



DNNE FUSES INFANTRYMEN'S CAPABILITIES WITH TECHNOLOGICAL ADVANCEMENTS

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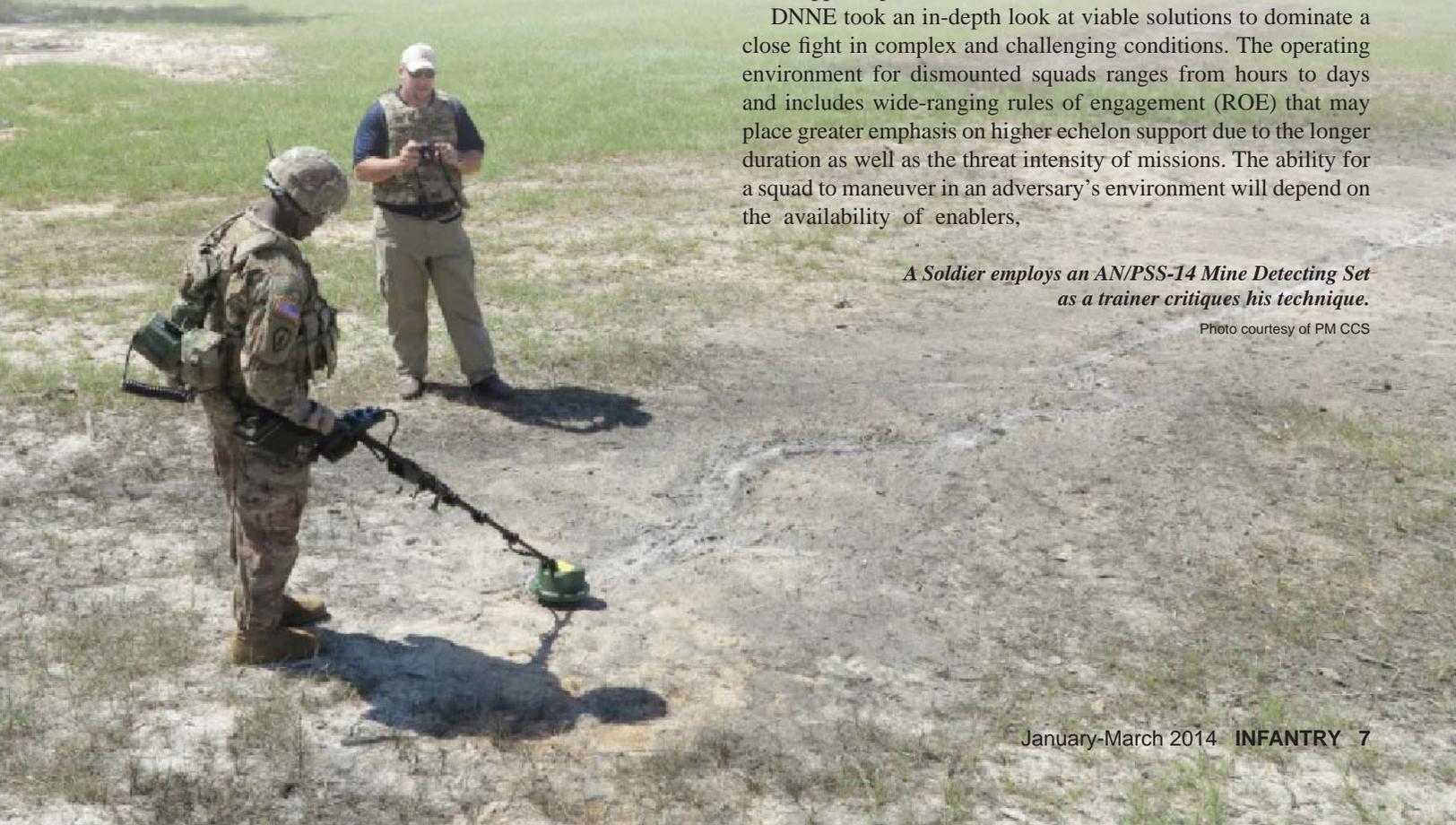
To a Soldier in the field, it may seem that new equipment just shows up. In reality, it is only through extensive work and collaborative actions between the combat and materiel development enterprise that the latest capabilities get into the hands of Soldiers. Discussions within the Maneuver Center of Excellence's (MCoE) Soldier Requirement Division determined there was a need to enhance the nine-man Infantry squad in a dismounted, non-networked environment. Thus, the Dismounted, Non-Networked Enabled Exercise (DNNE) was born and stands as a prime example of the fusing of Infantrymen's capabilities with materiel developers' technological advancements. This partnership puts innovative, reliable, and proven technology into warfighters' hands in the most effective and expedient manner and provides an opportunity to get Soldier feedback. The exercise, held at Fort Benning, Ga., required the partnership of the Army Capabilities Integration Center, MCoE, and multiple project management offices including Project Manager Close Combat Systems (PM CCS).

