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THE PICATINNY VOICE



Vol. 26 No. 2

<https://www.pica.army.mil/evoice>

Published in the interest of the Picatinny Arsenal, N.J., community

January 25, 2013

3-D technology holds promise of huge savings in acquisition

In the future, the savings in time and money could ripple across the entire Department of Defense for significant gains.

BY TIMOTHY RIDER
Picatinny Public Affairs

If a picture is worth a thousand words, what is a 3-D picture worth?

Engineers at Picatinny Arsenal and Aberdeen Proving Ground are working on a project to find out. They plan to reap a daisy chain of dollar savings by developing technologies that will be at the center of a revolution in how the Army meets its constantly changing needs for equipment.

A prominent feature of the plan has the Army providing manufacturers the specifications for a needed part in an interactive 3-D model format, including data that can be used with modern, computer-aided machine tools.

Currently, when the Army wants a part made, it provides an "official product representation" as a technical data package or TDP. The packages include two-dimensional drawings along with product manufacturing data that provide the basic dimensions and tolerances.

Manufacturers use the data packages to set up their shops for the production of a wide range of parts to meet the Army's needs—trigger assemblies, cannon breeches, turret parts and grenade safety pins—everything from new to improved parts or parts to replace depleted inventories.

"Much of the manufacturing world



Creating a 3-dimensional technical data package for the M2A1 quick change barrel has a number of advantages. A modern and consistent product definition reduces manufacturing risk and cost. Also, because 3D packages are the "technical language" of industry, there is a potential for more bids from small manufacturers, which can drive down costs through greater competition.

works with 3-D data," said Sanjay Parimi, a project officer with the U.S. Army Armament Research, Development and Engineering Center. "However, we very often only provide industry with 2-D technical data packages, increasing the cost and time for acquiring manufactured goods."

The reason for the added cost is added

work. The manufacturers must take the Army's 2-D technical data package and convert it into a 3-D computer-aided design – or CAD – format, which is the language used by modern machine tools. That conversion can occupy a team for a week or even longer, depending on the complexity of the parts.

"They're not going to swallow the cost

"Much of the manufacturing world works with 3-D data. However, we very often only provide industry with 2-D technical data packages, increasing the cost and time for acquiring manufactured goods."

of translating the data from 2-D to 3-D," Parimi said of manufacturers. "They're going to pass on that cost and risk to the government."

The risk, he explained, is making a mistake during the data translation.

The Army does not provide official product representations in a 3-D format for several reasons.

Until recently, the Army had no way of validating 3-D CAD data. Also, the Army had not adopted the use of a "neutral" standards-based CAD format that would allow vendors to use CAD data, regardless of which CAD platform their business used.

Teams from two of the Army Research Development and Engineering Command's organizations – Picatinny Arsenal's ARDEC and Aberdeen Proving Ground's Army Research Laboratory (ARL) had both been working on projects that sought to modernize the Army's technical data packages.

"It made sense to join forces and put

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Chaplain Maj. Jamison Bowman, Fort Hamilton installation pastor, addresses the Picatinny community Jan. 15 during a Dr. Martin Luther King, Jr. remembrance program. Photo by Erin Usawicz.

Picatinny honors Dr. Martin Luther King, Jr.

BY AUDRA CALLOWAY
Picatinny Public Affairs

Everybody can be great, because anybody can serve... You only need a heart full of grace. A soul generated by love. - Dr. Martin Luther King, Jr.

The Picatinny Arsenal community honored Dr. Martin Luther King, Jr. during a breakfast program Jan. 15 at the Cannon Gate Catering and Conference Center.

Picatinny Garrison Commander Lt. Col. Jason Mackay began the program by welcoming the audience that gathered to recognize King's birthday and honor his work as a civil rights activist.

"Dr. King is synonymous with the civil rights movement in America, his dream has inspired Americans for decades," said Mackay. "I ask today

as you listen, what we all can do to live up to Dr. King's dream."

Maj. Jamison Bowman served as the keynote speaker for the event. Bowman is the Fort Hamilton installation pastor, as well as the senior pastor of the Fort Hamilton Protestant Service, in Brooklyn, N.Y.

He received his undergraduate degree from Morehouse College, the same university King attended.

During the breakfast, Bowman discussed racial discrimination his family encountered growing up in Memphis, Tenn., during and after the civil rights movement.

"We've got to have a mindset to make situations like that better," Bowman said. "And that's one of the things I want to encourage you today. To say, 'What can I do?' Not necessarily in Memphis, but

See KING, Page 2

King honored at Picatinny ceremony

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wherever you are. There are all kinds of inequalities going on, there's all kinds of people that are not fair. I just advise you, as a chaplain, to not be one of them."

Everyone should honor King's legacy by eliminating discriminatory tendencies and embracing diversity, he said.

"Really, the military has been ahead of the curve as far as racial relations, and male-female relations compared to the rest of the United States in a lot of

ways. You see a lot of diversity," Bowman said.

What's your story of diversity, Bowman asked the audience?

"You probably have one," he said.

"Make sure that wherever you are that diversity is an important thing."

"Hopefully, through what we've talked about today, and through sharing with one another, we can think about what we can do to keep Dr. King's dream alive."

MARTIN LUTHER KING DAY AT A GLANCE

What is it?

Dr. King was one of the driving forces behind the American Civil Rights Movement and remains an iconic figure in the world today as the representative of a national movement that changed America. Federal offices, schools and banks across America close on the third Monday of January to celebrate his birth, life and dream and to honor his teachings of nonviolence and equal rights. When we celebrate Dr. King's dream, we celebrate the American Dream.

What has the Army done?

Army leadership has asked our entire Army family, our Soldiers, civilians, and their families, to lift each other up at home and around the world. Leaders have also encouraged our Army family to commemorate this occasion by joining in community activities to help those in need and by planning events that celebrate the hard work of Dr. King and our resulting national fulfillment of the promise of the American Dream.

Why is this important to the Army?

