

Contents

IN THE FIELD

- Technology aims to create lighter, more efficient aircraft
- ARL Researchers 'Freeze to Please'
- Picatinny successfully demonstrates Mid-Range Munition Helicopter windshields get tougher for the road
- Helicopter windshields get tougher for the road
Protective sheets adapted from car racing
- Nobel-Prize Winning Scientist Visits Army Research Laboratory
- World War II Veterans meet ARDEC's new technology
- New Technology Center opens in Argentina
- Greatest Army inventions for 2003 announced
- Pouches change drinking practices for Soldiers

IN THE LAB

- BIOTECHNOLOGY AT ECBC
- Toxic Industrial Chemical Detection, A Future Member of the M256A1 Detector Kit Family

PARTNERSHIP

- ARL named one of the top supporters of HBCU Engineering Schools
- Junior scientists and humanitarians gather for national symposium
- Longtime TARDEC industry partner garners 2004 Survivability Award
- Partnership between ECBC Advanced Design and Manufacturing Team and the U.S. Army Chemical School
- RDECOM-TARDEC produces four winning ECybermission Teams

PEOPLE

- Celebrating the role of the professional - Women in Defense holds enlightening seminar
- Long-time commissary manager retires
- Army Civilian of the Year Award for 2003
- ARL Continues to Attract Diverse Talent
- Army scientist honored by Army engineers
- New Picatinny commanding general

NEWS BRIEFS

- 52nd Defense Working Group on Nondestructive Testing
- ECBC Journal to Focus on Detection Technology
- New program for disabled soldiers
- Firefighters attempt dive rescue
- Aviation Association of America's 2003 Robert M. Leich Award

Technology aims to create lighter, more efficient aircraft

By Tonya Johnson, U.S. Army Research Laboratory Public Affairs Office

Cleveland – U.S. Army Research Laboratory researchers at NASA Glenn Research Center are working on high-temperature ceramic composite combustor liners to replace their metallic counterparts in gas turbine engines.

“Aircraft can go further and faster with this technology,” said Dave Brewer, a materials research engineer who has been working on the technology since 1991.

Ceramics can sustain higher temperatures than metals, which means less energy is wasted on cooling ceramic parts.

“Since the engines are more efficient, you can carry more payload, such as people, equipment, or ammunition,” said Brewer. “The higher efficiency also results in reduced emissions and produces less greenhouse gases, so you have less pollution.”

The ceramic composite combustor liners, which can withstand temperatures up to 2,700 degrees Fahrenheit, are made of silicon carbide with ceramic fiber reinforcement. The fibers are woven into a cloth in a satin-weave geometry. To create the liners, layers of cloth are draped over a graphite mold. The mold and fibers are placed into a reaction furnace for one week. The liners are then cooled and slip cast in another mold. After drying, the liners go back into a furnace for final processing.

In a gas turbine engine, air is compressed and forced into the combustor. Fuel is added and the fuel and air are ignited in the combustor. The combustor liners, which look like large concentric rings, keep the burning gas contained, away from important components in the engine. A white protective coating, called an environmental barrier coating, covers the liners and helps the liners withstand high-temperature water vapor and other byproducts, which could cause major damage to the liners and the engine.

In addition to ceramic components withstanding higher temperatures, they are one-third the weight of a comparable metal component. The liners are designed to last for years.

ARL researchers are working with General Electric Aircraft Engines to demonstrate the feasibility of ceramic composite combustor liners for large turbo-fan engines, like those on a Boeing 737.

This research is a part of the Integrated High Performance Turbine Engine Technology Program. The program, started in 1988, allows military personnel and civilians from the Army, Navy, Air Force, NASA, Defense Advanced Research Projects Agency and industry to work together in each of the engine component technology areas. The focus of the program is to create better technology for military aircraft that is high performance, durable, and affordable.

ARL Researchers 'Freeze to Please'

By Tonya Johnson, U.S. Army Research Laboratory Public Affairs Office

Cleveland - Their motto is 'We Freeze to Please.'

The U.S. Army Research Laboratory researchers at the icing research tunnel at the NASA Glenn Research Center are making sure military personnel and civilians are safe while flying during hazardous, icy conditions.

The Icing Research Tunnel (IRT) is one of the largest refrigerated wind tunnels in the world and is dedicated to the study of icing on aircraft. The facility provides researchers with an environment for the testing of full-size aircraft components or models of the aircraft by simulating real time flying conditions. The facility is capable of operating at air speeds between 50 to 400 mph and in temperatures as low as minus 20.

The natural icing cloud conditions are duplicated by a computer controlled spray bar system mixing air and water spraying through various sized spray nozzles. With all these elements combined, the tunnel can produce the effects of in-flight icing on actual aircraft components and models of aircraft, including helicopters such as the Apache and Blackhawk.

The facility is so important and in such high demand that reservations for testing are required at least one year in advance.

"We're constantly busy," said Bob Ide, an aerospace engineer. "We're important because of what we contribute to aviation safety and all aircraft have to meet Federal Aviation Administration requirements."

ARL researchers, along with their NASA colleagues, work with the FAA, other military branches, commercial airlines, defense contractors, and academia investigating and testing next-generation ice protection systems for both military and commercial aircraft.

Some of the testing performed at IRT includes fundamental studies of icing physics, icing prediction validation, and ice protection system development and certification. By conducting tests like these, researchers are able to examine, develop and test new varieties of de-icing and anti-icing methods that will be used in today's and future aircraft to ensure flight safety in icing conditions.

"Ice can build on aircraft in seconds, and that's why it's important to teach pilots for what to look for," said engineering technician Gary Nosky, who helps run the facility. "There are hidden dangers you don't realize, and that's what we're here to resolve. It's very challenging work."

IRT was built in 1944 to help solve aircraft icing problems encountered by Allied Forces during World War II.



Gary Nosky, an ARL mechanical engineer who helps run the Icing Research Tunnel at NASA Glenn, inspects and evaluates the ice buildup on the rotor blades and windshield of a Blackhawk

Picatinny successfully demonstrates Mid-Range Munition

By Peter J. Rowland, U.S. Army Armament Research, Development and Engineering Center Public Affairs Office

Picatinny, N.J. - A new precision-guided munition under development here by a team of engineers from the U. S. Army Armament Research, Development and Engineering Center, Office of the Project Manager for Maneuver Ammunition Systems and Alliant Techsystems in Minneapolis scored a direct hit on a tank three miles away during recent testing, an official here said.

The tank target was not visible from the projectile firing position during the test that took place at the Army's Yuma Proving Ground, Ariz.

The Mid-Range Munition (MRM) Guide-To-Hit projectile's airframe and electronics survived the Hi-G gun launch and the projectile flew a stable flight according to William J. Sanville, Army Project Manager for Maneuver Ammunition Systems. The round was fired using an M256 cannon.

The Army is developing MRM, a gun launched 120mm precision-guided munition, for the Future Combat System Mounted Combat Systems vehicle. The projectile will satisfy the need for a beyond line-of-sight capability, defeat threats with pinpoint accuracy and minimize collateral damage and exposure of U.S. forces to hostile fire.

Sanville said that telemetry data was received throughout the projectile's flight. The demonstration achieved all of the planned test criteria. The MRM acquired and tracked the tank target with its onboard autonomous millimeter wave seeker and executed multiple maneuvers toward the tank.

