

AMC: Accelerating the

Right and below, to increase domestic preparedness, the Army Materiel Command's Soldier Biological and Chemical Command (SBCCOM), Edgewood, Md., trains first responders on the latest techniques. At lower right, the Army experimental unmanned vehicle undergoes tests at Fort Indiantown Gap, Pa. The Objective Force Warrior, far right, will replace the Land Warrior ensemble over the next decade.



Photographs: U.S. Army

By Gen. Paul J. Kern
Commanding General
U. S. Army Materiel Command

Pace of Transformation



History teaches us that events—especially catastrophic events—often force change. We have seen this over and over, and so we continue to study, analyze and apply lessons learned from the battles of the Civil War, World War II and Vietnam, and more recently, Desert Storm and Somalia. In the late 1990s, Army leaders recognized the need for a new Army force for a changing world of political and economic instability. In October 1999, the Army set its course to become “a force that is responsive, deployable, agile, versatile, lethal, survivable, sustainable, and dominant at every point along the spectrum of operations, anywhere in the world.” The terrorist attacks of September 11 dramatically underscored the need to accelerate Army transformation.

Fighting and winning our nation’s wars are the fundamental reasons our nation created an Army 227 years ago. We are at war today. On one hand we are fighting a complex, elusive enemy, and on the other hand we are looking to the future, creating and developing an Objective Force to meet future national security needs. As Defense Secretary Rumsfeld recently stated, “We cannot simply hang on to the capa-



More than 28,000 first responders have been trained by SBCCOM.

bilities that were appropriate in a prior century. We need to think things anew. We need to take steps that are bold and innovative and that will position us so that we can continue to provide peace and stability in the period ahead. And that takes transformation.” The Army has changed continually since its birth, but we face an imperative to accelerate our transformation. We must assess our capabilities and look to our people to make it happen.

Capability encompasses many pieces, including training, doctrine and equipment. One transformation catalyst common to all three areas is technology. We must harness what is out there and insert new technologies where we can. We cannot afford to simply sweep thousands of tanks, trucks, helicopters and infantry fighting vehicles off the shelf and start fresh. What U.S. Army Materiel Command (AMC) is doing is taking technology that enhances our equipment and upgrading it, not just making it like new, but making it better and more reliable.

Maintenance depots are geared to restore older weapon systems that the Army needs as it makes its way to full transformation. AMC engineers and technicians are making modifications to the interim armored vehicle, including adding new digitized command and control systems. The Army Materiel Command is streamlining operations

GEN. PAUL J. KERN, Commanding General, U.S. Army Materiel Command, previously served as the military deputy to the Assistant Secretary of the Army for Acquisition, Logistics and Technology and was senior military advisor to the Army Acquisition Executive and to the Army Chief of Staff on all research, development and acquisition programs.

to conserve scarce resources and expedite development of new technologies and new logistics systems that are needed for Army transformation. Technological advancements already achieved on the way to transformation became evident to the world as the nation dug out from the rubble at “ground zero” in New York.

AMC civilians and soldiers played a key role in the rescue activities at the World Trade Center and the Pentagon. Communications Electronics Command (CECOM) engineers used radio frequency detectors and ground penetrating radar to locate electronic signals from cell phones and to search for survivors in the mountains of debris. Engineers used small digital cameras to help rescuers search for survivors. Radio frequency detectors developed at CECOM were used to find “black box” flight recorders from the airliners that crashed into the two towers. They also used CECOM-developed airborne sensors to map ground zero and precisely record where objects were found in the rescue and recovery operations.

While the nation was recovering from the shock of the attacks in New York and Washington, D.C., mail contaminated with anthrax spores began to show up in federal buildings. Part of the government’s response to that emergency included calling in the Technical Escort Unit (TEU) from Aberdeen Proving Ground, Md. An element of the Soldier and Biological Chemical Command, the TEU did extensive checking for anthrax and other biological and chemical agents in federal facilities in Washington, D.C.