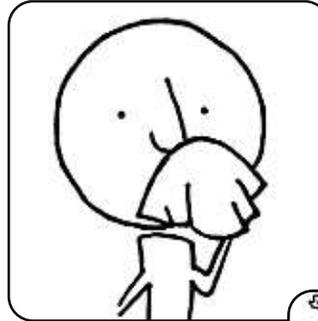
As we celebrate, we have the opportunity to honor Dr. King's legacy of service by reaching out and taking each other's hands to work together to empower individuals, to strengthen communities, and to inspire the nations of our world. On this day of national community service, Americans of every age and background continue the work of our greatest civil rights leaders by contributing to projects that move us closer to the bright vision in which all Americans enjoy the riches that come from freedom and the security that is borne of justice.

What is planned for the future?

We emphasize the value the Army places on diversity. We are "Army Strong" because we not only place great value in having different perspectives, approaches, and skills but also because we value having ethnic and cultural diversity. Throughout the year, we will celebrate and commemorate the diversity of our Army and leverage and draw strength from the rich diversity within our military and civilian ranks by recognizing the critical roles we all play in strengthening our nation's presence around the world.

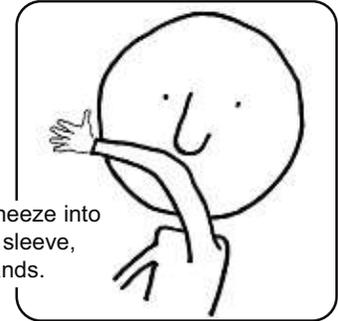
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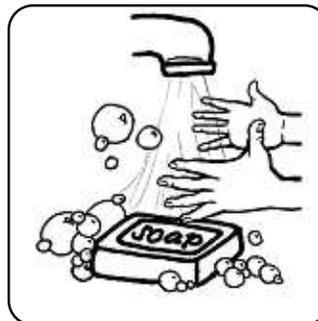


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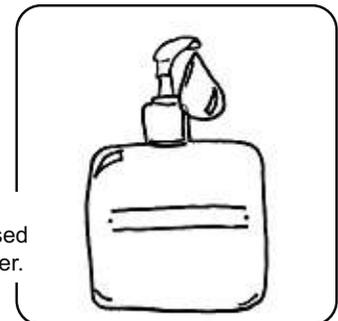
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Printed on recycled paper

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For matters about business, advertising and subscriptions, contact the printer, North Jersey Community Newspapers, 100 Commons Way, Rockaway, N.J., 07866 at (973) 586-8195/8197.

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The PicatinnyVoice reserves the right to select, reject or edit letters and articles to meet space constraints, achieve clarity or for suitability considerations.

<https://www.pica.army.mil/eVoice>

3-D data packages provide numerous efficiencies

Continued from Page 1

a more comprehensive program together,” said Paul Huang, a materials engineer who is the project lead for models-based enterprise activities at ARL. He added that they are all part of the same Manufacturing Technology (ManTech) team working multiple projects in the “same space.”

TOWARD A NEUTRAL ARMY 3-D STANDARD

The ManTech team began by investigating whether they could use a CAD format that is “neutral” among the competing versions from various CAD vendors. The format they explored was based on an industry standard called STEP (STandard for the Exchange of Product model data), said Huang.

In its current form, CAD vendors do not support the translation of STEP without some critically important data on how to manufacture the product. Consequently, the Army does not provide its official product representation in STEP.

Another approach would have been to pursue changes to STEP that supported the Army’s needs, but since the STEP is based on agreement across an international body, that process would not have moved fast enough, Huang said.

“This leaves the Army back at square one,” Parimi noted. “We still need the 2-D drawing as the official product representation. We recognized the need to send out 3-D data in a neutral format was important, but the technology to do that wasn’t there.”

Facing a wall the team could not get through, the team, “got a ladder and climbed over it,” Huang said.

Team members investigated the common Portable Document Format (PDF), which allows viewing in 3-D and is readable on standard personal computers without additional cost. However, it does not support extracting the data needed by the CAD software.

“Our goal then was to replace the 2-D PDF with a 3-D PDF design document that includes 3-D visualization and the product manufacturing data ... to make it so all of the design outputs can easily become inputs to the manufacturing world,” Parimi said.

Having developed a way to reach their goal with PDF, they then looked further.

Current technical data packages, commonly called TDPs, include every detail about the finished part, but no information about how to make the part. The team envisioned a TDP that would have not only the 3-D PDF documents that interoperate with CAD, but would also include step-by-step “how to” data, including video-like sequential illustrations that explain how various tools can be used to fashion parts.

Creating odd and distinctive shapes that require instructions is especially important, and typical, in gun manufacturing, according to Parimi. The Army must figure out how it will be manufactured, thus it makes

sense for the Army to relay that knowledge to the people who will do the job.

“It saves money, and it saves time” said Parimi. “By providing the data, we’re positioning (manufacturers) further along in the learning curve. They don’t have to spend as much money figuring out how to manufacture the part.”

The team is also developing a way of representing “systems integration data.” Translation: A guide that explains how to assemble an assortment of individual parts into a working system.

That data would be valuable over a system’s service life, Parimi explained. After an Army weapon comes off the assembly line, it may remain in service for decades exposed to the Army’s brutal operating environments. During that lifetime of service, a system is likely to be shipped to depots for replacement parts, upgrades or modifications several times.

Maintaining both the assembly information and the parts data means that Army depots would never again have to pay for planning parts-making or assembly. All the data would remain a part of the 3-D data package.

“The technical data package is more important than any of the parts,” Parimi noted. “If you have the data you have everything you need to make more parts.”

Parimi characterized the current version of the 3-D data package as “somewhat mature.”

He asked manufacturers for feedback on the proposed solution. Of 46 who responded, 84.4% plan to use the 3-D technical data package in their manufacturing planning, 76.1% plan to use the 3-D TDP to develop their computer aided modeling program, and 73.9% plan to use the 3-D TDP as a way to convey instructions to the shop floor.

3-D TECHNICAL DATA PACKAGES—ONE PIECE IN A LARGER EFFICIENCY PUZZLE

Parimi and Huang entered into the field of models-based enterprise attempting to meet different specific needs.