"(The) test firing is a significant step toward our ultimate objective of providing Soldiers a munition that will defeat targets with precise accuracy while limiting their exposure to hostile fire," Sanville said. "We are delighted with the results. When fielded, MRM will give the Soldier overwhelming lethality at line-of-sight and beyond-line of sight ranges."

Helicopter windshields get tougher for the road

Protective sheets adapted from car racing

By Jim Bowne, Public Affairs Office, U.S. Army Aviation and Missile Command

REDSTONE ARSENAL, Ala. - It may not be the first time the U.S. Army Aviation and Missile Research, Development and Engineering Center has benefited from adapting NASCAR solutions for its own use but for Staff Sgt. Paul Kagi, the idea was a winner.

Kagi, a member of the Virginia National Guard, thinking out-of-the-box netted him an idea that was picked up as a Value Engineering Initiative and identified by Reliability, Availability and Maintainability Engineers /Defense Logistics Agency for priority emphasis. What was his idea? To apply polyester film sheets, the type used by NASCAR, over the top of helicopter windshields.

"Staff Sgt. Kagi's idea was a simple solution to a tactical problem," said Ken Bowie. Bowie is a RAM Engineer in the Engineering and Test Division.

"The environment in Iraq represents a major problem for our helicopters," Bowie explained. "According to some of the pilots, they're flying missions with windshields they usually wouldn't fly with if they were in the United States. The windshields are pitted to the extent that they look as though they've been sandblasted which, in effect, they have."

In addition, Iraqi campaign data has shown a significant increase in windshield demand. "There is no question that sandstorms and "brownout" conditions play havoc with helicopter windshields," said Doug Felker, Aviation Team Leader of the RAM Engineering and Test Division. "Helicopter windshields are expensive. Not only are they expensive, but it takes about eight hours to replace a windshield."

There may not be anything that can be done about the sandstorms, but RAM engineers are partnering with the Defense Logistics Agency and a civilian company to provide help to helicopter pilots. "Our focus is primarily on readiness," Felker emphasized. "A return on our investment is secondary."

Although the Department of the Army provides the funding, it is RAM who manages the program. The civilian company "makes a single-sheet polyester film, about 7 millimeters thick," Bowie said. "However, we're also working with other companies which distributes a 4-layer, 4-millimeters-thick polyester film sheet."

The polyester film sheeted windshields offer a relatively inexpensive, viable solution to providing helicopter pilots with a "quick fix" for their damaged windshields. The polyester film sheets are a lot like contact paper—they are simply rolled on smoothly to the windshield, making certain there are no air bubbles, and the polyester film sheets helps protect the windshield from blowing sand, small rocks, and other debris.

"The tear-offs supplied to NASCAR teams are custom fitted for each customer," Felker said. "This product was specifically produced for automobile racing and is designed to stay attached to the windshield at speeds over 200 miles per hour. It's a great example of spin-off technology."

"One unit that recently returned from Iraq replaced over a dozen aircraft windshields, which accounted for one third of their fleet," Bowie added. "All of the aircraft windshields were replaced during reset upon their return. Glare in the sun, and night vision goggle flight, are the biggest drivers to replace windshields in theater. I have great respect and admiration for helicopter pilots. They are very tolerable of defects and crazing. Some have even suffered rock-strike damage to their windshields due to other aircraft taking off or hovering near parked aircraft."

“Of course, the sheets won’t stop bullets or bricks,” Felker said. “But, we have thrown rocks at the windshields to test the sheets. And we’ve even shot BBs at it at 23 miles per hour.”

RAM engineers are currently working with the Utility Helicopter Program Office to develop polyester film tear-offs on the Black Hawks. Once developed, the polyester film tear-off may be applied to other Army Aviation platforms such as the Apache and Chinook.

“We love working this program,” Felker said. “We know we’re helping our Soldiers complete their mission by providing services that enhance readiness. And readiness is the name of the game.”

Nobel-Prize Winning Scientist Visits Army Research Laboratory

By Paul Schmitt, U.S. Army Research Laboratory Public Affairs Office

REDSTONE ARSENAL, Ala. -- The "corona effect" is characterized by distinctive glowing rings along metal or fiberglass rotor blades operating in desert conditions.

The glowing rings are made up of numerous small sparks resulting from grains of sand striking a normally-operating rotor blade, meaning the corona effect can be seen only at night.

"The corona effect has been seen from about a half mile away on a CH-47 Chinook hovering at about 1,700 feet," said Mike Hoffman, "and that's without the aid of night vision goggles."

Hoffman, an engineer and manager of special projects in the Aviation Engineering Directorate, Aviation and Missile Research, Development and Engineering Center, noted that while the glow may be an interesting sight, the cause is devastating to rotor blades.

"The intensity of the illumination of the individual sparks varies with the number and size of particles passing through the rotor system," Hoffman explained. "The corona glows brighter as the numbers and sizes of the particles in the air increase."

A method to fix the problem can save half a million dollars per aircraft. Leading edge "molded boot" technology already exists and has been tested and approved on several helicopter types.

The current Task-L101 polyurethane molded form of the boot is better than its predecessor, the Task-L100, which required a brush application.

The newer molded boots prevent the corona effect and resist rotor blade erosion in desert conditions. One of the biggest pluses for the new boots is the resulting decrease in repair time and maintenance costs.

"Before we had these new boots," Hoffman said, "it took about 26 man hours to remove the rotor blade system, repair the blades, and replace the blade system. Now, we just put the boots on the blades and repair them without removing them, and the helicopter is ready for flying again in the time it takes for the polyurethane to cure."

The cost of protecting the blades of an Apache with boots, including the main and tail blades, is about \$6,900 in material and labor. The cost of a new rotor blade system is about \$500,000 per aircraft.

Hoffman said that after Operations Desert Shield and Desert Storm in the 1990s, and Iraqi Freedom and Enduring Freedom in the early part of the 21st Century, the degradation of rotor blades has become one of the single largest logistics and maintenance burdens experienced by Army Aviation. But he first saw the damage that sand was causing to rotor blades more than 10 years prior to Desert Storm.



WMRD's Shashi Karna, left, and Director Jill Smith, right, welcomed Dr. Richard E. Smalley to Aberdeen Proving Ground

“What we saw were huge rings of white fire above the rotor head. At the time, I didn’t know what it was, but I knew we had to fix it. Subsequently, in 1981, at Fort Rucker, Alabama, the first tests were conducted using a polyurethane material to protect the blades from the grinding sand.

“The tests were successful, but back then our focus was on Europe and the Cold War,” he said. “So, problems about sand erosion actually didn’t come up again until about 1990.”

However, in the past few months, due in large measure to Hoffman’s efforts, the sand erosion problem has surfaced again in a big way.

Not only has the requirement for the boots been approved, but the funding has been approved as well.

“We’re really happy about receiving the funding from DA [Department of the Army],” Hoffman said. “We received funding in both [fiscal year] 03 and FY 04. We’re currently planning to install the boots on the Black Hawk, Chinook, and the Apache. The Kiowa is already protected by the polyurethane coating.”

Hoffman said rotor blade engineering goals continue to remain at the forefront of emerging technologies that will help and protect our Soldiers.

“I’m proud of all our folks who are on the front lines, whether here at the AMRDEC, or in Iraq and elsewhere,” he added. “We feel good about what we are able to achieve, working together as a team, to ensure that our Soldiers have the best equipment, the best service, and the best technology in the world.”