Future squads will conduct missions across the range of military operations from full-scale war and counterinsurgency operations to peacekeeping support and reconstruction operations. For squads to accomplish their missions successfully, existing and future capabilities must be integrated into a family of systems and weapons and synchronized with those of higher units. The evolving operational environment and emerging threats to national security will require continuous assessment for the Army modernization of the squad and its supporting organizations. The effect of modernization efforts of the Squad: Foundation of the Decisive Force (SFDF) initiative include changes across the domains of doctrine, organizations, training, materiel, leadership and education, personnel and facilities (DOTMLPF). Capabilities, when validated and prioritized, will drive the adaptation and innovation necessary to conduct unified operations consistent with the ideas in the Army Capstone Concept and Movement and Maneuver Operational Concept — offense, defense, stability, and civil support operations.

DNNE took an in-depth look at viable solutions to dominate a close fight in complex and challenging conditions. The operating environment for dismounted squads ranges from hours to days and includes wide-ranging rules of engagement (ROE) that may place greater emphasis on higher echelon support due to the longer duration as well as the threat intensity of missions. The ability for a squad to maneuver in an adversary's environment will depend on the availability of enablers,

A Soldier employs an AN/PSS-14 Mine Detecting Set as a trainer critiques his technique.

Photo courtesy of PM CCS



be it sequentially or simultaneously. For example, a company acting as part of a larger element assisting in a force-entry mission could have its squads in three different tiers of fighting conditions. The first condition, dismounted non-network enabled, will provide limited or no access to external enablers because of weather, distance, terrain, constrained ROE, or threat capabilities. The second squad condition, dismounted networked enabled, has access to external enablers such as network, fire support, close air support, and attack aviation. The third squad condition, dismounted platform enabled, has the support of external and platform enablers like the M1151 Enhanced Armament Carrier, Bradley Fighting, Stryker, and Mine Resistant Ambush Protected vehicles. The network, a combat multiplier, is critical; however, the future squad still requires overmatch capabilities against future threats when the network is limited or denied. Consequently, DNNE provided an opportunity to explore these capabilities and collect the analytics of formation effectiveness for a series of imminent organic capabilities.

Increased lethality and survivability capabilities that allow maneuverability to defeat ever-evolving threats are the cornerstone of PM CCS' portfolio. "Although the landscape of the fight is changing, our premier mission at PM CCS remains consistent — to deliver the most robust, revolutionary advances in technology that allows our Soldiers to respond as necessary to any threat spectrum. We don't want a fair fight, ever," said COL Richard J. Hornstein, project manager for PM CCS, which is part of Program Executive Officer (PEO) Ammunition at Picatinny Arsenal, N.J.

With a portfolio of products that range from counter-improvised explosive devices (IEDs), handheld pyrotechnic devices, C-4 explosives, and shoulder-launched munitions (SLMs) to mine-clearing line charges, hand grenades, and non-lethal weapon sets, PM CCS provided several future technologies that were demonstrated during DNNE.

Having the tactical flexibility to react rapidly and effectively to any scenario ensures success against the varied threats and combat environments our forces face. In the area of SLM, Infantry has been in pursuit of a lightweight, multi-target SLMs capable of defeating the protection provided by urban structures, field fortifications, and light armored vehicles for more than two decades. The current mix of SLMs provides for field fortification, limited urban structure, and armor defeat capabilities. During DNNE, the potential of such a multi-target capability, the Individual Assault Munition (IAM), was reviewed. Reducing Soldier's overburden, the IAM increased Soldier mobility and provided continued overmatch and lethality while reducing exposure to counterattack by enabling Soldiers to engage targets from small rooms or other confined spaces. The IAM provides the future squad with a lightweight, recoilless fire from enclosure, multi-target munition capable of defeating earth and timber bunkers, masonry structures including adobe and light armored vehicles at ranges of 15-500 meters.

The MK3A2 Offensive Hand Grenade has been in the Army's inventory since 1917. It provides lethal over-pressurization effects without the fragmentation associated with the more commonly used M67 fragmentation hand grenade. However, it was discontinued for use in order to address safety concerns of asbestos in the fiber liner. Due to this, many Soldiers participating in Operations Iraqi and



Photo courtesy of PM CCS

During the DNNE, Soldiers train on the proper handgrip for the improved MK3 offensive hand grenade.

Enduring Freedom never had the opportunity to use the capability. The MK3 grenade is not just another tool in the commander's tool bag; it is an effective warfighting tool all Soldiers need to engage the enemy in close combat. The MK3 is a lethal overpressure concussion hand grenade used for operations in closed and restrictive terrain that includes engagement of bunkers, trench lines, caves, and to enter and clear rooms. The MK3 complements the M67 fragmentation hand grenade in lethality and is used in lieu of the M67 when lethal fragments are not preferred.

