great promise, but in evaluating the system as a concrete program it is important to bear in mind the manner in which it has been implemented. The new manning system has not been promulgated as a master plan. It has developed piecemeal. Many of the elements of the program have not been tested in relation to one another. Although the regimental system is coming into effect, no unit has yet passed through an entire regimental life cycle. A number of COHORT batteries have been formed and deployed, but not under the regimental system as such and without the new training strategies. The first COHORT battalions are scarcely a year old.

Subjectively interpreted, the new manning system appears to be an open-ended program with great potential. If the Army is to fight outnumbered and win the first battle of the next war, then it is past time for the Army to consider some way of increasing the capabilities of the individual soldier. But the question remains, "Is the new manning system the way to go?" After all is said and done, the new manning system has this, at least, to recommend it: It has produced more capable and committed soldiers. And that's not bad for starters! 

Captain Randy D. Gebhardt, FA, is the Cannon Program Manager at the US Army Field Artillery School's Directorate of Training and Doctrine at Fort Sill, Oklahoma. He received his commission through ROTC at Western Michigan University and is a graduate of the Field Artillery Officer Advanced Course. Captain Gebhardt's past assignments include 2d Battalion, 20th Field Artillery and the 8th Division Special Staff.

Right by Piece

NOTES FROM UNITS



Power for the installed PADS in the Huey is fed from the helicopter through the cable running vertically to the ceiling. The operator is in position on the right. (Photos by SGT James Birdsong)

PADS in a Huey

FORT BRAGG, NC—With the fielding of the position and azimuth determining system (PADS), the field artillery has taken a quantum leap forward in its ability to extend survey control accurately and rapidly throughout the battle area. But even PADS must cover the ground; and constraints of time, distance, weather, terrain, or tactical situation can make it difficult to get PADS where it is needed. That is why the 82d Airborne Division Artillery and the 82d Combat Aviation Battalion collaborated in an experiment to mount a PADS in a UH-1H "Huey" helicopter to survey targets in Fort Bragg's impact area.

The experiment took place in the Huey rather than in the OH-58 because of the OH-58's limited lift capability, especially during warm weather. Even the C-model OH-58 was "maxed out" from the combined weight of the PADS, the auxiliary battery, and the PADS operator. The experiment with the Huey proved to be tremendously successful and can be applied at other training areas or anywhere the field artillery may deploy. The key to the success was finding ways to provide power to the PADS and to secure it in the aircraft.

The power problem was solved by fabricating a 5-foot cable. An armament power receptacle from an OH-58 was attached to a rescue hoist connector from the Huey which, in conjunction with the W9P2 cable from the PADS, was connected to the rescue hoist receptacle of the Huey.

The materials used in the construction of the adaptor cable to power the PADS in the Huey were available through aviation supply channels. They included these items:

<u>Nomenclature</u>	<u>NSN</u>	<u>Quantity</u>
Connector receptacle	5935-00-758-7131	1 each
Connector receptacle	5935-01-055-3891	1 each
Wire, electrical AWG 6	none	8 feet
Tubing, insulation	5970-00-954-1624	4 feet

The rescue hoist's rated capacity of 53 amperes was a compatible match for the power requirements of PADS operations.

The seats must be removed from one side of the Huey to make room for the PADS, which is then secured to the helicopter by three ratchet straps—one lengthwise and two across. The battery box is secured in the forward part of the cargo compartment with one ratchet strap.



Final tightening of the ratchet straps secures PADS to the aircraft bulkhead.