World War II Veterans meet ARDEC's new technology

By Myra Hess, U.S. Army Armament Research, Development and Engineering Center Public Affairs Office

PICATINNY, N.J. - Members of the Picatinny Chapter of the Veterans of the Battle of the Bulge attended their monthly luncheon meeting and toured the Armament Research, Development and Engineering Center's Armament Technology Facility in the Maj. Marie Rossi Building.

Mark McFadden, Range Team Leader at the ATF hosted the tour.

"McFadden and his crew, Capt. Shannon Jackson, Capt. Andrew McHardy and other range test directors provided an interesting tour," said Lu Ting who escorted the group.

According to Operations Executive McHardy, the veterans were shown the various types of activities and facilities available at the ATF. They also viewed the ATF video to get an overview of the daily operations and evaluation capabilities. They were taken on a walking tour of the live-fire ranges and watched some of the current ballistic evaluations in progress and shown the secure weapons storage area.

The ATF crew set up a table with current fielded weapons and some WWII type weapons for the veterans to see. In addition, a HMMWV mounted with a .50 cal Machine Gun was on display in the 300m range. The .50 cal machine gun represents a system that was used in the war and is still in use today. After the veterans were briefed on the weapons, they moved out of the range and watched a live firing demonstration of the .50 machine gun on the monitor.

"This was a great tour," said Jim Cullen, program/publicity chairman for the group. "Everyone thought it was the finest meeting we had in a long time."

He also said that he didn't remember that the M1 weighed as much as it did, but then again, he was much younger and stronger then.

"The courtesy and deference paid to us was really remarkable," he said.



Steven Krieg, explosive test operator at the ATF (right), shows the members of the Veterans of the Battle of the Bulge a display of weapons that include some of those that were used in WWII as well as modern weapons

New Technology Center opens in Argentina

By Larry D. McCaskill, U.S. Army Research Development and Engineering Command Public Affairs Office

EDGEWOOD, Md. - The U.S. Army Research Development and Engineering Command greeted its newest neighbors Buenos Dias as it opened the doors to the U.S. Army International Technology Center – South America in Buenos Aires in May.

"It is difficult to know what science and technology or niche research activities are going on in a given geographic region without establishing a footprint there," said Col. Jess Scarbrough, director, Internal Division U.S. Army Research, Development Command System of Systems Integration. "It's even more difficult to access and leverage that technology without first forming trusting relationships that will lead to cooperative sharing and mutual benefit, ultimately for our soldiers."

Formally known as the U.S. Army Research, Development and Standardization Groups, the organization was restructured and renamed the U.S. Army International Technology Centers to expand and improve the command's ability to identify/acquire enabling technologies found in international sources to include academia and industry.

The ITC-SA office is the first of three scheduled to open this year. The next two offices, one in Singapore and the other in Santiago, Chile are scheduled to open their doors before the end of the fall. Currently the command has international technology centers in Canberra, Australia; Camp Zama, Japan; Ottawa, Canada; Bonn, Germany; Paris, France and London, United Kingdom.

"These centers are a vital component of our efforts to identify and leverage innovative ideas and technologies that are being developed abroad," according to Maj. Gen. John C. Doesburg, commander, U.S. Army Research Development and Engineering Command. "We use a variety of mechanisms to find these opportunities such as performing analyses of foreign S&T of particular interest to the Army, participating in technical conferences, and exchanging technical R&D information through established agreements."

Army ITCs are located throughout the world to conduct regional technology watch, using the International Science and Technology Investment Strategy as a guide on what technologies to pursue and where. As regional representatives, the Army ITCs understand and anticipate U.S. technology requirements and initiate proactive, innovative approaches to expanding contacts with foreign military R&D organizations, foreign commercial industry and foreign universities involved in S&T.

Based on their discoveries the centers offer recommendations to RDECOM, its laboratories, and other Army organizations on potential opportunities for cooperative projects, commercial contracts, university studies, etc., that will leverage International S&T in support of Army transformation objectives.

Greatest Army inventions for 2003 announced

By Larry D. McCaskill, U.S. Army Research Development and Engineering
Command Public Affairs Office

Fort Belvoir, Va. - "Great discoveries and improvements invariably involve the cooperation of many minds. I may be given credit for having blazed the trail but when I look at the subsequent developments I feel the credit is due to others rather than to myself." - Alexander Graham Bell

This year's recipients of the U.S. Army Greatest Inventions of the Year can bear witness to Bell's thoughts, as the inventions are the brainchild of various groups of talented individuals.

The Army-wide awards program to recognize the best technology solutions for the soldier.

"Nominations for the program were submitted from across the Army laboratory community," said Gen Paul J. Kern, commander, U.S. Army Material Command. "Soldier teams from the U.S. Army Training and Doctrine Command and Active U.S. Army Divisions evaluated the nominations."

The final selection authority was Lt. Gen. Richard A. Cody, Deputy Chief of Staff Army, G-3.

"The inventions submitted demonstrate the vast experience within the Army laboratory community as a sincere commitment of these laboratories to improving the readiness of our Army," according to Cody.

Like last year, there are no differentiating categories so that a variety of inventions could be recognized.

Evaluators judged the nominations based on their impact on Army capabilities (breadth of use and magnitude of improvement over existing systems); their potential benefit outside the Army; and, their inventiveness.

Each of the 10 selected teams will receive an award; the other nominated team members will receive certificates of participation.

The U.S. Army Greatest Inventions Program Award Winners are:

BA-8180/U Zinc-Air Battery - Communications-Electronics Research, Development and Engineering Center; Integrated Battle Command Directorate (IBCD) Ft. Monmouth, N.J.;

VIRGIL™ Chest Trauma Training System - Telemedicine and Advanced Technology Research Center (TATRC), Fort Detrick, Md.;

Squad Automatic Weapon (SAW) Pintle Mount Assembly for HMMWV - Tank Automotive Research, Development and Engineering Center, National Automotive Center, Warren, Mi.;

Anti-Tank for Confined Space (AT4 CS) - Armaments Engineering and Technology Center (AETC) Picatinny Arsenal, N.J.;



Many components of the successful Automated Biological Agent Testing System, shown here, will be incorporated into the fully mobile Stations of Robotic Monitoring—or STORM—system.

Battlefield Medical Information System - Tactical (BMIS-T) - Telemedicine and Advanced Technology Research Center, Fort Detrick, Md.;

Portable Omni-Directional (360°) Well Camera System –Communications-Electronics Research, Development and Engineering Center Night Vision and Electronic Sensors Directorate (NVESD), Fort Belvoir, Va.;

Agentase Nerve Agent Sensor –U.S. Army Research Laboratory, U.S. Army Research Office Durham, N.C.

Anti-Personnel Obstacle Breaching System (APOBS) - Armaments Engineering & Technology Center (AETC), Picatinny Arsenal, N.J.;

Ctg 120mm, XM1028 Canister U.S. Army's First Antipersonnel Round for the Abrams Tank - Armaments Engineering & Technology Center (AETC), Picatinny Arsenal, N.J.;

The Golden Hour Container - Walter Reed Army Institute of Research, Silver Spring, Md.

Pouches change drinking practices for Soldiers

By *Soldier Systems Center*

NATICK, Mass. -- Pouches that can be resealed are changing the way troops drink.