Huang was leading an initiative to improve how organic Army facilities share workloads. Parimi had found a 2-D TDP inadequate to the task of communicating the design of a particularly vexing gun part and began exploring a better TDP.

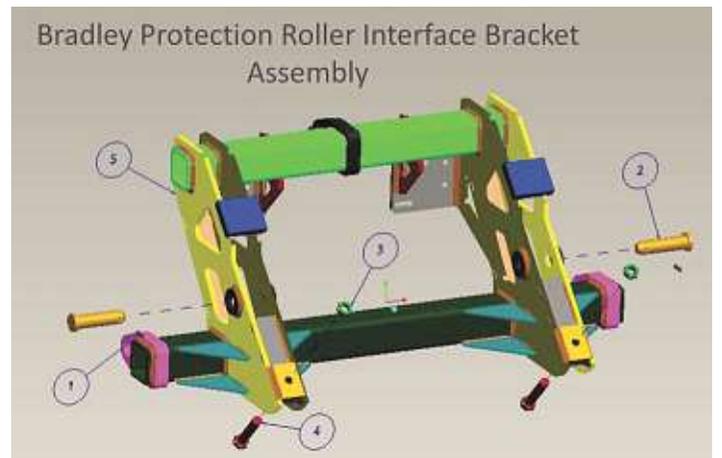
After their efforts merged, however, they have set their sights on a much bigger prize: “providing knowledge and functionality to provide better procurement packages to the DLA,” said Huang, referring to the Defense Logistics Agency, which is the central focus for obtaining parts across the Department of Defense.

“Another goal is to provide better procurement packages for the Army’s contracting centers,” added Parimi.

Ultimately, Huang explained, “We didn’t want to create a point solution, we wanted to be able to hand them a better way of doing things.”

To that end, their efforts are now focused on developing a way to manage 3-D TDPs that operates more like a social media site than a file drawer.

Named the Product Data Management System (PDMS), it maintains extensive data on a system throughout its service life. Parimi describes it as a “living,” secure, internet-based system that can be accessed by authorized personnel for reference or update whenever needed.



Above is an example of fully annotated modeling for computer aided design.

For example, a Soldier may have an idea for a how to improve a product based on combat experience. The Soldier could submit the suggestion via the PDMS.

An Army engineer in the U.S. could review the suggestion and begin refining it, then prototype it, test it and submit the new design as change proposal that leverages the 3-D format. If the Army approved the improved part, it would then be the official representation of the part and available for production.

There are multiple variations of that example, explained Parimi.

Basically, any improvement in a part design, assembly or maintenance as represented in the 3-D technical data package could be improved with a similar process. The key is that Soldiers, maintenance personnel, depots and product engineers can always access an up-to-date official representation from anywhere via the Internet.

FIELD REPAIRS AND PREVENTATIVE MAINTENANCE—IN 3-D

The original 3-D technical data package can also be used to assist in the field maintenance of Army systems, since visual representations of products and parts are used to instruct Soldiers in the disassembly, cleaning and replacement of parts needed to keep a system working.

The Army is already using training manuals accessible with a tablet or hand-held computer that use 3-D product representations.

An example is the 3-D Interactive Electronic Training Manuals (IETM) for the XM7 Spider Networked Munition System.

A 3-D IETM allows Soldiers to disassemble and re-assemble virtual models of a system. The 3-D feature allows them to rotate components in the model to view them from different angles or “zoom in” to get a better view of small parts.

The 3-D data is also used to provide video-like assembly and disassembly instructions and is incorporated into self-paced tests, all to improve a Soldier’s maintenance skills.

Parimi is developing plans to deploy 3-D PDF, PDMS and IETM elements.

He is working with their customers in Project Manager Soldier Weapons and Project Manager Close Combat Systems to bring the technology to fruition in a way that would support actual products being used by Soldiers.

One such project with PM Soldier Weapons includes developing 3-D digital work instructions to save time and money in the conversion of M2 .50 caliber machine guns into the upgraded M2A1 variant that was announced last year as an Army Greatest Invention of 2011.

And it starts with seeing things, in three dimensions – just as they are in the real world.

“A picture is worth a thousand words,” said Huang. If that’s true, then wouldn’t a 3-D picture be worth one thousand words to the third power: a billion words?

If not, the ManTech team may just have to settle for billions of dollars in savings.

“That is why we see a huge impact with this technology,” said Huang.

AT A GLANCE

3-DIMENSIONAL TECHNICAL DATA PACKAGES

The Army could reap tremendous savings in time and money by adapting its technical data to industry standards, replacing 2-dimensional data with 3-dimensional versions. Greater use of 3D technology has other advantages:

- Fully annotated models, digital work instructions for manufacturing operations, technical publication and 3D-based engineering analysis tools
- A product data management system to manage data elements through the acquisition lifecycle.
- Reduced training time for field level installation
- Warfighter access to relevant product data to support operations
- Reductions in mean time to repair
- Improvements in parts availability

Soldier proves adept at finding improvised bombs

Project Manager
Close Combat Systems

Does playing video games improve Soldier performance on the battlefield?

That question remains open to debate, but one avid gamer, Spc. Nathan Guilde, is one of the most successful operators of an electronic mine-detection system in Afghanistan.

Perhaps his skill in video games helped to develop his innate sense for discerning imagery and his ability to quickly scan and identify targets using the Husky Mounted Detection System-Ground Penetrating Radar (HMDS-GPR).

Managed by Project Manager Close Combat Systems at Picatinny Arsenal, HMDS provides the capability to detect and mark the location of buried low and non-metallic, as well as metallic-cased, improved explosive devices (IEDs), pressure plates, and antitank land mines.

At the foundation of this capability is the GPR, state-of-the-art technology that gives the operator a three-dimensional view of objects buried in the ground. GPR panels are mounted to the front of existing Husky vehicles.

The system transmits the images to a monitor inside the vehicle for the operator to review and determine threat potential.

This alerts the operator to targets before detonation, greatly reducing the risk of injury to the crew and vehicle battle damage.

