



Commandant's NOTE

MAJOR GENERAL MICHAEL F. SPIGELMIRE Chief of Infantry

MORTARS AND THE COMBINED ARMS TEAM

The concept of mortars as a vital part of the combined arms team has come under attack recently, and those who oppose it usually advance two arguments:

• Mortars are not as lethal as artillery and therefore amount to little more than second-class fire support weapons.

• Because the Army will probably have to operate with fewer resources in the future than it has today, it must streamline all of its organizations, including its mortar units, and keep only the most effective ones.

In view of this interest, we at the Infantry School have reviewed our mortar program and mortar organizations. One fact is quite clear to us—mortars are still a vital and necessary component of the combined arms team. We feel that today's mortar systems, organizations, and ammunition can make a significant contribution to success in combat.

The most basic fact to consider is that the presence of mortars in every maneuver battalion gives the commanders responsive indirect fires with which to fight a combined arms battle. This supports our doctrine by allowing the commanders at higher levels to mass or shift other forms of fire support without totally depriving any unit of the fire support it needs.

Mortars complement the other forms of fire support in several ways. They are the most responsive form of fire support; they are extremely lethal against soft targets such as infantry; they can be used in even the most restricted terrain; their short minimum range makes them ideal for providing close-in protective fires; and they are easy to conceal and protect.

The relative size of the weapons and the weight of the ammunition have obvious strategic transport advantages over artillery weapons. For instance, a 107mm mortar round weighs 22 pounds while a 105mm howitzer round weighs 45 pounds. The mortar round has much the same effect against personnel targets as the artillery round and offers better suppressive effects. In addition, less than half the manpower is needed per tube, and man transportability provides many tactical advantages. As many of us learned in Vietnam, mortars can be secretly moved into position to support surprise attacks.

In recent years, the Army has made several improvements in the mortar weapon systems that make them even more effective.

Materiel improvements include the M224 60mm mortar, which has been fielded to all Active Army and roundout Army units, and the M252 improved 81mm (181mm) mortar, also fielded to most of these units. Both systems offer greater range, better accuracy, and more lethality than their predecessors.

The 120mm mortar will be fielded in two versions, a towed system and a carrier system. The towed system is scheduled to be fielded to the 9th Motorized Brigade in Fiscal Year 1991, while the carrier system is to be fielded in Fiscal Year 1994. The 120mm not only has operational commonality with the other mortar systems, it offers the same advantages over its predecessors as the smaller mortars. It also has a far better potential for future improvements.

New ammunition upgrades for the 60mm mortar include high explosive (HE), smoke, illuminating, and short range training rounds. The HE cartridge is now in the inventory, and the smoke and short-range training rounds are scheduled to be fielded in Fiscal Year 1991. (Because of budget constraints and a large stockpile of old 60mm ammunition, a limited purchase of the new illumination rounds is scheduled for Fiscal Year 1991.)

The new family of ammunition for the 181mm mortar (M252) includes HE, smoke, illumination, short range and long range training rounds. The fielding of the new HE round is in progress; the smoke round and a limited number of illumination rounds are scheduled for fielding during Fiscal Year 1991. With reduced charges, the new ammunition can be used with the old M29A1 mortar as well.

The new family of improved ammunition for the 120mm mortar—HE, smoke, illumination, and short range training rounds—will be fielded with the carrier system in Fiscal Year 1994. (The improved illumination and training rounds will be developed but will not be fielded.)

At the same time, we at the Infantry School are working to reduce the complexity, number, and type of mortar fuzes. Our goal is to have only three fuzes for all mortar applications. All new 60mm, 81mm, and 120mm ammunition, for example, will already be fuzed when it is fielded. The fuze for the HE rounds will be the M734 multi-option fuze, which can be set by hand. The other fuzes are a point detonating fuze for the 60mm smoke cartridge and a precision time fuze for illuminating cartridges and the 81mm smoke cartridge.

The fielding of the mortar ballistic computer (MBC) has greatly improved the speed and accuracy of fire direction center (FDC) operations. The MBC upgrade for the new 60mm and 81mm ammunition is scheduled to be completed this year, while the 120mm mortar ammunition software will be available along with the improved ammunition.

Another developmental action being considered is the application of existing or emerging field artillery technology to mortars to increase their accuracy, survivability, and responsiveness.

