In April, Danny Brown was released from an Ohio prison after serving 19 years. Charges of rape and murder, for which he had been convicted in 1982, were dismissed. His release was the result of a DNA (deoxyribonucleic acid) test that showed he was not the attacker of a 28-year-old woman. But the story could not end there.

The woman, who was the mother of a 6-year-old boy and a 3-year-old twin girls, had been raped and murdered. Brown’s release meant the killer might still be at large. When analysts at the Ohio State crime lab ran a DNA sample from the crime scene through the State’s database of convicted offenders, they got a match. His name was Sherman Preston, and he was serving 15 years to life in the Lebanon Correctional Facility for the 1983 slaying of another Ohio woman.

Brown, now 46, owes his exoneration in large part to the Forensic DNA Laboratory Improvement Program. Managed by the National Institute of Justice’s (NIJ) Office of Science and Technology (OST) since 1996, this program has invested Federal dollars in improving the DNA analysis capabilities of State and local crime labs to clear up the enormous backlog of DNA samples collected from convicted offenders and crime scenes.

Roger Kahn, Ph.D., who heads Ohio’s crime laboratory system, calls the changes that have resulted from the laboratory improvement program “extraordinarily successful” and “a miracle.”

Before the State received these funds, Kahn says, DNA testing in Ohio was almost nonexistent. “According to UCR (Unified Crime Reports), we had 5,000 rapes and homicides annually. We pulled our crime labs and found that 4,000 of those cases were submitted for examination to crime labs in the State. We have 11 labs and only 3 did testing inhouse. In 1996, they tested 350 cases, primarily by reverse dot-blot methods. The other 8 sent 175 out of State. The majority of Ohio crime labs did no DNA testing, which meant very few cases were profiled,” Kahn says. Ohio benefited, however, from a grant that provided money for DNA analysts’ education and training, lab equipment and supplies, and minor facility upgrades and modifications. To comply with Federal education standards, analysts took classes in genetics, molecular biology, biochemistry, and statistics. Purchases of new automated analysis equipment and supplies helped the labs get up to speed with the latest technologies. The funding also kick-started voter approval of general revenue funds for a new 40,000-square-foot lab, half of which is devoted to DNA analysis.

Ohio is now on track with profiling cases that have a suspect. Additional grant funds have been used to test a backlog of samples collected from convicted offenders. “We had 30,000 [samples] collected and none tested. That was in November of last year. We now have all 30,000 tested, and we did it in 6 months,” Kahn says. By February, the State database was online and linked with the Federal Bureau of Investigation’s (FBI’s) Combined DNA Index System (CODIS), a national database of convicted offenders. Almost immediately there were 11 hits.

“It’s been quite a ride,” Kahn says. “If it hadn’t been for the laboratory improvement program, this State would have stayed right where it was, with almost no DNA testing being done. This program has been extraordinarily successful. We feel like we’ve accomplished a miracle.”

DNA Laboratory Improvement Program

The Forensic DNA Laboratory Improvement Program was authorized in 1994 to address low funding, understaffing, and high personnel turnover rates at State and local crime labs. The FBI’s DNA Advisory Board and the Technical Working Group on DNA Analysis Methods (now known as the Scientific Working Group on DNA Analysis Methods) recognized that such problems often resulted in inconsistent standards and underqualified personnel. Together

(See Handling Success, page 6)

ALARM

They won’t find it on the shelf at the local discount store or computer warehouse, but correctional facility building managers and safety officers need to be on the lookout for a software package slated for release this fall.

ALARM 2.0 is a Windows®-compatible software that will help managers save time and money when bringing their facilities into compliance with the National Fire Protection Association (NFPA) Life Safety Code (LSC). It was developed at the National Institute of Standards and Technology (NIST) with support from the National Institute of Justice’s Office of Law Enforcement Standards (OLES), located at NIST.

Based on the fire safety worksheet for correctional facilities in the LSC manual, ALARM (Alternative Life-Safety Analysis for Retrofit-Cost Minimization) performs calculations in moments that would take days to do by hand. By employing this user-friendly software, building managers and safety officers can quickly create a tailored, economical plan to bring their facilities into compliance with LSC. Correctional facilities can use LSC compliance to help achieve American Correctional Association (ACA) accreditation.

NFPA offers two versions of LSC. The “prescriptive” version (NFPA 101) specifies in detail what must be done to achieve compliance; it offers only one solution, with no flexibility or substitutions permitted. The alternate version (NFPA 101A), on which the ALARM software is based, offers two versions (NFPA 101A), on which the ALARM software is

(See Cause for Alarm, page 3)

National Law Enforcement and Corrections Technology Center

Dedicated to Reporting Developments in Technology for Law Enforcement, Corrections, and Forensic Sciences
TechBeat on target

TechBeat is the award-winning flagship publication of the National Law Enforcement and Corrections Technology Center (NLECTC) system. Our goal is to keep you up to date with technologies currently being developed by the NLECTC system, as well as other research and development efforts within the Federal Government and private industry. TechBeat is published four times a year: Managing Editor, Rick Neimiller; Contributing Editor/Writer, Lois Pilant; Contributing Writers, Becky Lewis and Kate Poindeexter; Editor, Michele Coppola; Contributing Editor, Brian Higgins; Graphic Designers, C. Denise Collins and Tina Kramer.