Drink pouches developed by the Department of Defense Combat Feeding Directorate at the U.S. Army Soldier Systems Center in Natick, Mass., in partnership with packaging companies Pactech in Rochester, N.Y., and Kapack in Minneapolis, Minn., allow warfighters to pour water into a package holding a powder mix, shake and consume the beverage from the opening. If they want to save some for a little later, the plastic zipper seal holds it in.

Often they didn't bother preparing a beverage in a separate container. Field data showed that about half of the Soldiers are not consuming the Meal, Ready-to-Eat (MRE) beverage base mix because of the inconvenience of using and cleaning the canteen cup, said Lauren Milch, a physical scientist at Combat Feeding who managed package development. Pouring the mix into a canteen full of water is prohibited according to Army doctrine, so the packages are frequently thrown away unopened.

The 12-ounce beverage pouch is the first project of the Individual Combat Ration Team's Improved Packaging for Combat Rations program aimed at reducing packaging and increasing consumption, said Vicki Loveridge, a senior food technologist and project officer for improved packaging.

She said including a resealable plastic bag was a partial solution, but the drink pouch takes care of everything by replacing the current dry mix package with a disposable drinking vessel.

Originally intended to replace the MRE beverage base mix, the beverage pouches could be used for any of the military ration beverages or liquid foods, such as dairy shakes. For hot cappuccino or cocoa, the pouch was designed to fit into the flameless ration heater.

A rectangular drink pouch with a plastic zipper was evaluated in 1991, but it was shelved because the cost was considered "extravagant" at 25 cents apiece, Loveridge said.

In the last three years researchers developed prototype pouches with a non-reclosable tear-off spout, reclosable sports-type pull cap and a twist-off cap that were studied along with the final package design.

"We wanted something reusable, and they didn't want or need (a pouch) to stand up, just a way to set it down," Loveridge said. "The extra expense of a stand-up pouch was unnecessary, and it's a harder pouch to keep from cracking."

In the first evaluation with a twist-off cap pouch in 2001, 91 percent of the troops consumed their beverages, but the twist-off cap was too bulky and expensive. The latest prototype has a tear-off portion just above a resealable interlocking plastic zipper on top and slight hourglass shape for easy holding.

"What's very different from what you see at the grocery store is the zipper with a multi-laminate foil and three-year shelf life requirement," Loveridge said. "It's difficult to incorporate a zipper without compromising the foil."

With four studies already showing substantial percentage increases in the number of troops using the beverage pouch, another field test is scheduled to determine how warfighter performance improves with increased hydration.

An order of 7,000 beverage pouches has been placed for two Combat Feeding developmental products, the Remote Unit Self Heated Meal and First Strike Ration, according to Loveridge. An electrolyte-based drink powder beverage pouch was approved for four varieties of the 2004 MRE menu and could be fielded as soon as September.

"The drink pouch is something they really need, and it's designed to add minimal cost," Milch said. "We hope it takes off in popularity like the mini bottles of Tabasco sauce and flameless ration heater."

BIOTECHNOLOGY AT ECBC

Edgewood Biological and Chemical Center Public Affairs Office

EDGEWOOD, Md. - The origin of biotechnology is attributed to the emergence of modern-day knowledge of the DNA double helix and production of tools capable of manipulating genetic materials. Subsequent developments such as DNA sequencing and cloning, DNA synthesis, and macromolecular structural analysis have allowed researchers to reprogram genes and manufacture products developed for the benefit of mankind.

At the same time, a wide variety of remarkably dangerous organisms and toxins that exist in nature and are lethal to humans can be developed as Weapons of Mass Destruction. These agents represent a primary strategic threat to the United States, a threat the Army's Edgewood Chemical Biological Center is working to counter.

ECBC's interest in biotechnology relates to missions involving the detection, decontamination, protection of personnel and destruction of biological, chemical and energetic materials. The Center offers more than 40 years of experience conducting basic and applied research in biotechnology and is skilled in areas such as enzymology, molecular biology, microbiology and biochemical engineering.

Specially Equipped Facilities

Unlike conventional weapons, pathogenic agents such as bacteria and viruses are self-replicating using their host's genetic machinery. Hence small initial quantities could be used in an attack and the effect amplified by secondary infection. These agents are easy to produce with commercially available cell culture and fermentation equipment and can be manufactured by countries and groups with relatively unsophisticated scientific capabilities.

Poised to combat this threat, ECBC houses multiple facilities where its scientists perform a wide variety of defense research projects involving pathogenic organisms and their simulants in support of military and civilian agencies. Taking a double-pronged approach, these operations both enhance military biological defense posture and support the research and development needs across the public and private sectors in the war against terrorism.

At the Center's High Containment Biological Facility, Biosafety Level 3 (BL-3), scientists work with human, animal, and plant pathogens requiring high containment. As the leading Army laboratory for its non-medical program on threat-pathogen agents, the facility has built-in state-of-the-art capabilities in the areas of isolation, identification, preparation, characterization, and testing of highly pathogenic bacterial, viral, and fungal microorganisms.

In addition, ECBC houses one of only a few complete process-engineering facilities. Known as the PEF, the facility incorporates pilot scale bio-manufacturing capabilities and is in the process of being certified to cGMP standards. Staff can also perform in vitro cytotoxicity tests on human and animal cell cultures under Good Laboratory Practices protocols and recently added the capability for using gene arrays to study the effects of systemic exposures on gene expression.

Other unique shops include the center's one-of-a-kind aerosol test facilities capable of identifying known aerosol concentrations and measuring the aerosol sampling/concentrator capabilities of an array of biological detectors.

Current Initiatives

Presently, ECBC researchers are engaged in a number of sophisticated research initiatives dedicated to the detection, decontamination and eradication of biological weaponry. For example, ECBC personnel is designing and fabricating a DNA microarray capable of detecting and identifying threat pathogens down to the strain level. Augmenting this effort, the Center is partnering with Virginia Bioinformatics Institute at Virginia Tech to develop software designed to identify unique sequences, and SAIC to develop a universal PCR technique.

In addition, ECBC Scientists are developing alternative reagents to antibodies and developing reagents that can simulate the threat antigen. In other areas, scientists are evaluating threat agent lipid profiles as a tool for lab-based analysis/bioforensics and are correlating the molecular and physicochemical properties of threat agents with corresponding simulants.

ECBC's multidisciplinary biotechnology team is capable of providing cradle-to-grave project support, from basic molecular biology and gene cloning to scale-up bioprocess design, validation, and optimization for improved product quality and/or cost savings. In addition to providing these services, the staff is proficient in quality control and assurance, biotechnology, detection, and military standards and practices.

Since Sept. 11, 2002, ECBC biotechnology experts have been called upon to educate government officials on the threats of biological agents and bio-terrorism. In accomplishing their mission to protect the warfighter and homeland against the lethal threat posed by dangerous biological agents, the Center maintains a full-spectrum biotechnology program with strong collaborative links to academia, the private sector and other government agencies.

ECBC's team provides cradle-to-grave project support.

"ECBC's interest in biotechnology relates to missions involving the detection, decontamination and destruction of biological, chemical and energetic materials."

Toxic Industrial Chemical Detection, A Future Member of the M256A1 Detector Kit Family

Edgewood Chemical Biological Center

EDGEWOOD, Md. - When we think of chemical hazards on the battlefield, we normally think of chemical warfare agents—seldom do we think about toxic industrial chemicals as part of that chemical hazard.