For the near term, we are looking at low cost, low risk, and existing technology including: The use of the Global Positioning System to provide continuous accurate position updates, the use of a north-finding module to provide a mounting azimuth, and an adaptation of the Field Artillery's M1 collimator to eliminate the need for aiming stakes and the associated tasks. Our far term efforts will focus on five major areas of improvement: survivability, responsiveness, mobility, accuracy, and lethality. Within each area of improvement, a long term concept is being formulated that will address the materiel needs within that area.

In addition to these improvements, the Infantry School has made some organizational improvements in the heavy battalion mortar platoons, increasing the number of mortars in them from four to six tubes to provide greater firepower and flexibility.

We also increased the rank structure within the heavy mortar platoon to ensure that mortar men have the level of experience and training they will need to meet the additional responsibilities of a larger unit and of routine split-section operations. The platoon sergeant is now a master sergeant, the section leaders are sergeants first class, and the chief computer is a staff sergeant. Further, to provide an understanding of mortar training, maintenance, and employment within the company headquarters, the first sergeants of many infantry battalion headquarters companies have also been coded MOS 11C (mortarman).

There are other areas that need improvement, one of which is training.

Our best picture of the current state of mortar training comes from the exercises conducted at the National Training Center (NTC) and the Joint Readiness Training Center (JRTC). Other training exercises, recent mortar tests, and results of skill qualification tests provide additional insights. Our conclusion is that although the performance of mortar crews in units seems adequate, the tactical employment of mortars needs improvement.

The major problem we see at the training centers is that mortars are simply not used enough. Leaders and fire support elements do not call for mortar support even when there are targets and no artillery support is available. In fact, they request field artillery fires more than six times as often as mortar fires.

The lack of calls for fire may be partly due to certain limitations in the training centers themselves. Both the NTC and the JRTC have difficulty portraying the full effects of suppression. It is therefore difficult to conduct effective training in adjusting mortar fires. Too, a limitation during live fire exercises is the prohibition against firing mortars over the heads of friendly forces.

Home station limitations also undoubtedly add to this general tendency. Too often, mortars train independently rather than as part of the maneuver team. When they do train in unit exercises, it is

difficult to show how their fires contribute to maneuver success. It is also difficult for the effectiveness of the entire mortar team to be evaluated objectively enough to serve as a basis for improvement.

If mortar training is to be effective, it must include all of the elements of the mortar fire team—the commander, the mortar headquarters, the mortar squads, the FDC, and the fire support team (FIST) and forward observer (FO)—and each must be properly trained.

Unfortunately, in the past the STRAC standards for mortars have contributed to incomplete training. The 1968 standards, for instance, required only that squad leaders and gunners pass the gunner's examination and that the unit obtain a satisfactory rating on an external evaluation. Now, however, the 1990 version of STRAC not only highlights the training requirements for the entire mortar team, it also emphasizes combined arms operations and expands and clarifies the standards. It still requires a gunner's examination but has added a requirement for a fire direction center examination for FDC personnel, section leaders, and squad leaders. Additionally, the external evaluation now requires both live fire and force-on-force operations as part of a company or battalion maneuver field training exercise.

At the Infantry School, we are working on our courses and doctrinal products to improve mortar training performance. The Advanced NCO Course will be tracked in Fiscal Year 1991, and half of the program of instruction will be MOS 11C specific. An exportable Infantry Mortar Platoon Course and a Skill Level 2 FDC course are being developed and will be available in Fiscal Year 1991.

To promote simplicity and standardization, we have consolidated the various doctrinal and training references for all types of mortars into as few source documents as possible. Our current Army Readiness and Training Evaluation Program (ARTEP) products include all mortars in just two publications—ARTEP 7-90-MTP (mission training plan) and ARTEP 7-90 DRILL. The training and evaluation outlines in the MTP are written so that they apply to any type of mortar or mortar organization, while the more technical drill book incorporates the crew and battle drills into separate actions by type of mortar.

We are also consolidating the current mortar field manuals into just three publications—FM 23-90, Mortars, now in final draft; FM 7-90, Tactical Employment of Mortars; and FM 23-91, Mortar Gunnery. The mortar gunnery manual will include an FDC examination. We are also revising FM 7-10, Infantry Rifle Company, and 7-20, The Infantry Battalion, and they will include mortars in greater detail. All of these manuals will include the equipment and organizational changes mentioned above and the latest lessons learned. When completed, they, along with the current generation of CMF 11 Soldiers Manuals, will form a complete set of doctrinal and training references for mortars.

The success of mortars on the battlefield of the future will not result solely from the technological and materiel changes under development, although these will help. That success will only come from hard, realistic training and from the effective understanding and employment of mortars by all the leaders of the combined arms team.