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Online News Summary: includes article abstracts on law enforcement, corrections, and forensics technologies that have appeared in major newspapers, magazines, and periodicals and on national and international wire services and websites.

Publications from NIJ and NLECTC that you can view or download to your system.

Frequently Asked Questions that offer detailed information based on thousands of calls to our information specialists.

Calendar of Events that lists the latest upcoming meetings, seminars, and training.

Links to other important law enforcement and corrections websites.

Interactive Topic Boards that allow you to post questions and exchange information with hundreds of professionals in their specialty area.

For help in establishing an Internet connection, linking to JUSTNET, or finding needed technology and product information, call the NLECTC Information Hotline at 800–248–2742.

Come See Us At

American Correctional Association Winter Conference
San Antonio, Texas
January 12-16, 2002
Booth 809-815

American Probation and Parole Association Winter Conference
Myrtle Beach, South Carolina
February 10-13, 2002

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The National Institute of Justice is a com- ponent of the Office of Justice Programs, which also includes the Bureau of Justice Assis- tance, Bureau of Justice Statistics, Office of Juvenile Justice and Delinquency Prevention, and Office for Victims of Crime.
be used to achieve point scores needed for compliance. For example, if more sprinklers are installed, less smoke control is needed. There are many, many ways to do it in compliance,” says Dr. Stephen Weber, who heads the NSF team developing the software. “The idea is to earn enough points to be in compliance, but in the most economical way possible.”

According to Laura Schultz, the program who designed this version of ALARM, “Without our software you could sit for days and days trying to hit the right combination.”

Because facilities receive separate LSC scoring for each building and each zone within a building (space separated by floors, horizontal exits, or smoke barriers), and points must be earned in four categories (fire control, egress, refuge, and general safety), days might seem like an optimistic estimate. Using ALARM, building managers or safety officers could have a proposed plan in 1 day or less if staff have already measured wall areas, counted exits, and collected the other data needed to find the solution.

“Correctional facilities are like small towns. You have different buildings, and different sites with different support functions,” says Jack Harne, a correctional information specialist at the National Law Enforcement and Corrections Technology Center (NLECTC) in Rockville, Maryland, and a former correctional safety officer. “You also have housing. It’s basically very similar to a community.”

That analogy also could apply to hospitals that already have benefited from ALARM. NIST developed the software under a Public Health Service grant in the 1990s and updated it in the 1990s. According to NIST documentation, for a sample of 89 hospitals that used ALARM in planning LSC compliance, the software identified plans that were, on average, 41 percent less expensive than prescriptive compliance would have been. This represents a total savings of more than $37 million.

The move from hospitals to correctional facilities occurred because Weber noted that the chapter on correctional facilities in the LSC manual followed the same pattern as the chapter on hospitals. He began reading and discovered similarities between the two types of facilities. “I realized it would be a perfect application of something we had already done,” he says.

Weber pitched the idea to OLES and work began on the correctional facilities package in 1998. Beta testing took place in early 2001; feedback was used to develop the final product. When Weber contacted the Maryland Division of Corrections about beta testing, administrators were so impressed with ALARM’s potential that all 17 facilities in the system became test sites. NIST also lined up sites in Virginia and Ohio, and ACA sent copies to facilities that applied for accreditation.

“Whenever you try to get funding for something,” says Harne, “you always have to explain why you need the funds. The documentation reports produced by this software will help you explain why.” Harne recalls being involved in lengthy and complex renovations as a correctional safety officer and says that such processes could have been streamlined significantly using ALARM. He says that the LSC is so complex, “there is no way you could absorb everything. The software might help remind you of something you’ve forgotten to check on.”

“By going this way,” says Weber, “you save a lot of time and effort in achieving compliance.” Schultz adds, “You save time and money in the construction phase, and also in figuring out what to do and how to do it.”

The complete ALARM 2.0 package with CD-ROM and User Manual can be purchased for $25 from the One-Stop Data Shop of the National Fire Protection Association (contact Nancy Schwartz at 617–984–7450 or nsw@nfpa.org) or from The American Correctional Association (contact Gabrielle Daley at 800–222–5846 or cservice@aca.org).
T

 toilets short papers a sample of article abstracts pub-
lished weekly as part of the National Law Enforcement
and Corrections Technology Center’s (NLECTC) on-line
news service: Law Enforcement and Corrections Technology
News Summary.

Offered through JSTNet, the website of NLECTC, this weekly
news summary provides synopses of recent articles relating
to technology developments and initiatives in law
enforcement and corrections, and the forensic sciences that have appeared in
newspapers, news magazines, and trade and professional
journals. The summaries also are available through an elec-
tronic e-mail list, JSTNetnews. Each week, subscribers to JSTNet
news receive the summary directly via e-mail.