"We are confident enough to have de-



Spc. Nathan Guilde receives the Bronze Star for his operation of the Husky equipped with the Husky Mounted Detection System Ground Penetrating Radar.



Images transmitted to a monitor inside the vehicle alert the operator to targets prior to detonation, greatly reducing the risk to the crew and battle damage to the vehicle.

creased our reliance on dismounts, which place Soldiers on the ground, making it a much safer environment in a dangerous operation," said Guilde.

Guilde, of 887th Engineer Company, recalled an initial brief that stated that the Husky is one of the safest platforms in theater, but the vehicles behind it are not as well suited to sustain a blast.

Knowing that he is responsible for the lives of the entire patrol that follows him keeps him sharp.

Early detection of a potential hazard allows the Husky to either circumvent the threat or pull back and allow the route

clearance commander to begin an interrogation process.

This autonomous threat detection also provides increased situational awareness to the operator, who is not required to continuously monitor the screen for threats. He is alerted by the system through audio and visual cues.

Described as a "game changer" in the fight to counter the IED threat, HMDS enables combat engineer units to more quickly check heavily used roads for IEDs with better detection.

"As an operator, you can actually see the IED while it is in the ground," Guilde

said. "You see it on the monitor."

Since early 2009, more than 150 HMDS have been fielded to Afghanistan. Field Service Representatives support the operators and systems, providing training, technical and maintenance support, along with software updates.

The HMDS has scanned thousands of kilometers of Afghan roads and recovered scores of IEDs.

The scanned data can be stored for future analysis to evaluate product and operational improvements, and as a tool to track IED designs and placement tactics.

In October 2012, Guilde received the Bronze Star for his operation of the HMDS during his tour of duty that yielded 18 IED finds.

"It saves lives," Guilde said of the system. "The patrols could not operate without it."

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Sophisticated odor detection has multiple uses

Army News Service

ABERDEEN PROVING GROUND, Md. -- Fido is more than just a good companion and even though being man's best friend goes beyond the pedigree, dogs are perhaps better known for their keen sense of smell.

At the U.S. Army Edgewood Chemical Biological Center (ECBC), scientists are fine-tuning the powerful sense and integrating it into a technology that can protect food supplies, identify biological agents and equip the Warfighter with new capabilities.

"Dogs are actually used for quite a lot of things throughout the military for detection as well as law enforcement," said Calvin Chue, a research biologist at ECBC.

"Not all smells are actually detectable by the human sense of smell, but dogs are one of those creatures who have a tremendous sense compared to humans and can pick up many more things than we can. And those smells (odorants) are given off by biological organisms."

According to Chue, nearly all living creatures or biological materials give off a specific profile of organic compounds, or a unique smell. Those compounds can be detected and identified using a Volatile Organic Compound (VOC) visual indicator that was developed in 2000 by Ken Suslick at a laboratory at the University of Illinois at Urbana-Champaign. When biological materials react in the presence of a specific individual compound, the VOC detection application reveals unique patterns that illuminate a certain color after five hours of exposure.

ECBC is teaming with Specific Technologies of Mountain View, Calif., through a cooperative research and development

If the Warfighter just received a shipment meat or dairy, it may look good but what tells you that this is going to spoil in a day versus a week?

agreement to utilize the VOC detection application with the military in mind. What was once used to determine whether coffee beans were Starbucks or Folgers, could now be used to discern biological agents or test for the spoiling of foodstuffs.

"We've been working with them [Science Technologies] as well as the Defense Science Technology Laboratory in Great Britain to validate and verify the same technology can be applied to biological agents, and we will expand it to food stuffs and transport issues," Chue said.

"We believe it will significantly help troops with their supply and logistics chain. If the Warfighter just received a shipment of grapes or meat or dairy from the United States, it may look good but what do you have that tells you that this is going to spoil in a day versus a week? This kind of technology can help."

The paper-based colorimetric array is a series of dots that change color over time as the paper is exposed to various odorants. After taking a simple photograph of the colors, it can then be scanned and run through a software application that identifies what compounds are present. According to

Chue has been working on VOC detection for the past 10

years using a different method called gas chromatography as a way to replace the use of dogs on detection missions. The gas chromatography technology, however, proved to be a burdensome and complex project that required specific training for the large, non-portable equipment.

With the innovative VOC detection applications, Chue and the ECBC team are able to broaden the scope of work for implementation in the military arena at a cost-effective rate. Right now, scientists are devel-

oping ways to embed the VOC technology into mason jars in order to better evaluate the foodstuffs inside and determine the preservation rate. Other avenues of implementation could protect the Warfighter from biological agents that may have contaminated a container or item.

"We are integrating this kind of technology into a variety of mechanisms, but those mechanisms need to be decided. There are a number of fields that this will ultimately benefit and could actually have a wide range of ap-

plications," Chue said.

"We envision this growing into a mobile platform where it could be inserted into various containers that you could take a picture of in order to determine the state of the VOCs inside."

As part of the U.S. Army Research, Development and Engineering Command, ECBC's mission is to integrate lifecycle science, engineering and operations solutions to counter chemical-biological threats, and develop ways to advance the safety of U.S. forces and the nation.