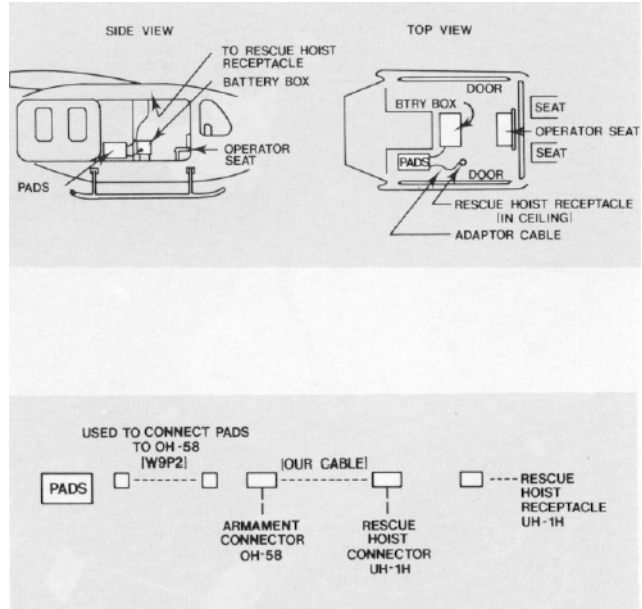
Field testing of the PADS mounted in the Huey yielded survey accuracies comparable to those of conventional methods of survey. At the hover position, the Huey provided a platform which was stable enough to accomplish accurate target survey. Mounting a PADS in a Huey is not revolutionary, but it improves on the concept of an aircraft-mounted PADS by offering an aircraft with space and a lift capability superior to that of the OH-58.



Private First Class McClain, PADS operator in the 1st Battalion, 320th Field Artillery, 82d Airborne Division, holds the UH-1H adaptor cable.

As in any successful operation, cooperation and coordination between the aviation and artillery units was essential. If personnel understand the mission and the limitations of both the aircraft and PADS, a good survey plan and a good preflight briefing can result in a successful survey mission. (CPT Robert A. Dow, 82d Airborne Division Artillery)

Subject matter experts within the Target Acquisition Department find merit in this viable technique. They caution, however, that the technique of mounting the PADS in the UH-1H has yet to be formally tested and evaluated to guarantee accuracy. Next, they emphasize that cables fabricated for use in the UH-1H should



meet military specifications so that they prevent electromagnetic interference. Finally, they comment that the PADS power requirement could increase upward to 97.4 amperes during initialization—the UH-1H using procedures outlined for the OH-58 operation in TM 5-6675-308-12. The Field Artillery School has initiated actions to adopt these procedures and publish necessary changes to applicable technical manuals. The efforts of the 82d Airborne Division Artillery will be reflected in an engineering change proposal which the PADS contractor will use to fabricate the cables and test the system for the Belvoir Research and Development Center.—Ed.

FADAC Dies After Lingering Illness

FORT SILL, OK—The Field Artillery Digital Automatic Computer (FADAC), a gallant veteran of 25 years service, died here today at the Field Artillery School after a lingering illness of 11 years. "He was just worn out," stated a member of the Directorate of Combat Developments. Unofficial reports state that FADAC went into a severe depression after being removed from the basement of Knox Hall in the fall of 1984. He was often seen after that hanging around in supply rooms and direct and general support maintenance bays with his friend the 400 cycle, 3-kilowatt generator. His father, Manual Gunnery, would not release the exact details of his passing. His nephew, TI-59, is also reported to be in poor health.

Funeral services will be held on the Old Post Quadrangle. He is survived by his two sons, the battery computer system and the backup computer system. (Story by CPT Randy Mitchell)



FORT CARSON, CO—The Mountain Cannoneers of the 1st Battalion, 27th Field Artillery at Fort Carson, Colorado recently learned about the M985 heavy equipment mobility tactical truck (HEMTT). Members of the 1st Infantry Division, Fort Riley, Kansas, introduced their Colorado-based counterparts to the multiple launch rocket system's (MLRS) ammunition carrier version of the M985. The carrier is used to load and unload rocket pads from the MLRS.



Road nets laid out in tape give an operations planner experience in road-marching a unit to a main battle area.

Fighting a War in Snow Hall

FORT SILL, OK—While the noncommissioned officers took the battalion to the field on a 3-day live fire exercise, the officers of 3d Battalion, 18th Field Artillery assembled in one of Snow Hall's large classrooms and conducted a mission-oriented command post and logistics exercise (CPX/LOGEX). They performed every action in real time, and gained a realistic assessment of the time required both to deploy from the Continental United States (CONUS) to their unit's assigned area of operations and to conduct initial tactical operations.

The first phase of the exercise required the officers to develop load plans for movement of all equipment, ammunition, and supplies. This was a very rewarding learning experience because, unlike units overseas, most CONUS units do not frequently practice loading all the equipment they will carry to combat.