Battlefields at chemical manufacturing or storage areas as well as manufacturing areas that used industrial chemicals are a real probability. An act of terrorism at an industrial area could result in the release of any number of chemicals stored there, making entries by military personnel difficult and hazardous.

Not only could the air and soil become contaminated, but also the released chemicals could enter sewer systems and streams in the area that could carry the chemicals from an industrial site to an area normally considered free of chemicals.

Chemicals do not have to be fired from a gun or dropped by aircraft to be considered a threat to military and civilian personnel.

The capability to detect chemicals other than chemical warfare agents is needed for the battlefield and homeland security—a new but critical arena for our defenders.

Scientists at the Edgewood Chemical Biological Center (ECBC) are beginning work on a new branch of the M256A1 chemical detector family tree—toxic industrial chemical (TIC) detector kits. The TIC kits will leverage the design and concept of the M256 such as multiple chemical detection in one process. Current product improvements underway for the M256 such as automation, increased capabilities, and expanded performance will all benefit the development of the TIC kits. Building on what is currently available will produce a high return value at a low risk.

ARL named one of the top supporters of HBCU Engineering Schools

By Tonya Johnson, U.S. Army Research Laboratory Public Affairs Office

Adelphi, Md. - The U.S. Army Research Laboratory was among 49 companies and government agencies named most supportive of historically black engineering schools by Career Communications Group.

CCG is a career development company whose mission is to promote career and educational opportunities for minority and female professionals and students in engineering, technology, and science.

"It's good they recognize ARL's commitment to diversity and support of minority academic institutions," said Dr. Val Emery, ARL's minority outreach program manager and also the outreach manager for the entire U.S. Army Research, Development and Engineering Command.

The recent survey asked officials from different HBCUs to rate companies and government agencies who are supportive of their programs. Those who participated include the deans of 10 historically black colleges and universities (HBCU) engineering programs certified by the Accreditation Board for Engineering and Technology; the dean of engineering of historically black Jackson State University; and the corporate-academic alliance Advancing Minorities' Interest in Engineering (AMIE). Each was asked to list five corporate or government sponsors they felt contributed the most to the institutional mission of Black engineering schools.

"This ranking reflects the perception the deans and AMIE have of the total level of support these HBCU engineering schools receive," said Tyrone Taborn, CCG's founder and chief executive officer. "The organizations they named have moved beyond their traditional comfort level by supporting HBCUs. They see these schools as more than a place to recruit employees. These 49 companies and agencies are doing things above and beyond their traditional business-university relationship."

As ARL's minority outreach program manager, Emery is active throughout the year maintaining contact with minority institutions by visiting the campuses and attending workshops and conferences seeking students for internships and full-time jobs at the laboratory.

"Historically, minority institutions were the only venues for people of color," said Emery. "They still provide a good foundation and quality education for students. These institutions are continually producing young professionals who can meet the technical and scientific demands of the 21st century."

Junior scientists and humanitarians gather for national symposium

By Larry D. McCaskill, U.S. Army Research Development and Engineering Command Public Affairs Office

HUNT VALLEY, Md. - More than 400 high school students, teachers and mentors assembled recently at the Marriott Hunt Valley to participate in the last leg of this year's National Junior Science and Humanities Symposium.

The Junior Science and Humanities Symposia (JSHS) Program is jointly sponsored by the United States Departments of the Army, Navy, and Air Force, in cooperation with leading research universities throughout the nation.

"Programs like JSHS are in place to encourage today's young people to become involved in science, engineering and mathematics," said Dr. Vallen Emery, U.S. Army Research, Development and Engineering Command Outreach Program Manager. "When you attend a JSHS event, you see the next generation of engineers, mathematicians and scientists. These are without a doubt, some of the brightest young minds."

For the winners of regional and state programs, the national symposium provides a venue for the students to present their original science, engineering, or mathematics research projects to their peers and judges. Of the 96 students who presented the results of their scientific research at this national program, six received \$16,000 in military-sponsored scholarships and an expense-paid trip to the London International Youth Science Forum, six received \$6,000 in scholarships, and six received \$2,000 in scholarships.

First place scholarship recipients are: Seth R. Flaxman, Evanston Township High School, Evanston, Ill. ; Anna-Katrina Shedletsky, Brewster High School, Brewster, N.Y.; Andrew S. Clare, Harborfields High School, Greenlawn, N.Y.; Alia Whitney Johnson, North Carolina School for Science & Mathematics, Durham N.C.; Amanda K. Verma, Little Rock Central High School, Little Rock, Ark.

Second place scholarship recipients are: Benjamin A. Rosenberg, Hilton Head High School, Hilton Head, S.C.; Daniel D. Graves, Nicolet High School, Bayside, Wis.; Britta E. Jones, Eastside High School, Archer, Fla.; Matthew J. Mokler, Tucson High Magnet School, Tucson, Ariz.; Charles D. Murin, Jr., Oak Grove High School, Hattiesburg, Miss. ; Chloe X. Jiang, White Station High, Memphis, Tenn.

Third place scholarship recipients are: Kunal N. Shah, Manhasset High School, Manhasset, N.Y.; Ross H. Lang, Independence Homeschool, Yardley, Pa.; Sarah A. Mims, New Braunfels Christian Academy, New Braunfels, Texas; Kevin C. Sheridan, Sr., Lexington High School, Lexington, Mass; Jennifer Bufford, Columbia River High School, Vancouver, Wash.; Lyuba Azbel, Midwood High School, Brooklyn, N.Y.

The four-day event culminated with awards banqueted hosted by the U.S. Army Research, Development and Engineering Command. Bestowing the honors on the brightest of the bright will be representatives of the program's three sponsors: Army Major General John C. Doesburg, Commander, U.S. Army Research Development and Engineering Command; Terry Jaggars, Director of the Washington Office, Air Force Research Laboratory and Associate Deputy Assistant to the Secretary of the Air Force for Science and Technology and Engineering; and Navy Rear Admiral Dennis G. Morral, USN Ret.

To qualify for the national competition, each of the 48 student presenters participated in regional symposiums in which the students placed first in research paper competition. Their accomplishment is no small success; more than 10,000 students in 48 regions held on nationwide university campuses had competed for these top honors. In addition to the 48 presenters of competing papers, another 48 presented non-competitive reports, and 150 other highly placed regional delegates earned the opportunity to attend nationals.

A major goal of the JSHS program is to encourage America's high school students to develop an interest in and affinity for the sciences, mathematics, and engineering. The program encourages independent research, and the students are exposed to the military's interests in research and development that they might otherwise not learn about.

Longtime TARDEC industry partner garners 2004 Survivability Award

U.S. Army Tank Automotive Research, Development & Engineering Center

WARREN, Mich. - Military ground vehicle survivability technologists from government, industry and academia annually migrate to the West Coast to discuss the varied and complex issues associated with ground vehicle survivability at the U.S. Army Tank Automotive Research, Development and Engineering Center's Ground Vehicle Survivability Symposium is a rite of spring, of sorts.

For Anthony (Tony) P. Lee, attending this year's symposium also turned out to be a rite of passage as he joined a cadre of technologists singled out for their notable contributions to the military ground vehicle survivability community. Lee became the newest member of this elite club as the latest recipient of the U.S. Army Ground Vehicle Survivability Award.

The award is given annually to recognize a government employee or contractor who has made a major contribution to the survivability community. "I'm honored to be recognized with the award," said Lee. "No one single individual really wins this award. It is a reflection of a super team effort between the government and United Defense."