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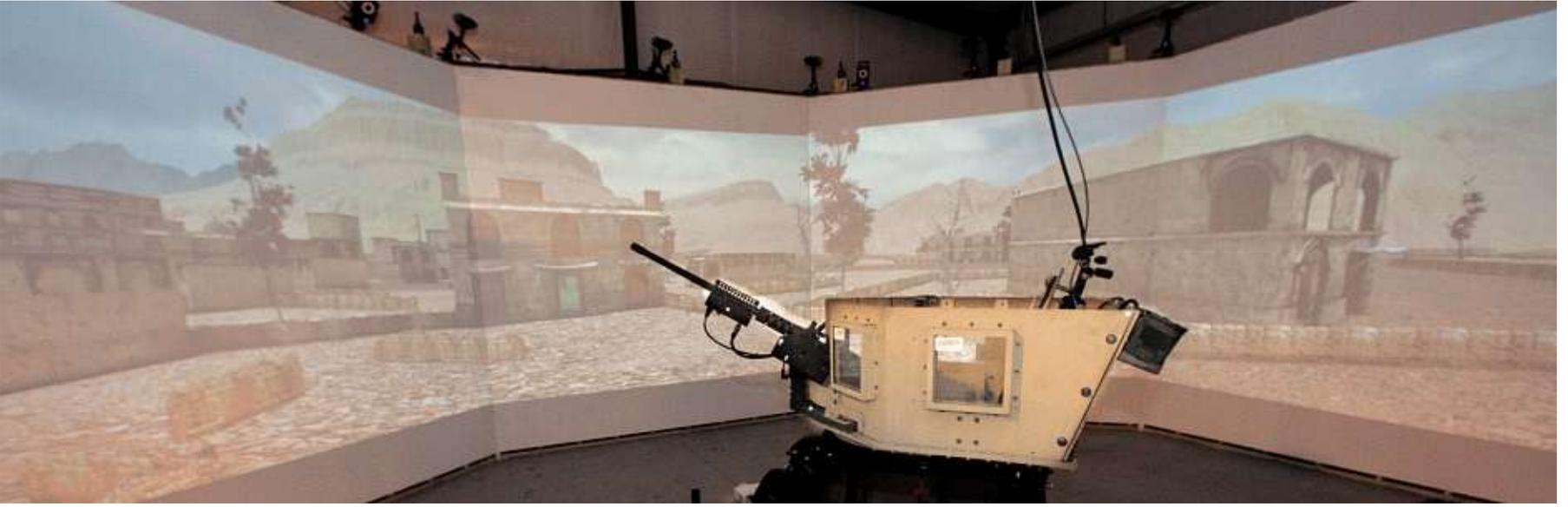
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ABOVE: A scene created from the Unreal Engine 3.0 video game platform is projected on the adjoining screens while the turret sits in the forefront of the OGPK virtual test bed. BELOW, TOP PHOTO: John Riedener, technical director, places a Kevlar helmet integrated with a motion-capture system on the head of Spc. Jeffery Krahn. BOTTOM PHOTO: Sgt. Jarred Dunton sits inside the turret as Robert Demarco (top left) explains how the test bed will function. Photos by Todd Mozes.

Lab testing seeks data on modified gunner protection design

BY ERIC KOWAL

Picatinny Public Affairs

The best way to evaluate the effectiveness of a product is to put it in the hands of the user, obtain feedback, and make adjustments accordingly.

With a newly developed Virtual Environment Test Bed (VETB), scientists and engineers at the Target Behavioral Research Laboratory at Picatinny Arsenal can record how Soldiers react and perform inside a newly modified Objective Gunner Protection Kit (OGPK).

The OGPK is an armored turret that provides much needed protection for tactical vehicle gunners in combat situations. Soldiers voted the OGPK as one of the Army's top 10 Greatest Inventions in 2007, the year it was first fielded.

"The purpose of testing the OGPK in a virtual test bed is to evaluate gunner performance in various threat scenarios," said Thomas Kiel, Chief, Turret Engineering and Force Protection in the Systems Engineering Directorate, part of the U.S. Army Armament Research, Development and Engineering Center (ARDEC).

A customized version of the "America's Army" gaming environment was integrated with the actual OGPK hardware and weapon system to provide a more realistic simulation.

The evaluation team requested that infantry Soldiers who participated in the "user jury" have experience using the OGPK in either Iraq or Afghanistan.

In November, Soldiers from the 3rd Brigade Combat Team, 4th Infantry Division at Fort Carson, Co., visited Picatinny Arsenal to participate in the evaluation. In all, six teams of Soldiers including units from Fort Hood, Texas, and Fort Benning, Ga., will contribute to the development of the system.

Measurements of the gunner's reaction times and ability to engage targets effectively are quantified in the system. Correlations between performance and human factors are then evaluated to generate opportunities to improve protection and the ability to fight while being constrained by a shell of armor.

Eventually, more complex testing can be done to quantify the effects of physiological stress on the gunner.

"Warfighter survivability is absolutely the most important aspect of the Objective Gunner Protection Kit design," Kiel said. "However, the ability to maneuver the weapon sufficiently while maintaining situational awareness is critical for delivering energy on target. The VETB will allow us to evaluate various OGPK enhancements, such as larger transparent armor windows for increased visibility. It is critical for us to have the ability to analyze these upgrades in terms of gunner effectiveness."

The first four Soldiers entered the test bed facility individually, and each received a mission brief presented on video by Lt. Col. John Thane, Military Deputy, Munitions Engineering and Technology Directorate, which is also part of ARDEC.

The virtual scenarios were created using the Unreal Engine 3.0 video game platform. The environment immerses the gunner within the lead vehicle in an escort convoy, with instructions to suppress any armed insurgents trying to interfere with the mission.