Phase II required the battalion to make a 6-hour road march to the main battle area. The officers watched their units traverse the German road net laid out in tape on the classroom floor. During that move units experienced vehicle breakdowns, changes in the route of march, and some personnel problems including unique encounters resulting from being in a new country.

Phases III and IV consisted of preparing to move to the main battle area from a forward assembly area and subsequently into initial positions. Unit leaders were required to request replacement personnel based on expected casualty rates. They also requested supplies based on consumption rates and scenario events.

Total scenario time was 5 days; however, the actual exercise time was over in 1½ days. As part of the exercise, the officers consumed only water and coffee and did not sleep. There were also long periods of time when they operated in protective masks and chemical protective overgarments.

The officers were exposed to numerous conditions and problems seldom experienced in peacetime.

The exercise provided some valuable lessons.

- It made all concerned aware of the necessity of doing an in-depth study of the requirements to deploy from CONUS, draw and upload prepositioning of materiel configured to unit sets (POMCUS) equipment, and movement to the main battle area.

- By placing stress on each participant, it confronted everyone with his limitations in performing tasks and making sound decisions under pressure.

- It developed cohesion and confidence among the unit's officers. (Story by LTC Leroy Zimmerman)

Reuniting the Battered Bastards

GREENVILLE, SC—The "Battered Bastards of the First Team" will hold their 41st annual reunion at Colonial Court, Greenville, South Carolina, from 21-22 September 1985. According to their historian, the soldiers of the 58th Armored Field Artillery Battalion (European Theater Operations) were:

- First to use M7s in battle.
- First artillery in "behind the lines" landings at San Agato and Brolo.
- First US armored spearhead through Godrana to Trabia, Sicily.
- Forward observers for the Rangers on Pointe du Hoc.

- First to defend Bastogne.
- First to be chosen to go from Europe to invade Japan.

For more information about the reunion, contact George Ryan, Wesley Woods Conference Center, P.O. Box 846, Williams Bay, Wisconsin 53191, or call Colonial Court at 803-233-5393.

25th Field Artillery Reunion

GETTYSBURG, PA—The 25th Field Artillery will hold a reunion on 25-28 July 1985 at Gettysburg, Pennsylvania. Former members of the Battalion, their families, and friends are invited to attend.

For more information and reservations, contact Frank J. Topper, 10 Jefferson Street, Hanover, Pennsylvania 17331, or call 717-632-8142.



Dressed as a Soviet officer, SSG Nicholas Rostas, who was born in communist Hungary, shows a copy of a Soviet magazine to Redlegs from the 4-5th Field Artillery Regiment.

Soviets for a Day

GOEPPINGEN, GERMANY—What is a typical day in the life of a Russian soldier? Ask the Redlegs of Battery B, 4th Battalion, 5th Field Artillery Regiment assigned to the 1st Infantry Division (Forward). Last October, the Neu Ulm artillerymen received a crash course in communist military life by enduring a simulated duty day of a Soviet soldier. One man, Staff Sergeant Nicholas Rostas, watched and remembered what life is like behind the Iron Curtain. Sergeant Rostas, assigned to the Division G2 at Cooke Barracks in Goepingen, was born in communist Hungary in 1951. He escaped from behind the Iron Curtain and obtained legal papers to come to America. He knows what freedom is all about.

At 0500 hours on "Soviet Day," the 4-5th Field Artillery Regiment soldiers rolled out of bed for an hour's Soviet-style physical training (PT). Soviet PT usually lasts about 2 hours, but the "comrades for a day" who performed the unfamiliar and unusual Soviet exercises did considerably less.

The next phase—breakfast—was also unfamiliar, not to mention unpleasant. Instead of the usual eggs, pancakes, and cereal provided to American gunners, the Soviet Day breakfast consisted of soup and bread with one glass of milk per person. No talking was allowed, and the men were told where to sit. By this time, most of the participants were already fed up with playing Ivan. But there was more unpleasantness to come.

At an in-ranks inspection after breakfast, Staff Sergeant "Smoke" John E. Thorton, chief of firing battery, checked his fellow comrades to ensure that they measured up to Soviet standards. The inspection went well because even the raggediest American soldier looks better than his communist counterpart. To simulate Soviet uniforms, the soldiers wore their caps folded up like the stereotypical Russian hat. The trainers wore opposing force uniforms. July-August

July-August



SSG Nicholas Rostas adds a touch of realism to the 4-5th Field Artillery's Soviet Day training as he watches a "comrade soldier" disassemble an ARMS rifle.