In addition, the improvements to the MK3 offensive grenade provide the Soldier with a lightweight blasting and demolition capability that is gripped, armed, and employed in the same manner as a hand grenade. During the exercise, Soldiers trained on the use of the improved MK3 and later used cognitive skill to determine what hand grenade capability (M67 or MK3) was best suited to engage a variety of target sets. Soldiers also had the opportunity to witness the MK3 used for door breaching at Fort Benning's Terry Demolition Range.

The Infantry uses demolitions and breaching munitions to clear mines and IEDs, overcome obstacles, and impede enemy movement. Modernization efforts are aimed at making demolitions lighter, more reliable and less sensitive. The Man-Portable Line Charge (MPLC) is a lightweight, man-portable rocket-launched explosive line-charge system that supports dismounted breaching operations of IEDs and/or tripwire-triggered hazards. Contained in a rucksack, MPLC consists of 84 feet of plastic-bonded explosive line charge, a small rocket motor used to deploy the line charge,

an arrestor strap, a launch rod, and 100 feet of dual-shock tube housed in a skin pack. The overall system weighs 27 pounds. Upon employment and detonation, MPLC can expose and, in some cases, clear buried and surface-laid explosive hazards in urban, rural, or trip-wired environments. MPLC can be employed from covered or concealed positions and, if used in conjunction with a handheld mine detector such as the AN/PSS-14, it can greatly increase the squad's mobility and survivability.

Having the freedom to operate wherever required on the battlefield is important notably when squads face the dangers of IEDs and other explosive hazards with every step and mile they travel. Currently fielded to deployed units in theater, the AN/PSS-14 Mine Detecting Set uses advanced electronics incorporating decades of lessons learned about the business of finding hostile mines. Integrating ground-penetrating radar (GPR) and a metal

detector, the AN/PSS-14 provides a three-dimensional analysis of objects buried in the ground and alerts the operator to the threat prior to detonation, greatly reducing the risk of injury to the squad. The system also features a built-in-test capability to warn the operator when the system is inoperable. Overall weight is 16.2 pounds (5.4 pounds of the weight is the battery). The AN/PSS-14 is the only handheld detector to have withstood rigorous Army testing against the full spectrum of Army requirements. The AN/PSS-14 utilizes the readily available BB-390 battery that can be ordered through the Army supply system.

Another capability evaluated during the DNNE Limited Objective Experiment was the infrared (IR) XM210 Handheld Signal (HHS). The current family of HHS, also known as the slap flare, provides day and night signaling and illumination capabilities. The XM210 complements the operational capability of the existing inventory of HHS with an IR capability at night. The XM210 enhances the operational performance capabilities of U.S. forces with night vision devices without giving unaided enemy forces visible light illumination when using the M127A1 Signal Illuminant White Star Parachute. The XM210 has the same form and fit as the current family of HHS that use an expendable launcher consisting of a launching tube and firing cap. The IR payload of the XM210 is rocket propelled to an altitude of 725 feet.

In addition to the HHS capability, the pen flare signaling device (PFSD) was also a part of DNNE. The PFSD fires visual and auditory signaling pyrotechnic flares without requiring reloading to a range of 70 meters. The launcher consists of a metal body that, when loaded with flares, is only 6.42 inches long. There are three colored (white, red, and green) flares and a flash bang. They are individually launched by pulling and releasing a firing lever. The PFSD is employed for squad-level signaling and can also be used in escalation-of-force scenarios. Soldiers benefit from a weight savings associated with carrying the PFSD rather than multiple white, green, and red HHS star clusters, which weigh 1.2 pounds each.

DNNE's success was not only defined by Soldiers' ability to prove emerging technologies against known requirements but also by the materiel development enterprise's ability to support a rapid experiment. The Soldiers' instantaneous feedback provided a mechanism to make course corrections in ongoing developments and address future tactics. Becoming more efficient in a manner that does not compromise the primary responsibility to the future squad is the mission of the DNNE joint partnership. As the manager of premier close combat capabilities, Team CCS is dedicated to the sustained success of today's joint warfighter and the continued dominance of the future force. PM CCS will continue to provide more lethal and survivable capabilities to empower the squad and increase commander's freedom of action to prevent, shape and win.

MAJ Jason D. Bohannon is the assistant product manager for Product Directorate Combat Munitions, Project Manager Close Combat Systems. He has served in multiple command and staff positions supporting combat operations in Afghanistan and Iraq for both conventional and Army Special Operations Forces. He provides overarching support to a range of battlefield munitions and escalation of force capabilities that broaden Soldiers' options for countering enemy actions.



Photo by SGT Melissa Stewart

Soldiers in A Company, 3rd Brigade Special Troops Battalion fire a Man Portable Line Charge during a training exercise.