Lee is a technical staff engineer with United Defense LP's Ground Systems Division who has focused his efforts on a variety of vehicle survivability technologies since 1977, and has long supported TARDEC's programs. TARDEC Associate Director for Survivability Technologies, Steve Schehr, said Lee has played many "important roles that include design, testing and development of advanced survivability technologies for armor, active protection, electronic countermeasures, signature management, nuclear-biological-chemical protection, contamination avoidance and fire suppression."

Schehr explained that Lee played a central role in developing, integrating and type classifying the modular M8 medium cannon and shaped charged armor system. He added that Lee has been actively engaged in developing advanced armor for all United Defense ground platforms, and for several years, has helped shape an integrated survivability solution applicable to all Current and Future Force ground systems.

In addition to his support of TARDEC special technology projects like active protection, low observable, hit and detection avoidance, NBC protection and decontamination systems, Lee has collaborated with the U.S. Army Research Laboratory's Armor Mechanics Branch in developing and testing armor systems for nearly three decades.

Most recently, Lee has been putting in yeoman's work as United Defense's Survivability Technologies manager for the Army's Future Combat Systems program. His work involves technologies associated with the Close Combat Armament System, armor/structure system design, hit avoidance, signature management, vulnerability analysis, battle damage assessment and repair, NBC detection/protection/decontamination, and ballistic shock technologies.

"Tony has been a leader in the development of armors and survivability suites for Bradley, Crusader, AGS, Stryker and most recently, FCS," emphasized Raj Rajagopal, UDLP's vice president, Advanced Programs & Technology. "He has thus played a key role in protecting the Soldiers who have gone to war in today's combat vehicles, as well as those who will operate the next generation of vehicles such as FCS."

Lee praised his co-workers, saying that strong leadership and dedicated engineers "are the true reason for this Survivability Award recognition." He singled out members of the TARDEC Survivability Technology Center's Emerging Technology Team, crediting them for their dedicated focus on solving complex military ground vehicle survivability issues.

If Lee wasn't busy enough helping the Army find innovative materiel solutions to help keep Soldiers out of harm's way, he also has a second job. In addition to his civilian career as a ground vehicle survivability technologist, Lee is also an Ordnance Corps major in the U.S. Army Reserve, with more than 12 years in service. In addition to serving as a test

officer at Yuma Proving Grounds, Ariz. and assignments in units in Michigan, California and Minnesota, Lee also is a linguist specializing in Chinese-Cantonese.

TARDEC is the nation's laboratory for advanced military automotive technology, and is part of the Army Materiel Command's Research, Development and Engineering Command. Headquartered at the Detroit Arsenal, Warren, Mich., TARDEC is located in the heart of the world's automotive capital. Its technical staff leads research in not only combat and tactical vehicle technology, but also in a wide variety of logistics equipment, water generation and purification systems, fuels and lubricants, military bridging, countermine equipment, and more.

PARTNERSHIP BETWEEN ECBC ADVANCED DESIGN AND MANUFACTURING TEAM AND THE U.S. ARMY CHEMICAL SCHOOL

Edgewood Chemical Biological Center Public Affairs Office

EDGEWOOD, Md. - By the time some products are on the shelf in the market place, a newer model has been developed. Because of the availability and use of rapid prototyping tools, this statement is more accurate than ever. A quick look at the history of consumer electronics in the market place demonstrates this phenomenon.

Rapid prototyping capabilities allow a quick response to product concepts that are driven by changing threats, military leadership edicts, Soldier's preferences for ease of operation and dependability, and technology opportunity.

The Edgewood Chemical Biological Center's Advanced Design and Manufacturing Team engineering and fabrication facilities possess rapid prototyping capability, virtual prototyping capability, sophisticated 3D scanning hardware and software, small-scale production, and the necessary expertise.

A partnership between ECBC ADM and the U.S. Army Chemical School at Fort Leonard Wood, Mo., is being formalized to establish a rapid concept assessment process for chemical defense technology application by leveraging the rapid prototyping capabilities of advanced design and management team for the assessment of chemical concepts. The goals of the concept assessment process are to rapidly respond to the need for modifications to currently fielded equipment; to rapidly assess the potential of mature or maturing technologies to meet the needs of operational concepts; to reduce the cost of fielding equipment; and to provide data instrumentation support for critical data elements in early user demonstrations and experiments.

As field user and trainer for chemical defense, USACMLS would like to employ this capability to rapidly modify fielded and new equipment and instruments to take advantage of lessons learned during training and testing.

An assessment team composed of personnel from ECBC and USACMLS to screen all concepts that are potential candidates for rapid prototyping. ECBC will establish a rapid assessment and prototyping team to evaluate the concepts for availability of technically solvent technologies, engineering trade-offs to demonstrate the concept, potential for manufacturing, development risk, time required, and costs.

This partnership, which allows for direct communication between the two organizations, will combine their unique capabilities to take concepts from ideas to working products using solutions that are better, cheaper, and faster.

RDECOM-TARDEC produces four winning ECybermission Teams

U.S. Army Tank and Automotive, Research, Development Engineering Center

WARREN, Mi. - For the second straight year the U.S. Army Research Development and Engineering Command – Tank Automotive Research, Development and Engineering Center had a strong presence felt in the U.S Army ECybermission science, mathematics and technology competition.

The Command recruited and coached four of the 47 Michigan teams submitting projects that received national and regional awards. The team effort produced over 85 teams registering for the contest and 47 submitting and completing their respective research projects. The Installation ECybermission POC is Greg Chappelle.

ECybermission involves 6th through 9th grade students conducting research studies that concludes with an internet submission of their work in response to questions asked of all submitting teams. The student teams are composed of three or four students in the same grade. Some students get their first glimpse at developing the patience, determination, discipline and understanding needed to engage in a team research project. The contest is restricted to research topics on: the environment, health and safety, sports and recreation, and arts and entertainment.

The RDECOM-TARDEC Award Winning Teams won the following awards: the 2004 1st Place 6th Grade Northwest Regional Award (\$3,000.00 per student); the 2004 Criteria Award 6th Grade Northwest Regional Award (\$2,000.00 per student); the 2004 Criteria Award 7th Grade Northwest Regional Award (\$2,000.00 per student); and the 2004 Criteria Award 9th Grade Northwest Regional Award (\$2,000.00 per student)

"Sacrifice is often needed to inherit a worthwhile gain in knowledge and quantitative skills," said Chappelle. "I try to get the kids interested in hands on research training, conducting scientific experiments, using mathematical applications, studying dentistry, anatomy and traveling to different places to keep the students interest at a peak level."

Chappelle's ECybermission team of ambassadors includes the following TARDEC employees: TARDEC Director Dr. Richard McClelland; electrical engineer Leonard Sanford; computer specialist Ron Radue; chemist Emmet Fox ; and mechanical engineer Nancelee Halle.

Chappelle and Gerald Pantano, a Detroit metro area middle school team advisor, have the honor of being one of few team advisors to win back-to-back ECybermission Awards.

Chappelle said recruiting teams is easier than guiding them through the completion and submission phase. The investment of time in ECybermission projects by the U.S. Army could possibly produce more American scientist and engineers for the future.

TARDEC's work with the 2003-2004 Durfee Dental Team resulted with the team capturing the 6th Grade "Science, Mathematics and Technology Criteria Award" for the Northwest Region. The team worked in the dental office of Dr. Leon Gant, DDS, an Army veteran and Detroit resident, for three months studying dentistry. The team consists of Tinerra Grimes, Darrin Poole and Jasmine Allen.