At the same time that AMC’s capabilities were tapped to enhance rescue efforts and respond to biological and chemical threats, AMC was readying products and services to enable success in Southwest Asia. Prepositioned stocks of munitions and equipment, set aside for national

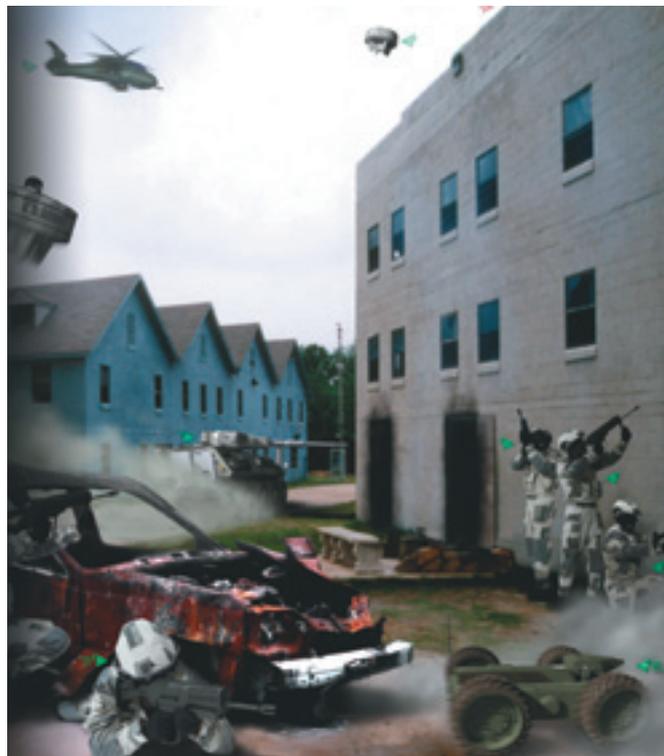
emergencies, were prepared for shipment. AMC warned vendors to be prepared for possible increases in production for everything from batteries to bullets, transmissions to transmitters and food to fuel. Logistics assistance representatives, civilian technical specialists from AMC, deployed with combat soldiers to assist with equipment maintenance in the fight against terrorism. While the Army demonstrated in these ways that it is ready to face current threats, its focus also continues to be on transformation to meet the challenges of future wars.

Transformation not only requires new equipment but it also represents a new way of fighting. Intelligence—superior information—is key. Modeling and simulation tools are also essential to transformation. Vehicles, weapons, procedures and doctrine will have their initial tryouts in a common, synthetic environment that spreads from researcher to user. New techniques and technologies will be tested long before tactics are changed or any metal is bent. These technologies are under development at the Simulation, Training and Instrumentation Command, one of AMC's high-tech subordinate commands. Simulation will help explore alternatives and new ideas as the Army moves through transformation and into the Objective Force and the Future Combat System (FCS).

The FCS will be unlike any weapon system we know. Its components will be part of an interconnected sensor-shooter network that will exploit information power and let commanders achieve dominance by massing and combining devastating fires. It might turn out to be a single system, or a networked system of systems—some manned, some robotic.

Soldiers in the future will have to detect the enemy at greater ranges than ever before. To dominate the battlespace, they will have to see first, shoot first and kill first. AMC is developing compact, inexpensive ground sensors for soldiers to use along likely enemy avenues of approach. The networked acoustic, seismic and magnetic sensors will detect the enemy and determine his size, direction and speed. Small infrared cameras could sound the alarm automatically and further define possible targets.

Technological advantages must be integrated into Army sustainability. A critical facet of logistics systems in a transformed Army will be inventory control and visibility, knowing where repair parts are all the time in the Army's inventory. Taking its cue from major retailers such as Wal-Mart, AMC is developing a new way to meet customer needs, getting spare and repair parts to the customer faster, better and smarter. The Single Stock Fund (SSF) will combine the spare and repair parts inventories at division and unit levels into a single, nationally managed inventory. It also will merge wholesale and retail elements of the Army



An artist's concept depicts the Objective Force Warrior system and other Army Transformation equipment in an urban combat situation.



A participant in a domestic preparedness exercise wears military nuclear-biological-chemical (NBC) protective equipment.

