fact, is the most important part.

Decisiveness—a leadership trait that all officers should seek and demonstrate—is considered of premium value among combat arms officers. In their dealings with other officers, they expect confidence and aggressiveness. In many cases, young, inexperienced S-2s—through hesitation and a lack of confidence in their own analysis—fail to meet these expectations. This is exactly why the battalion S-2 must establish credibility with his commander. He can best do this by seizing every opportunity to brief, by articulating his analysis with utter confidence, and by driving his main points across emphatically.

The S-2 has to be bold, sometimes even obnoxious, as other officers will undoubtedly "sharpshoot" him. This is especially true if he is competing with a domineering S-3. But if the S-2 believes in what he's telling the commander, then he also has to make his commander believe in it. He has to decide on a probable course of enemy action, sell it to his boss, and defend it to the end—even if it isn't precisely on target. Nobody can always be completely right, but the S-2 must always be confident.

The NTC is one battlefield on which tactical intelligence has proved itself. It is here that the importance of intelligence has become plainly visible to everyone. Yet the success of each combat maneuver battalion depends largely on the ability of its S-2. The S-2 should therefore work hard to become the best. His commander should determine the S-2's skill level far in advance of deploying to the NTC and should get personally involved in correcting any shortcomings. Personal interest on the commander's part is especially critical if he intends to put the S-2 in charge of counter-reconnaissance. In this case, the S-2's responsibilities will greatly increase. If he's weak in the basic skills, the addition of counter-reconnaissance planning and execution will only overwhelm him and hurt the unit.

The commander must know what to look for in a good S-2 and then develop his own accordingly. Command interest, technical knowledge, and a strong dose of confidence will show the S-2 the way toward success. Recent history tells us that the S-2s who have done well at the NTC have had these factors in common.

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Motorized at the NTC

LIEUTENANT COLONEL STEVEN D. VERMILLION

Since its inception in the early 1980s, the motorized concept has gone through several validation tests. Until recently, however, it had never been exposed to a highly trained opposing force employing Soviet tactics. The 9th Infantry Division (Motorized) was given an opportunity to confront the best opposing force (OPFOR) in existence when its 3d Brigade was scheduled for a rotation at the National Training Center (NTC) in May 1988.

Unlike other divisions based in the continental United States, the 9th Division had had no major NTC experience up to that point and therefore had to set about determining what NTC training was all about. At the same time, the NTC didn't know much about the motorized division and had to start from scratch in designing scenarios and structuring an opposing force of the type that the brigade could expect to encounter.

The doctrinal manuals and the mission essential task lists (METLs) of both the 3d Brigade and its battalions were used as a starting point, in addition to the experience gained from numerous training exercises at Fort Lewis's Yakima Firing Center. A task organization was developed in September 1987; this led to clarifying what the brigade's missions at the NTC would be and the size of the area in which the brigade would be operating.

The authors of the motorized division plan created a task organization in which the battalions were already task organized. Unlike pure tank and pure mechanized battalions, which normally cross-attach their companies on the basis of METT-T (mission, enemy, terrain, troops, and time), the motorized battalions did not have to go through a mechanical reorganization process.

Through the brigade's experience, however, its leaders knew that its own organizational design lacked sufficient dismounted infantry. When the NTC task organization was planned, therefore, the maneuver companies were cross-leveled by using the assets of both of the division's brigades. This meant that, based on the METT-T assessment, more balanced battalions were available.

The initial task organization is reflected in the accompanying box. Unfortunately, the forces marked with an asterisk

were deleted from the task organization just before the brigade deployed to the NTC. The loss of these additional forces severely affected the maneuver force's ability to execute motorized doctrine to its fullest extent. One of the key battlefield requirements, however, is to maintain flexibility and to use whatever resources may be available to the greatest extent possible. Thus, the brigade went to do battle with the OPFOR using the forces allocated to it.

The brigade's preparation for the rotation consisted of a series of map exercises, NTC tactical exercises without troops, and command post exercises. These exercises were designed in a building block fashion—starting with individual soldier tasks and ending with collective tasks in brigade operations—to allow the commanders, staff members, and soldiers of the brigade combat team to prepare for the NTC.