The Northwest Region of the ECybermission Competition is composed of 19 states. Chappelle and his team have already begun planning for next year's competition.

Celebrating the role of the professional; Women in Defense holds enlightening seminar

By Myra Hess, Picatinny Arsenal Public Affairs Office

PICATINNY, N.J.- A variety of successful, talented women were the guest speakers at the recent Picatinny Chapter of Women in Defense seminar and luncheon held in observance of Women's History Month.

Fox Five television co-anchor Linda Schmidt; Renata Price, principal from Booz Allen Hamilton; Vivian Deeds, Office Manager for Wise Web Connections; New Jersey State Police Deputy Superintendent of Administration Lt. Col. Lori Hennon-Bell and Frances R. Pierce, Chairman, President and CEO of Data Systems Analysts, Inc., all shared their secrets for success with the more than 130 attendees that came to learn and network that day.

Schmidt and Price have a history with Picatinny. Schmidt is the daughter of retired Picatinny Arsenal Inspector General Ron Schmidt and Price worked at the arsenal as an associate technical director.

Schmidt has been a co-anchor at Fox Five for more than 11 years.

"I always knew this is what I wanted to do," she said. "I meet new people every day in this profession and women are encouraged to be aggressive. Women are treated the same as men in this field."

Price, who left the government for industry, said she was happy to be back at Picatinny for a visit. "This is home for me," she said.

Her words of advice were to have a "can do" attitude, work hard, take risks, have fun, help people along the way and keep learning.

"A leader has to have a vision," she said. "Your team will expect you to know where the team is going. There will be times when you don't actually know, but you have to give the team optimism and confidence."

Hennon-Bell, an enthusiastic and humorous speaker, rose through the ranks of the New Jersey State Police. She was recently tapped to lead the state police's new homeland security division.

The mother of two young children, she brought many chuckles from the audience when she discussed an unsuccessful attempt to develop a maternity uniform and when she had to tell her supervisor that she was pregnant. "Maternity clothes are bad enough. Maternity uniforms are horrible," she said.

Following the guest speakers, three workshops were held headed by the President of Rosewood Consulting Group Lesley Mallow Wendell; Associate Professor of Adult and Family Health for SUNY at Stony Brook New York; M. Elayne DeSimone and President of AWR Business Concepts Arnold Rintzler.

DeSimone's presentation focused on "stress relief at work and home, while Wendell talked on the benefits of mentoring. Rintzler's discussion revolved around innovative thinking.

A panel discussion, moderated by Deputy Project Manager for Close Combat Systems, Patricia Felth, followed the workshops. She interviewed several Picatinny women to learn how they had chosen their career paths and planned their upward mobility. She spoke with Barbara Muldowny, Deputy Project Manager for Individual Weapons; Robin Gullifer, Assistant PEO for Systems Management; Alison Ferraro, STAR Team Chief; Ruth Blessing, Contract Specialist and Laura Troiola, an Integrated Logistic Support Manager.

Long-time commissary manager retires

Picatinny, N.J - Installation Sgt. Maj. Delatha Bell and Garrison Commander Lt. Col. Paul Seitz honor James Carr at his retirement luncheon. Carr served as the ARDEC commissary director for 14 years.

Army civilian of the year award for 2003

FORT EUSTIS, Va. - George V. Dimitrov, Chief, Rapid Prototyping Division, Aviation Applied Technology Directorate (AATD), Fort Eustis, Va, recently shared the Joseph P. Cribbins Army Aviation Association of America's Department of the Army Civilian of the Year Award for 2003.

As co-winner, Dimitrov was recognized for his leadership of RPD's successful execution of critical Army aviation projects in direct support of Operations Enduring Freedom and Iraqi Freedom, as well as those supporting AATD's core science and technology mission area.

The projects that benefited from Dimitrov's leadership included satellite communications, Apache Instrument Flight Rules, Blue Force Tracking-Aviation, Enhanced Position and Location Reporting System, Army Airborne Command and Control Systems, Apache Air Transportability and brownout solutions for both cargo and utility aircraft. Each of these programs significantly enhanced Army aviation's operational effectiveness and survivability.

ARL Continues to Attract Diverse Talent

By Tonya Johnson, U.S. Army Research Laboratory Public Affairs Office

Adelphi, Md. - Theodore Anthony always wanted to be an engineer and now he's pursuing his dream at the U.S. Army Research Laboratory.

Anthony, an electrical engineer, has been working full-time at ARL since 2001. Prior to that, he was an intern and a part of ARL's Science and Technology Academic Recognition System (STARS) Program. STARS is a training and development program designed to attract minority students enrolled in science, engineering, or mathematics from historically black colleges and universities and minority institutions.

"Math and science have always been my favorite subjects," said Anthony. "I've always wanted to create things to better the world. ARL is giving me a chance to do that and I'm helping to keep Soldiers safe on the battlefield."

Established in 1997, students enter the STARS program as an undergraduate or graduate student. At the undergraduate level, students are considered interns and spend each summer working at the laboratory. Once they graduate, they can be hired non-competitively and the program will pay for them to attend graduate school.

Students who enter the program at the graduate level are awarded fellowships, which will pay for the student's master's degree or Ph.D. The program pays up to \$60,000 for graduate school. Once they graduate, they are offered full-time jobs. Some of the candidates have attended graduate school at Morgan State and Johns Hopkins, both in Baltimore, Md.; Florida A&M, Tallahassee, Fla.; and the University of Texas at El Paso. Candidates who enter at either point must have a 3.5 GPA.

"The program is competitive and the cream of the crop apply," said Dr. Val Emery, ARL's minority outreach program manager and the outreach manager for the entire U.S. Army Research, Development and Engineering Command. "The goal is to bring underrepresented groups into the Army S&T (science and technology) arena."

The STARS program isn't the only effort used to attract minorities to ARL. Emery maintains contact with students and faculty at minority institutions by visiting the campuses and attending workshops and conferences looking for students interested in interning or working full-time at the laboratory. In March, Emery visited the National Society of Black Engineers Conference in Dallas, Texas to collect resumes to distribute at ARL. Approximately 230 resumes were collected.

"It's important to foster these relationships because diversity is important," said Emery. "Everyone can bring something different to the table and diversity allows us to get different perspectives to look at and resolve technical situations."

Anthony, 27, who has also spoken to students at minority outreach conferences, works on a team that simulates the designs and builds the prototypes of antennas that must be able to withstand a rigorous environment. He received his bachelor's and master's degrees in electrical engineering at Morgan State where he is also working on his Ph.D. in computational electromagnetics.

"I've enjoyed working at ARL because it's a world-class research facility that has also paid for my education," said Anthony. "We're making things that are revolutionary."

"It's incredible to be in an environment where late-breaking research is going on, and I'm here developing technology for the Soldier," added Calandra Tate, a Ph.D. candidate in applied math at the University of Maryland who also participated in the STARS Program.

Tate, who has a bachelor's degree in math from Xavier University in New Orleans and a master's degree in applied math from the University of Maryland, works in the Battlefield Communication and Networks Branch for the Computational and Information Sciences Directorate. Tate works on metrics for evaluating different translation systems such as the Forward Area Language Converter (FALCon), which allows scanned foreign text to be converted to English. She said she has learned a lot while working at the laboratory.