After the inspection, the trainers set up three training stations and divided the battery accordingly. At the first station, the soldiers learned how to make a size, activity, location, uniform, time, and equipment (SALUTE) report using miniature scenes which included models of vehicles and weapons. At another station, soldiers learned the five "S's"—search, silence, segregate, safeguard, and speed—for handling prisoners of war. At the third station, students dismantled and cleaned actual Soviet weapons as the trainer explained the weapons in detail.

The Soviet Day training concluded with a show of slides on Russia and a briefing by Sergeant Rostas who gave a personal account of life behind the Iron Curtain.

"I think the training was great," offered Private Reginald Brown. "The weapons were really fascinating. Some of them felt pretty good, and I was amazed to learn that a Soviet soldier can pick up your M16A1 ammunition and use it in his rifle while you can't use his rounds in the M16. But there's no way I'd want to be in the communist Army, especially after eating breakfast and listening to Staff Sergeant Rostas' talk." (Story and photos by SP4 Robert Bastedo)

7th Field Artillery Reunion

ORLANDO, FL—The 7th Field Artillery Association will hold its 18th Annual Reunion on 25-26 October at:

Quality Inn University
11731 East Colonial Drive
Orlando, Florida 32817
(Phone: 305-273-1500)

Anyone interested in information about the reunion and the 7th Field Artillery Association should contact Major (Retired) Joseph Canzano, 243 Coronado Boulevard, Titusville, Florida 32780; or Robert B. Dennis, 34 Butternut Lane, Methuen, Massachusetts 01844. The 7th Field Artillery—never Broken by Hardship or Battle!

Lesley James McNair:

The Redleg "Brain of the US Army"

by Colonel (Retired) Robert M. Stegmaier



Photos courtesy Fort Sill Museum

Captain McNair using a transit on the range at Fort Sill in 1916.

It's been said of General Lesley James McNair, Commanding General, Army Ground Forces in 1942, that "He never asked a soldier to do what he would not do." The trips he took overseas to inspect the effectiveness of Stateside training provide graphic evidence to support that statement. In 1943, he went to Tunisia where soldiers were being wounded and returned with his own severe wound as well as a Purple Heart. He traveled to France in 1944 to be where the men he

trained were being killed. This time he did not return. A grave in the Saint Lo military cemetery became his final resting place.

General McNair had the task of training approximately 3 million men for combat. His method for accomplishing this extraordinary mission hinged on his beliefs that "Training depends upon sound directives followed by personal supervision" and, "Papers are no good. They must be translated into action."

McNair set the example for following these axioms throughout the 4 years he commanded the US Army Ground Forces. He traveled 200,000 miles on inspection trips because personal follow-up was as important to him as the writing and publishing of a directive.

Having chosen to be a gunner upon graduation from West Point in 1904, General McNair was always a field artilleryman at heart. But the pressures of history often took him away from the guns. When World War I units were sent from the United States to Europe, he went as the operations officer of the 1st Division. Within 2 months of McNair's arrival in France, General Pershing selected the hard-charging young colonel for duty as the senior artillery officer of the American Expeditionary Force (AEF). McNair was promoted to brigadier general, and became the youngest man at age 35 to hold that rank in the AEF. McNair was also honored by receipt of the Distinguished Service Medal for his "marked ability to . . . estimate changing conditions and requirements of military tactics." Thus, even at this point in his career, McNair's genius in resolving the intricate details of staff work had been noted and rewarded.

Between 1919 and 1941 his assignments were generally connected with military education: from 1924 to 1928 he was professor of military science at Purdue; from 1928 to 1929 he was a student at the US Army War College; from 1929 to 1933 he acted as Assistant Commandant at the Field Artillery School; and from 1939 to 1940 he was Commandant of the Command and General Staff College at Fort Leavenworth. Although the United States was not immediately involved in the nascent European Wars beginning in 1935, McNair transformed the Fort Leavenworth curriculum from peacetime to a wartime footing. His every effort was to learn from the military operations of the past and present but always to dwell upon those of tomorrow. Of McNair's performance at the Command and General Staff College, General George C. Marshall wrote: "You at the head of Leavenworth are one of the great satisfactions I have at the moment in visualizing the responsibilities of the next couple of years."