Through the efforts of many headquarters, each task force company commander was able to participate as part of at least one augmentation force at the NTC before the brigade's scheduled training. This experience allowed the commanders to become familiar with the terrain, with the way the OPFOR conducted its operations, and with maneuver in the vast desert expanse.

The highlight of this seven-month training period was a 21-day division MILES field training exercise conducted at Yakima Firing Center that duplicated the expected NTC training as nearly as possible. The 2d Brigade provided a tank battalion and elements of a heavy combined arms battalion to serve as the opposing force. Additionally, that brigade provided a full complement of observer-controllers to control the maneuver forces and provide the critical after-action review. This full-dress rehearsal proved of inestimable value to the 3d Brigade combat team.

At the NTC, the battalions and the brigade were given the following missions to execute in a force-on-force environment:

- Night road march.
- Movement to contact (battalion).
- Covering force (battalion).
- Defense in sector (battalion/brigade).
- Night deep attack (battalion/brigade).
- Counterattack from hide positions (battalion).
- Counterattack from reserve position (battalion).

The brigade was able to identify many strengths and weaknesses from these missions, and although the observers who followed this training generally felt that the brigade combat team did a superb job—especially since it was the first motorized infantry NTC rotation—the NTC after-action review process handed out its share of constructive criticism. The major weaknesses that were identified are now being incorporated into the brigade's training plans to bring its combat capabilities to the highest possible state of readiness:

Reporting. Although great emphasis had been placed on the timeliness and accuracy of reporting, standards acceptable to the brigade were never achieved. Accurate reporting is a must if a commander is to position his resources so as to bring mass destruction on the enemy.

Reconnaissance. The brigade's potential reconnaissance ability was diminished a great deal when the scouts that are organic to the division and the remotely piloted vehicle (RPV) were prohibited from participating in the NTC rotation. Too, there was always the artifically imposed no-penetration line, beyond which friendly forces could not go to establish OPs or conduct patrols to gather intelligence. Additionally, the battalion scouts did not have any thermal acquisition devices, and this further hampered the reconnaissance effort.

Reconnaissance and counter-reconnaissance got progressively better, though, to the extent that in brigade force-on-force operations, the OPFOR was denied the ability to enter the brigade's planning cycle. The brigade was successful in defeating much of the OPFOR's mounted reconnaissance and destroyed more than half of its division reconnaissance team locations. In the early operations, the OPFOR reconnaissance force was able to move virtually unimpeded through the brigade's sector of operations.

OPFOR Counterair. The method the NTC used in employing the OPFOR "HIND-D" helicopters (modified UH-1 Hueys) allowed them to inflict many casualties upon the maneuver forces. The brigade had never faced such a formidable threat from an airborne weapon system. As the battles progressed, the soldiers got better at defeating the OPFOR air with air defense weapons and, in some instances, with ground TOW II missiles.

Synchronization. The brigade brought a great number of "killing systems" to the NTC. It developed precise plans for their employment, designed engagement areas, and brought its forces to bear on the enemy. For one reason or another, though—whether because of communications, weather, or a misreading of the

TASK ORGANIZATION

TF 2-1
- 2-1 IN (LA) (-)
  - A/2-47 (HTC)
  - C/2-47 IN (MIC)*
- TACP

TF 2-60
- 2-60 IN (CA-H)
  - A/2-1 IN (LAC)
- TACP

3-11 FA (155T)
- HQS/6-11 FA (LTACFIRE)
- E/333 FA (TAB)*
- X/C/1-84 FA (MLRS)*

99 SB (F)
- X/709 SB (COMPOSITE)

1-9 AHB
- X/9 AVN (COMPOSITE)
- X/X/3-9 AVN (AVIM)

C/15 EN (CBT)
- D/15 EN (EQUIP)
- 864 EN (CORPS CBT)*

B/1-44 ADA
- HHC 1-44 ADA (FAAR)
- 1-4 ADA (HAWK)*

B/109 MI
- D/109 MI (HACJAM, RPV)*
- E/109 MI (SCOUTS)*
- DET 9/109 MI

HHC, 3D BDE
- TACP

3/B/9 SIG

1/9 CHEM (DUAL PURPOSE)
- X/3/9 CHEM (RECON)*

2/9 MP

battlefield—at times the brigade was unable to bring these systems to bear on one focused point on the battlefield. In some instances, for example, ground and aviation forces were together but could not be synchronized with the artillery. The opportunity was often there to soundly defeat the OPFOR if the proper synchronization had taken place.