"I would encourage those with a strong interest in the technical fields to consider working here," said Tate. "There's extensive room for growth. This has been a good experience for me, and I'm glad to work here."

Army scientist honored by Army engineers

Fort Belvoir, Va. - Stuart Leigh, Deputy Director of the Countermines Division of the Communications, Electronics R&D Center's Night Vision & Electronic Sensors Directorate was honored by the Corps of Engineers Association with the de Fleury Bronze Medal for outstanding service to the U.S. Army Corps of Engineers and the Engineer Regiment.

The medal was established by the Engineer Regiment as an award for the values demonstrated by the man for whom it was struck, Lt. Col. Francois Louis de Fleury, a French Engineer volunteer to the Continental Army, and has been awarded every year since 1989 to outstanding individuals.

In the citation Lt. Gen. Robert Flowers, Chief of Engineers, praised Leigh's work as an integral part of the team responsible for the recent fielding of a much-improved mine detector. This detector, the HSTAMIDS (Hand-Held Standoff Mine Detection Sensor), is described as "quantum advancement" in countermines systems; it is the first hand-held detector deployed that finds both metal and plastic mines in all soil types.

New Picatinny commanding general

PICATINNY, N.J. - Brig. Gen. Paul S. Izzo has been named Commanding General of Picatinny Arsenal. General Izzo currently serves as the Program Executive Officer for Ammunition and will retain that position also.

Picatinny researches and develops conventional and leap-ahead armament systems and ammunition that are designed to increase the combat power of U.S. Warfighters.

Born in October 1953, Izzo is a native of Saratoga Springs, N.Y and received his commission in 1975 as a Second Lieutenant in Armor following graduation from St. Bonaventure University where he earned a Bachelor Degree in Business Administration. In 1987, he earned a Master Degree in Management Science from Central Michigan University.

He assumed duties as the inaugural Program Executive Officer for Ammunition on January 2, 2002. Previously, he served as Deputy for Systems Acquisition, U.S. Army Communications-Electronics Command. His other recent assignments include Project Manager for the Bradley Fighting Vehicle System and Executive Officer to the Military Deputy to the Assistant Secretary of the Army (Research, Development, and Acquisition).

He also has served as Project Manager for Constructive Simulations at the U.S. Army Simulation, Training and Instrumentation Command, Operations Officer for 3-37 Armor, 1st Infantry Division during the Gulf War, Aide de Camp, Bradley and M1A1 Tank Live Fire Test Officer at Aberdeen Proving Ground, Md., Operations Officer and Company Commander 2-37 Armor, 1st Armored Division, Germany and Battalion Maintenance Officer, Tank Company Executive Officer and Tank Platoon Leader, 1st Infantry Division, Fort Riley, Kan.

52nd Defense Working Group on Nondestructive Testing

The Defense Working Group on Nondestructive Testing provides a forum for Army, Navy, Air Force, Marines, and other Department of Defense representatives to freely exchange information pertaining to nondestructive testing methods, equipment and applications. As attendance is restricted and tightly controlled, the focus remains on information exchange and problem solving without regard to contractual considerations. For the past 51 years this group has met annually, providing a conduit for engineers, scientists, and technicians to present technical problems and innovative testing systems to the assembled specialists. Collectively, attendees strive to advance solutions, utilizing their knowledge, skills and experience.

With reductions in expenditures for maintenance, repair, and acquisition of new systems, it has become imperative that the Defense Department maximize the useful life of present assets, while developing economical maintenance strategies. NDT plays a significant role in this process as it provides quantitative and qualitative input on the characteristics of systems and components during all phases of life-cycle management. This ability to test and inspect without destroying or degrading equipment ensures the highest standards of personnel safety while providing the most inexpensive method available to assess useful life and readiness of current assets.

The 52nd Defense Working Group on Nondestructive Testing is hosted this year by the United States Army Tank Automotive Research, Development and Engineering Center (TARDEC), and will be held from 26-28 Oct 04, at the Crowne Plaza Hotel - Detroit Metro Airport, in Romulus, MI. More information may be obtained by contacting our web site at: <http://hometown.aol.com/dodndt>, or our Host Representative Ms. Midge Krueger, U.S. Army TARDEC, COMM 586.574.5563 / DSN 786.5563 / email : midge.krueger@us.army.mil

ECBC Journal to Focus on Detection Technology

The upcoming issue of the Edgewood Chemical Biological Center's CB Quarterly journal will focus on ECBC's contributions to chemical agent detection.

ECBC is home to many research and engineering efforts that contribute towards ongoing Department of Defense technology development projects. The subject areas covered in this upcoming issue include chemical and biological detection capabilities.

Look for the upcoming CB Quarterly to learn the latest on ECBC's efforts to support new and novel technologies for the warfighter. If you do not currently receive the CB Quarterly, call 410-436-5383 to have your name added to the mailing list.

New program for disabled soldiers

The Army has developed an advocacy system to provide personal support and liaison to assist severely disabled Soldiers in their transition from military service.

The Disabled Soldier Support System (DS3) serves as the advocate for the Army's severely disabled Soldiers and their families. DS3 is a holistic approach to providing them with active, personal support as a liaison to resources available to them during their transition to civilian life.

The DS3 Task Force works with the military medical community to identify Soldiers who are considered severely disabled, as defined by Army Regulations and policy. DS3 contacts these Soldiers prior to their discharge to determine their personal goals during retirement, offer them assistance through this voluntary program, and be their advocate in obtaining required entitlements, benefits, services and support.

Historically speaking, there were no programs to assist Soldiers transitioning from military service into their civilian communities. In addition, transitioning into the Veteran Administration required veterans to present themselves and prove their own eligibility without any assistance from the Army. The Army looked back at recent conflicts and determined that it needed a system of advocacy for severely disabled Soldiers and their families beyond their transition from military service. The DS3 helps these Soldiers transition from the military with a severe disability to living life as a productive member of civilian society.

While the DS3 will not turn any disabled Soldier away if they need help, DS3 is designed for those who are severely disabled, as defined by Army Regulation 40-400 as well as medically retired with a 30% or greater Army disability rating. Some of the injuries or disabilities listed in the special category are loss of sight or limb, incurable and fatal disease, paralysis and Soldiers with an established psychiatric condition.

The bottom line is that the Army will continue to take care of it's own. For more information, go to www.ArmyDS3.org or to www.blo.org.

2003 Robert M. Leich Award

FORT EUSTIS, Va. - The Aviation Applied Technology Directorate has received the Aviation Association of America's 2003 Robert M. Leich Award at the recent convention in Nashville, Tn. AATD's predecessor organization, the Aviation Technology Laboratory received this award in 1983.

AATD earned the award for supporting Soldiers for more than 50 years and has provided some of the most innovative technical solutions to aviation challenges. It develops, demonstrates, and applies those critical technologies that improve the capability, readiness, safety and affordability of Army rotorcraft and tactical unmanned aerial vehicle systems. AATD also provides quality and timely engineering and rapid prototyping support to Army Program Executive Offices, The U.S. Special Operations Command and others. And, finally, AATD supports worldwide contingency operations through fabrication and support of unique material solutions.

AATD continues to be engaged in efforts that will usher in the future of Army aviation and be the recognized leader within the Department of Defense for the development and engineering of rotorcraft and tactical UAV systems and technologies, and will be known not only for the quality of its work, but also for the excellence of its people.