A SBCCOM instructor trains law enforcement officers to detect NBC agents.

supply system to streamline accounting, saving time and money. The SSF will eliminate inefficiencies that are inevitable in a system that depends on multiple points of sale and credit, with multiple ledgers and billing accounts and duplicate automated systems that manage the same inventory.

Maintenance management operations will be consolidated under the National Maintenance Center with Army-wide standards of maintenance. National maintenance program standards will assure uniformity when equipment is returned to the national supply system. The National Maintenance Center will improve overall equipment performance more economically than the present system.

The National Maintenance Center will be a centrally coordinated and controlled, repair-based logistics system directed by the National Maintenance Manager (NMM) at AMC. It will manage national and field-level maintenance activities, and play a critical role in the Army's strategy to



repair, upgrade and modernize its legacy systems, ensuring that components are repaired to a national standard. The National Maintenance Center also will ensure that gains in reliability and cost savings are sustained throughout the life of the product.

The NMM will control all maintenance workloads and set uniform overhaul standards for items repaired and returned to the Army supply system. The NMM also will

R&D Contributions to Transformation

Research and development centers and laboratories in the U.S. Army Materiel Command (AMC) contribute to the transformation efforts that are bringing new technology from the earliest concepts through production. These products will make future warriors more lethal, agile and secure. They will be able to get more information faster and get a clearer understanding of the battlespace than their enemies. Scientists and engineers from AMC will make Army munitions more accurate, powerful and vehicles lighter and more economical to run and maintain.

As capable as the U.S. Army is today, it will be even more able to meet challenges in the future. Some of the advanced work that will make its way to the battlefield of the future includes:

Unmanned ground vehicles—currently semi-autonomous, these robotic vehicles will eventually become intelligent, autonomous systems that will be able to go into hazardous places, reducing risks for soldiers while increasing their lethality.

Kinetic energy active protection equipment will cue and track incoming rounds. Connected to fire control systems and command and control systems, this technology

will prevent our vehicles from getting hit by enemy fire.

Lightweight armor technologies, using advanced materials, ceramics, and energetic, smart and electromagnetic armor, will make new vehicles tougher without adding weight.

Electro-thermal chemical technology will ignite propellants with advanced chemicals. Applied to advanced large caliber cannons, 105-mm and 120-mm guns will deliver the same firepower as heavier 120-mm and 140-mm versions.

Electro-magnetic gun technology, different from the thermal chemical technology, will use electrical energy to replace chemical propellants.

Precision air delivery and aerial resupply technologies will improve airdrops making them more accurate and helping speed delivery of humanitarian aid as well as war fighting materials.

Chemical and biological detection equipment will improve the safety both of America's military on the battlefield and its civilians at home.

Ground propulsion and mobility technologies will make our wheeled and tracked vehicles faster and more economical.



*Right and below,
firefighters
participate in a
SBCCOM domestic
preparedness
exercise.*

control workload and standards for items repaired and returned to users at organizational, direct support, and general support levels.

The Global Combat Service Support-Army program will replace existing computer systems that are more than thirty years old with an integrated, modernizing automated combat service support system across the Army. It is part of an expanded joint program that will create an information network for combat service support at the joint level, across national sustaining base systems and compatible with information systems that our allies use.

Beyond equipment and technology, people are the key to acceleration of Army transformation. Those people include uniformed personnel, civilians, contractors and our invaluable partners in industry who will provide the brain power, the muscle power and the creative thinking that will enable us to become more responsive, deployable, agile, versatile, lethal, survivable and sustainable. The people pipeline must be turned on. Because the civilian workforce is aging, thousands of young people must be educated about the opportunities and rewards of serving their nation. From researching composite materials to searching for new energy sources, the possibilities are endless.

We are engaged in war, a war whose course is difficult to predict. We are engaged in a war with an enemy who is not easily identifiable. And we are engaged in a war that we must win decisively. We are also engaged in a transformation that may lead us to unpredicted challenges. We are engaged in a transformation in which the future is not easily definable. And we are engaged in a transformation where we must change decisively. Our freedom depends on our success in war and transformation. **P**