In addition to these operational lessons, a number of doctrinal lessons also came out of this NTC training:

• Without precise battlefield intelligence and the ability to infiltrate through the OPFOR, the brigade's deep attack mission is extremely risky and does not warrant the commitment of the forces.

That mission is usually consigned to a light attack battalion and is designed to destroy a key target such as a regimental or divisional artillery group, a regimental or larger command post, or another type of lucrative target. The keys to success in this operation are precise intelligence and an area along the FLOT (forward line of own troops) through which the force can infiltrate.

Neither of the deep attack missions attempted during the rotation succeeded. The designated targets were command posts that, after a plan for attack was developed, would move to other locations on the battlefield. The defending force through which the light attack battalion had to infiltrate was either a force comparable to it in size and capabilities or a smaller force positioned in a constricted movement corridor. In either case, the OPFOR always maintained a superior combat ratio.

• The personnel and equipment that were designed for the motorized force—such as long range scouts, remotely piloted vehicles, and the like—must be used in the future. They will enable the commanders and their staffs to better see the battlefield and to get inside the OPFOR decision cycle and position forces and other combat assets to bring mass destruction upon the enemy without becoming decisively engaged.

Motorized forces as they are currently equipped operate on the fringes in all combat operations. The TOW II is a fine weapon, but it is no match for a tank's main gun. The TOW was able to inflict kills beyond the 1,500-meter range. But with the closing capability of the OPFOR, and with the tank's ability to fire rapidly and to engage multiple targets with one weapon system, the OPFOR was able to get within main gun range and defeat the TOW. Once the tanks closed to 1,500 meters or less, the brigade's HMMWVs (high mobility multipurpose wheeled vehicles) were safer if they stayed in position instead of moving to alternate firing positions. When they did displace, the rapid-firing tanks could kill off the HMMWV's slow-firing TOW systems.

• Another infantry company is needed if the motorized brigade is to perform the traditional infantry roles, especially if the force is equipped with some variant of a tracked assault gun with a two- or three-man crew.

Pure armor forces within the Army have long realized the need for infantry to provide close-in security for the armor maneuver forces, to secure objectives, and to perform those traditional infantry roles that an armor force cannot. And the same infantry roles are applicable to motorized forces.

• The wide sectors the brigade chose to operate in prevented the maneuver forces from fighting a successful defense in depth.

Early in its coordination planning with the NTC—and given its initially planned task organization—the brigade chose a wide sector similar to what it might expect in a Southwest Asian scenario. With the slow rate of fire of the HMMWV TOW II, however, the wider brigade sector proved to be a distinct disadvantage. In some scenarios, for example, the battalions operated in sectors as wide as 18 kilometers.

Less width in sector and more depth would have been a better option. An assault gun with a rapid-fire capability as well as mobility on the battlefield would obviously allow for a wider sector to be accommodated, but depth in sector is still vital to a good defensive motorized fight.

• The creation and implementation of a brigade scout company must be a part of any future organizational design.

Battalion scouts with the combat support company provided the battalion with limited eyes on the battlefield, but the brigade had no resources to deploy forward in the brigade sector for security, counter-reconnaissance, or just seeing the enemy. A brigade scout company would provide this capability and would be useful in a mechanized or armored brigade as well as in a motorized brigade.

The final observations reflect how the brigade performed as a collective group during the rotation and some of its accomplishments. Naturally, these thoughts tend to be somewhat biased, because the staff devoted thousands of manhours to this rotation to achieve as much success as possible.

One of the strongest resources the brigade took to the battlefield was its soldiers. From the frontline soldier all the way back to the last soldier in the forward support battalion, each had an indomitable will to win that was displayed in his aggressive attitude. These soldiers wanted nothing more than to beat the OPFOR soundly, and they showed the true warrior spirit.

The TOW crews were hampered by their inability to collimate the AN/TAS-4 night sight to the MILES equipment during the hours of darkness. Nevertheless, the task force as a whole obtained 30 percent more kills than the normal mechanized or armored task force. This success may have been due in part to a target rich battlefield, or in part to the division's fine TOW gunnery programs.