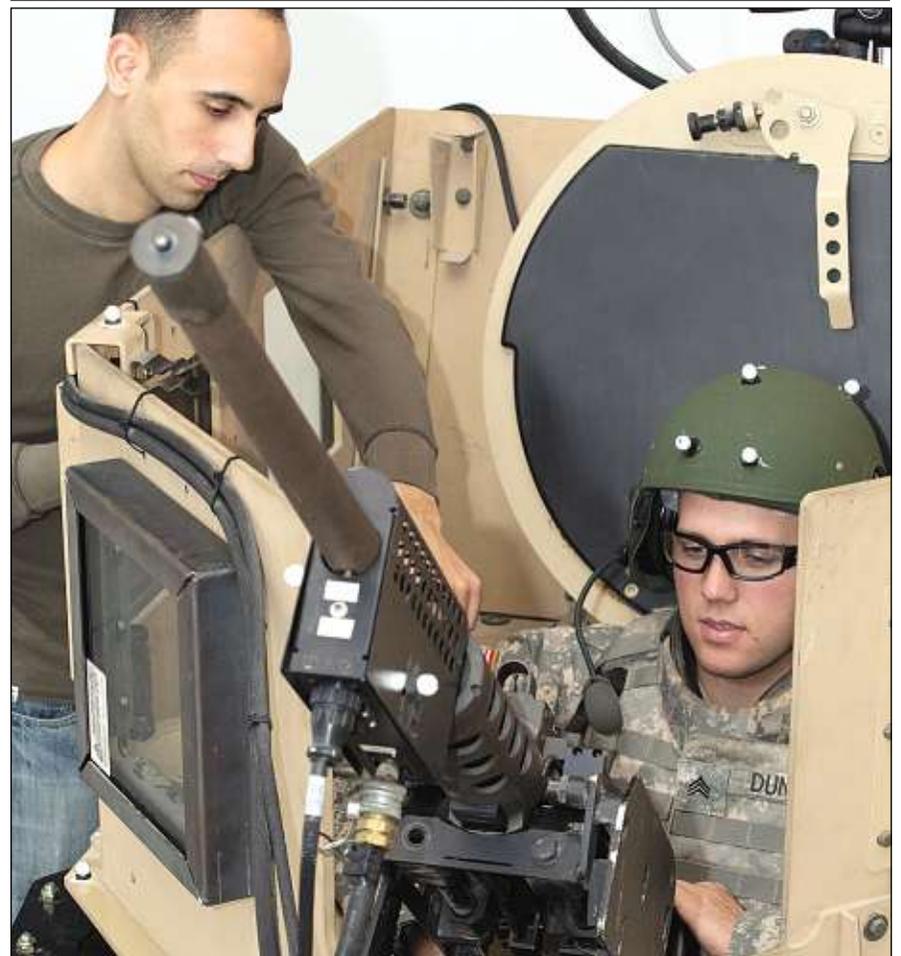
Unknown to the Soldiers, about half way through the 15-minute evaluation they receive a change in mission orders. The changes would affect the distance of shots they fire back at the enemy and a change in route pattern.

The environment includes a six-sided room where the scenario is projected from five different projectors on five 12 foot long walls. The back wall is larger than the others and there is no projection on that wall.

Throughout the scenario, the Soldier encounters 68 different targets. Sitting atop the 12-foot high walls surrounding the room are nine paintball guns, which are used to simulate in-coming fire from the opposing forces. These guns fire rubber pellets at the gunner inside the OGPK when strategic targets are not engaged within two to three seconds.

A motion-capture system is integrated

Story continues on next page



with the Kevlar helmet that Soldiers are required to wear. Other gear includes an Interceptor Body Armor vest, radio communications, ear piece, goggles and gloves.

The motion-capture system records Soldier movement and response time to shots fired from various locations on the screen, as well as when the weapon is positioned toward targets, and the time it takes to engage the enemy on the screen.

The Soldiers are responsible for firing a .50 caliber Browning M2 machine gun mounted inside the turret. After 100 rounds are dispensed, the Soldier then has to reload.

Spc. Robson Alokoa, a test user who has deployed three times to Iraq, with his most recent spanning from August 2010 – August 2011, said that the hand crank configuration for turret rotation during his scenario was better placed.

Also, visibility was far more advanced than what he has experienced.

“There was much better movement than the one (turret) I’m used to. I was able to use my left hand for movement and the right for shooting,” Alokoa said.

“I could see from all around so I was able to keep my eyes pointed in all directions,” he added.

“The front vehicles in our convoys in Iraq only had 45 degrees of visibility but

with this I was able to see left and right. Two vehicles could cover 360 degrees rather than one in each direction.”

Sgt. Jarred Dunton agreed with Alokoa that the placement of the crank handle in the new turret was better configured than when he had been deployed.

“The crank handle used to get caught on my gear which obviously is not very good if you are in the middle of a gun fight,” Dunton said.

“With the crank I used here today I had none of that.”

The OGPK that the Soldiers used in the evaluation had bullet-proof glass covering all sides of the gunner, giving him full peripheral views.

John Riedener, the behavioral lab’s technical director, said that future tests of the OGPK will be conducted without some windows to determine the value of each of those windows.

Those tests can be compared to results conducted with windows in all sides.

“This new test bed can be used to evaluate the lethal performance of any ARDEC armament platform,” Riedener said.



Marc Federico (right), computer engineer, and Robert Demarco, bio-medical engineer, view and track gunner reaction times from computers outside the virtual test bed.

Because the evaluation is done in a simulated environment, the testing can be done early in the design phase of a project and performance data can be gathered on many different designs, and through analysis, will lead to an optimal design,” he added.

“Our next step is to create a virtual environment test bed for the dismounted Soldier,” Riedener continued.

“This test bed will be able to evaluate the performance of Soldiers and the squad as part of a lethal system and allow trade-off analysis at that level.”

The feedback from the evaluations will help with the final development of the ARDEC-produced OGPK 2.0 for integration into the Joint Light Tactical Vehicle.

Intelligence center develops Biometrically Enabled Intelligence to support Warfighter

Army News Service

CHARLOTTESVILLE, Va. -- It has been said that eyes are the windows to a person’s soul. Additionally though, they are also the gateway to a person’s identity.

Many Soldiers who have deployed to Iraq or Afghanistan are familiar with biometrics—which is the collection of iris scans, fingerprints and facial images used to identify an individual.

In fact, forensic science has been around for nearly 100 years, with fingerprints used as a primary means of identification. Today, fingerprints, iris scans, DNA and other biometric traits are used to identify and apprehend persons of interest.

“Many in the military, to include Army intelligence analysts, are unfamiliar with how those collections are planned, exploited, analyzed and turned into a valuable source of information used to protect friendly forces, identify persons of interest for questioning or targeting, provide security to local populations, and protect our homeland,” said Gregory Sieminski, chief, Identity Intelligence Division, National Ground Intelligence Center, known as NGIC.

This activity is known as Biometrically Enabled Intelligence, or BEI, and it “is here to stay as a critical tool for Army intelligence analysts,” Sieminski said.

“BEI has saved countless lives in Iraq and Afghanistan and helped our forces achieve identity dominance in demanding insurgency environments,” Sieminski said. “Even with these successes, we have realized only a fraction of the potential this capability brings to ‘people-focused’



By scanning a person’s iris and taking fingerprints, deployed Soldiers are able to identify whether or not someone has been recorded as having participated in insurgent activities.

analysis, regardless of mission, geographic location or operating environment.”