The implication of the trust and confidence indicated by these words were underscored yet again in 1940 when

He disliked intensely the "metallic officer," one with "silver in his hair, gold in his mouth, and lead in his pants."



Lieutenant General McNair, Army Ground Forces in Washington, D.C. 1942.

Marshall brought McNair to Washington as Chief of Staff of the Field Forces. General Marshall told McNair at the time of this assignment: "Now that I have put this into your hands, I can forget all about it."

General Marshall's confidence was not misplaced. McNair's dominant thought was that although the United States was not at war "it might come at any time and we have to get together something of an army pretty darn fast." Within a year he helped transform an army of approximately 200,000 into one of almost a million and a half strong. His own staff, although authorized a strength of 156, had during that time a strength of 23. To McNair bigness meant inefficiency. Results counted and not a build-up of his staff.

The defeat of the German Army was McNair's primary goal. To accomplish this objective, he realized that it was not enough to be as good as the Germans—the US Army had to be better. In training that better Army, he focused on several fundamental principles:

- The contributions of all the other services could only be preliminary and supportive of the infantry; until the infantry and its supporting field forces

seized the ground and caused the enemy to surrender there would be no victory. For McNair, landpower was the critical factor.

- Troops must be toughened mentally so that adverse conditions would not divert them from their mission.

- Training must be progressive starting with the individual, then small unit training would be followed by combined arms training and terminated by maneuvers involving corps and armies.

- Troop units in the United States would be organized, trained, and administered by armies, corps, divisions, and similar tactical units as though in the theater of operation.

- There would be no compromise on the quality of training.

McNair's Army Ground Forces had many duties. They trained the basic fighting unit—the division they also provided training for supply and maintenance

Colonel (Retired) Robert M. Stegmaier received his commission in the Quartermaster branch upon graduation from the United States Military Academy in 1937. During his tenure as a quartermaster officer, he served in Germany, Korea, Peru, and the United States. He also served with the G3 Section at the Pentagon and commanded the 32d and 2d Quartermaster Group. Upon his retirement at Fort Sill Oklahoma, in 1965, Colonel Stegmaier adopted the Field Artillery. He has published many articles on famous field artillerymen. Currently, he resides in Sun City, Arizona.

organizations. There were also auxiliary fighting units to be trained—airborne, antitank, armored, and so on. Replacements for losses in battle had to be supplied. Moreover, training doctrine had to be kept up-to-date. Accordingly McNair's frontline observers frequently mailed battle reports which suggested improvements in US training. These reports had to be analyzed, considered, and possibly adopted.

Whatever the training task, McNair demanded that it be realistic. Combat conditions were to be introduced insofar as safety allowed. Obstacle courses were made to resemble the battlefield. Infiltration courses included the firing of live bullets just overhead of participants. Artillery barrages landed just ahead of simulated attacks. Maneuvers were freely conducted with umpires basing troop movement decisions solely on the effect of field commanders decisions and orders. As General McNair stated: "The American soldier who goes green into battle has had more realistic precombat training than the soldier of any other nation in the world, including Germany."

McNair also stressed leadership. He disliked intensely the "metallic officer," one with "silver in his hair, gold in his mouth, and lead in his pants." His definition of leadership was the ability to lead men and not drive them.

By this definition McNair was an exceptional leader, and like every professional military man he sought in time of war to lead men in battle. In 1944 McNair was about to fulfill that goal. Under Eisenhower he was to be commander of all ground forces in Europe. He went to France to check the battle-frontline conditions. Scarcely had he arrived when he was killed. As he died, he visualized the eventual victory that the American Army, *his* trained army, would win. His work was over; his duty well-done.

General Marshall captured McNair's spirit and his achievements in these few lines of an eloquent eulogy: "His presence on the firing line with the leading element in the great assault on the American front in Normandy was indicative of his aggressive and fearless spirit and should be an inspiring example of our great ground army which he organized and trained." 