At the NTC, artillery support with the towed 155mm howitzers proved unsatisfactory for motorized warfare. The towed systems lacked mobility and maneuverability and often caused the maneuver forces to outrun the artillery coverage in the offense. Even with this handicap, the artillery did attain a record in sustained Copperhead kills. The positioning of the artillery and the expertise of the ground laser location designator (GLLD) operators allowed this precise munition to become a significant combat multiplier.

Feedback from multiple sources stated that the combat support and combat service support were the finest that had been seen at the NTC. Whether it was the finest or not, the entire combat team did not suffer any logistical constraint that affected its tactical operations. Helicopters were used extensively from the division support area forward to the brigade support area, and even to the battalions. All

ground logistical operations were conducted during the hours of darkness, and this increased the survivability of the forces that were deployed forward. When the OPFOR entered the brigade support area, the soldiers rapidly changed from supporters to warriors.

Engineer operations were dynamic on the battlefield. The ground emplaced mine scattering system (GEMSS) proved formidable against the OPFOR. Minefields could be emplaced rapidly at night, and they often went undetected by OPFOR reconnaissance. Initially, the engineer companies were to be equipped with both dozers and SEEs (small emplacement excavators). Consequently, the companies' backhoes were turned in awaiting the SEEs, but they did not arrive in time to participate in the rotation. The only assets available to the task force were dozers and scoop loaders. Not only did the soldiers have to put barriers in; they also had to remove them at the end of each operation.

The OPFOR's jamming was ineffective because the 9th Operational Security Detachment used SCD (simulated communications deception) extensively. This allowed the task forces as well as the brigade to operate unimpeded by electronic warfare.

Considering that the brigade did not have some of its forces and equipment, which would have greatly increased its capabilities, its performance at the NTC was creditable. The Army still needs this "middleweight division" with its ability to deploy rapidly to any hot spot in the world and defeat or contain an armored or mechanized force.

Lieutenant Colonel Steven D. Vermillion, now executive officer of the 3d Brigade, 9th Infantry Division, was brigade S-3 during its NTC rotation. He previously served as deputy G-3 of the division. An Aviation officer, he flew "dustoff" missions in Vietnam, and has had extensive experience in armor and cavalry units.

MCBS
The Multi-Component Boot System

CAPTAIN PETER E. BLADER
CHIEF WARRANT OFFICER-2 KEVIN M. EGAN

On Christmas Day 1776, when General George Washington formed his forces outside Trenton and they began marching, cruel ice cut through their flimsy footwear and drew blood. The next morning, the rear echelons could follow their route by tracking the bloodstains in the snow.

Technology has changed many aspects of the Army since then, but the realities of dismounted movement remain the same. Today's light infantryman continues to rely upon his feet to move and fight in a wide variety of environments. Leaders must therefore place considerable importance upon the choice of footwear for their soldiers and upon the preparation and care of their soldiers' feet.

There have been great advances in podiatry, textiles, and boot designs, but rarely have all of these areas come together to form a functional system. The 2d Battalion, 75th Ranger Regiment has been working with the Army's Natick Laboratories in an attempt to achieve a workable synthesis of these advances and to find an improved march-boot system.

The major development flaw in the search for a solution in the past has been the tendency to fix on one set of climatic conditions. Over the past few years, for example, there has been a great deal of interest in the development of cold weather footwear. The need to keep feet warm and dry has led to experimentation with insulated boots of all types.

Although insulated boots are superior in extreme cold, they have severe limitations as march boots. It has been our experience that during long movements the temperature may be in the 50s at the beginning of a march and later may drop into the low 30s. The feet of a soldier marching in insulated boots are prone to sweat more, and this moisture will eventually soak his boots. With no optional insulation to be removed in response to rapidly changing environmental conditions, insulated boots take several days to dry, and until they are dry they only increase a soldier's risk of cold weather injury.

At the other extreme, the boot of choice for soft, muddy, wet tropical terrain is the jungle boot, which is designed to permit good air circulation and to dry quickly. Too, the steel plate in the sole offers protection against spikes. But these very attributes limit its usefulness as a march boot. The sole is hard and inflexible and does not absorb shock well. The lack of flexibility increases the incidence of achilles tendonitis in soldiers, and the protective plate absorbs heat from asphalt roads, causing sweating and subsequent tissue breakdown and blisters. In operational areas of wide temperature extremes, such as desert and mountain, the