In this digital age, many believe the global proliferation of biometric technology and the ubiquity of identity information present a huge and growing intelligence opportunity for today’s generation of Army analysts.

“Biometrically Enabled Intelligence provides an analytical baseline by resolving identities through high-confidence biometric matching and fusion with other sources of intelligence to positively identify the person in question,” said Cathy Moore, senior intelligence analyst, Biometrics Division, NGIC.

“The Biometric Enabled Watchlist—a Defense Department-wide service managed by NGIC—is the tool that gets the critical conclusions about threat identities from BEI out to the field,” Moore said.

“It places biometric intelligence at the fingertips of our Soldier-sensors by providing the ‘so what’ for the operator at the point of encounter,” Moore said.

For example, during a biometric screening, a watchlist “hit” might reveal that a local national has ties to an insurgent network, leading to denial of his employment at a U.S. military installation overseas. An Army all-source analyst, while conducting intelligence preparation of the battlefield, develops geospatial plots of biometric and other data that reveal the operational patterns of an insurgent improvised explosive device network operating in his unit’s area of operations. A brigade combat team security officer plans focused biometric enrollment operations in conjunction with routine patrolling.

How are these events related? They are a few of the ways biometrics are being in-

tegrated into Army all-source intelligence analysis, where it enables warfighters to deny anonymity to adversaries.

Thanks to its proven success in both Iraq and Afghanistan, this capability has grown well beyond its wartime roots. Biometric technology, and its fusion with all-source intelligence, is proving highly relevant to enduring and emerging 21st century threats where individuals seek to conceal their identity.

From Somali pirates to weapons of mass destruction proliferators, human identification is a critical enabler to the full range of military operation.

“As BEI tradecraft is spread beyond its current wartime origins, more and more Army intelligence analysts are learning the power of fusing biometrics data with other, more traditional sources of intelligence,” said Spc. Kama Mountz, of the 500th MI Brigade.

“My training has been invaluable in identifying persons of interest in the U.S. Pacific Command area of operation. As in the combat theaters, these individuals seek to conceal their nefarious activities by remaining anonymous.”

Like analysts across the U.S. Army Intelligence and Security Command force, Mountz has learned that BEI can deny foes that advantage.

“The work we do is not in isolation but rather a collaborative effort across DoD and other government agencies,” Mountz said.

“It’s a great feeling at the end of the day to know that we’re all doing our part to protect the homeland.”

Soldiers, mine-detection dogs will 'take care of each other'

Army News Service

BAGRAM AIR FIELD, Afghanistan -- Staff Sgt. Allen, a mine-detection dog, searches a muddy gravel road with his nose low to the ground.

"No, seek here!" commands Sgt. Brian Curd, a dog handler with the 49th Engineer Detachment (mine dogs), out of Fort Leonard Wood, Mo.

Allen's ears perk up as he runs to where his handler is pointing while he continues to search for the "mine" that Curd placed on the side of the road.

He stops and alerts, a signal that Allen is trained to present if he finds something.

Curd kneels down and inspects the find. The handlers use real explosive material that is commonly found in Afghanistan to train the mine dogs. Allen's nose has scored a direct hit and Curd produces a black rubber ball as a reward. Allen mauls the ball excited that his master is happy with his performance.

The mine-detection dogs of the 49th Eng. Det. are trained to detect buried explosive substances, specifically those used in landmines.

"My dogs originally came to

Afghanistan in 2004, and their original mission was to find the mines on [Bagram Airfield]," said Capt. Jeffrey Vlietstra, the officer-in-charge of the 49th Eng. Det. "Eventually the program expanded and they started working in Kandahar and participating in the improvised explosive device fight."

The dogs go through a rigorous selection process designed by the Department of Defense at Lackland Air Force Base, Texas.

After selection, mine-detection dogs and their handlers begin their enlistment together from day one. After a five and a half month training course at Fort Leonard Wood, Mo., the team reports to its first duty station.

A Soldier will typically become a dog-handler through a three-year reenlistment, with the option to re-enlist for another three years if desired, said Sgt. Garrett Grenier, also a mine-dog handler with the 49th Eng. Det.

Grenier and his dog, Staff Sgt. Drake, share a close bond.

"He's my buddy, we take care of each other," Grenier said. "He's a good guy to hang out with when I'm on a mission."

Allen and Drake are stationed at Bagram Airfield, known as BAF, but travel all around Regional Command-East to support the missions of the maneuver and engineer forces.

"On a typical mission we primarily support route clearance," said Grenier, who was originally a combat engineer before he re-enlisted to be a dog-handler.

"We dismount when needed and clear the route ahead of the convoy or patrol."

Mine-detection dogs and their handlers are usually the first to go into a potentially dangerous area.

"Our dog teams are the tip of the spear," Vlietstra added. "Our engineers clear the way ahead of the maneuver force and our dog teams clear the routes to ensure their safety."

To keep their skill sharp, handlers and canines train on a daily basis, depending upon weather and mission tempo. On this particular day Curd and Grenier



Sgt. Garret Grenier, a dog handler, and Staff Sgt. Drake, a mine-detection dog, seek out "mines" during training.

had set up a training route along a muddy access road on the east side of BAF complete with explosive material to replicate what the dog would encounter on a typical mission.

Allen and Drake train separately to avoid distracting each other.

The process of clearing a minefield is a long and arduous one. A simple mistake could send both dog and handler to the hospital or worse. Therefore the handler must ensure the dog stays close and walks a straight line through a danger area.

Grenier and Curd keep their dogs on leashes to facilitate this and control them with short sharp commands. When the dog finds the "mine" he alerts and if correct, is rewarded with his favorite toy and lots of attention.

"Working in itself is fun to him [Drake]," said Grenier. "It's kind of like a game."

Mine dogs are typically between the ages of one and two when they are selected and they serve six to seven years before they retire. This "enlistment" will usually include at least two deployments.

When not training or working, Drake and Allen live in accommodations that rival those of some Soldiers.

The dogs reside in concrete kennels with a separate room for sleeping. With the pull of a lever, a door opens into a run that allows the dogs to go outside.

Sgt. Holly Braun, a veterinary technician with the 49th Eng. Det., takes care of the mine detection dogs when they get hurt or sick.



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Project Manager Close Combat Systems

Lt. Col. Dennis Gaare received the Army Commendation Medal for his exceptionally meritorious service as the Program Executive Officer for Ammunition (PEO Ammo) Lead, and Project Manager Close Combat Systems (PM CCS) Forward at Bagram Airfield, Afghanistan.

Gaare served in support of Operation Enduring Freedom (OEF) from June 6, 2012 to September 8, 2012.

Heidi Shyu, Assistant Secretary of the Army for Acquisition, Logistics and Technology, presented Gaare with the medal at a town hall meeting on Oct. 17, 2012 at Picatinny Arsenal.

While overseas, Gaare was responsible for leading the effort to field, train, and sustain life-saving improvised explosive device defeat (IEDD), countermine, and area denial equipment across the Combined Joint Operation Area Afghanistan.

Gaare is the seventh PM CCS Forward and PEO Liaison Officer to support OEF. Through their guidance, PM CCS leaders have streamlined processes and reduced inefficiencies that led to the reassessment of theater operations for accelerated delivery, fielding, training, integration, and sustainment of counter-IED products, in addition to the timely fielding and sustainment of the XM7 Spider Area Denial System, the first networked munition to be fielded.

Gaare currently serves as Product Director for Area Denial under PM CCS. He is responsible for networked munitions, including Spider, legacy antipersonnel, and anti-vehicle systems.

The office ensures Soldiers have the capability to impede enemy movement across the full spectrum of operations while complying with the nation's policy on land mines.

In support of the PEO Ammunition Liaison Office in Afghanistan, PM CCS is a constant presence, committed to safeguarding Soldiers through urgently fielding critical capabilities and providing vital training and sustainment.

Session on project management certification set for Jan. 30

A preparation session will be held Jan. 30 at noon in Bldg. 93, Room 460, for persons interested in obtaining Project Management Professional certification.

Sandy Sandlin, director of programs at the New Jersey

chapter of the Project Management Institute, will discuss a variety of topics.

Sandlin will present an overview of the value of certification, the certification process, and the relationship between various lev-

els of certification.

A panel of Project Management Professionals will also be on hand to answer questions.

A new series of project management forums will be held the last Wednesday of each month.



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The Picatinny Chapter of the National Contract Management Association is sponsoring a breakfast seminar on "3-D Technical Data Packages" Feb. 12 from 8 a.m. to 9:30 a.m. at the Cannon Gate Catering and Conference Center.

Roy Whittenburg of UTRS will give a briefing on how the new MIL-STD-31000 will allow the Department of Defense to contractually acquire the new form of data packages.

The cost of the seminar is \$10 and includes a breakfast buffet.

Employees of Army Contracting Command -- New Jersey and off-Picatinny individuals are asked to RSVP (with payment) to margaret.a.heyrich.civ@mail.mil

Employees of the Defense Contract Management Agency are asked to RSVP to edrann@gmail.com

Persons who work off Picatinny are asked to RSVP by Feb. 6.

Employees of the contracting command and the contract management agency are requested to RSVP by Feb. 8.

The use of 3-D technical data packages is expected to make acquisition cheaper and faster. See the front page article in this issue of The Picatinny Voice

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For health, total lifestyle change urged instead of simply dieting

BY TIMOTHY RIDER
Picatinny Public Affairs

A floor space that would occupy 20 seats in the late 19th century would only occupy 10 seats today, according to the consulting firm of Theater Projects Consultants.

So what's the deal? Is it that modern moviegoers prefer "stadium seating?"

That's not it, according to a presentation here Jan. 15. by Robin A. Warren, Health Promotion Program Manager from headquarters, U.S. Army Materiel Command.

Another possible explanation is that obesity is a modern health issue of epidemic proportions.

To make the case that the word epidemic is more than hyperbole, she contrasted the 162,000 deaths per year that are related to obesity to infamous epidemics in our nation's history:

Only the Spanish Influenza, which in 1918 caused 500,000 deaths, was a more potent annual killer.

Our nation's cholera, yellow fever, swine flu and polio epidemics came nowhere close.

Furthermore, of the top 15 causes of death reported in the 2012 National Vital Statistics Report,

eight are directly related to obesity, said Warren. "It's part of a cultural shift that's on the wrong track," said Warren.

Larger portions at restaurants and less outdoor activity are other symptoms of this cultural shift.

The solution is not to simply diet.

"Try to make it a lifestyle change instead of a diet," Warren advised. Get involved in more physical activities, shop in the "outside borders of the supermarket," and learn how diet and activity improve health.

Warren discussed the value of a number of other activities that improve overall wellness, including more sleep, developing a more positive outlook on life, not smoking, reducing alcohol consumption and cultivating strong social networks.

Her presentation was to encourage participation in the ARDEC Wellness Steps Incentive Program, which is intended to encourage the ARDEC workforce to participate in healthy lifestyle choices and improve work-life balance.

ARDEC employees can acquire more information on the program by visiting the Wellness and Fitness group on milBook at: <http://go.usa.gov/4Dej>.



Robin A. Warren, Health Promotion Program Manager from headquarters, U.S. Army Materiel Command, spoke here Jan. 15.

Photo by Erin Usawicz

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BY PATRICK J. OWENS, ARDEC HISTORIAN

Shown here is part of an advertisement from the *Picatinny Barrage* of January 1943. The tire prices may appear attractive but note the effort you had to put into getting a tire.

First, you had to have a tire inspection station certify the need to buy a new tire or recap an old one. The Sears inspection station advertised here was on South Street in Morristown.

Next, you had to persuade the local rationing board that your need to travel, such as being a war worker, justified a tire rationing certificate.

Then, it was back to Sears in hopes it had tires in stock. The difference between the grade 1 and grade 3 tires was the amount on recycled rubber in them.

During World War II, you not only had to spend money for necessities, you had to work to spend it.

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