Freeze, Or I’ll Shoot . . .

My Laser

Government Technology

A San Diego research company is currently
working on a non-lethal laser called the Anti-
Persuasion Beam Wagon, which can
immobilize a person by causing the skeletal
muscles to lock up. Also known as the Non-
Lethal Staining Beam Wagon, the law enforcement
device uses ultraviolet radiation to create a path in the air
to carry an electrical current to the offender. The current, which is similar to the
near-ultraviolet impulses that control skeletal muscles, essentially increases the
time it takes for a muscle movement until the muscle
tissue is frozen, or tetanized, into a single
sustained contraction. The effects last only
about five seconds. According to the company, the weapon is currently the size of a suitcase and has an effective range of
about 100 meters; but within 2 years, advances in laser technology will reduce its
to a size of something that would fit into
a person’s hand. The company also is working on a device—called a similar technology—to
disable engines.

Washed-Up Crooks

Banned 2001

What began simply as a way to
wean root
plants
roots
became the
rudiment behind an invention that will
spin, clean, and separate crime scene evi-
dence in a matter of minutes. Two “spin
docents” from Michigan State University
have created a whirlpool of excitement
over their new invention. Forensic science
professor Jay Siegel and biophysics profes-
sor Alvin Smucker developed their system
based on the concept that particles with
less density than soil will separate from the
dirt as hundreds of tiny, projected
vision. Called a T
collection canister, the
Evidence Concentrator, the
machine looks like a wet/dry vac of the
sort found in a home workshop. Siegel, nationally
recognized in evidence collec-
tion, and Smucker describe the system as a hydropneumatic digestion that spin,
drums, and dries.

High-Tech Cop Tools

See Through Walls

United Press International News

Engineers are developing equipment that
uses radar to detect movement behind
walls or doors in an effort to decrease the
time that law enforcement agents must
spend on scene. Funded by the U.S. Department of Justice, the
texas A&M Institute of Technology
is im-
migrating a device called the Radar Flash-
light, which uses a 16-degree ultrawide
band (UWB) beam and a signal processor
to detect movement through walls up to 8
inches thick. Originally used by military
doctors to remotely check for vitals signs
in soldiers injured in war zones, the modi-
cation can make good use of facial recognition if
they have reasonable expectations about its
efficacy and realize that decreasing the number of possible suspects
is still a posi-
tive step. Face-recognition technology has
incited the ire of privacy advocates in the
United States and Britain, although a
majority of residents in the Newseom
Borough of London believe that the enhanced
fishing of security that get with the system is
more important.

Catching Park’s Bad News Bears

USA Today

In 1998, Yosemite’s brown
bear popula-
tion was about 250. In 2000, the
population had dropped to
665 in damage, but since the
implementation of the park’s bear manage-
ment program, which catalogs the bear
populations, DNA signatures, property
damage incidents have dropped by 81
percent. The catalog, containing the DNA
signatures of about 220 of the 500
bears living in the park, allows rangers to iden-
tify which bears caused the damage.

Those Dimples May Be

New York Times

Digits

Criminals’ driver’s license registration
information and police devices
are among the growing number of entities making
use of face-recognition software. The soft-
ware responds images into a string of
numbers that can be matched to strings
in other images. Problems with lighting,
camera angles, camera quality, and other
factors make the technology less use-
ful for general law enforcement than it is in
computer logs, security checkpoints, and
casino surveillance. Face recognition is also less effective when
crime scene when an address is entered.
It provides a detailed map of a
mouse is used to operate the system,

S.C. Better Prepared To

Facing Major Storm

Associated Press

The Alcohol Beverage Control Administration (ABC) of South Carolina is considering
using a new scanner to keep
drunk drivers from getting
behind the wheel.

Technology News Summary

O’C. Police Upgrade

Helicopters To Go

High-Tech

Sunday Oklahoman

Oklahoma City has finished testing tech-
nology that brings together the global
positioning system with the city’s geo-
graphic information system. The technol-
gy will allow police helicopters to locate
address. The city’s geographic information system has every location
from the helicopter’s position in relation to its
hovering height.

From Paper to PDA

Government Technology

California’s Santa Clara Police Department is trying to get traffic accident reports
in as quickly as possible by having officers use personal digital assist-
ants (PDAs) to enter information, according
an officer can record about 75 percent of the necessary information by using the
officers’ driving licenses into the device. By limiting the need to write and type,
the officer can concentrate more on the people
involved in the collision. The officer can also use the
simple commands to enter text.

State Driver’s Licenses To

Be Harder To

Obtain Denver Post

The Colorado Motor Vehicle Division will
become the new
name of a high-tech photo iden-
tification system used to screen
new license applicants in order to
make certain that they do not have a license under another identity. The
system contains a database of more than
7 million photos, but is able to make a match in about 12 seconds. Implement-
ing the system will cost an estimated
$670,000. The legislature under consider-
ation on which the photo-ID system is dependent also requires adding a feature
to driver’s licenses that would be visible
only under ultraviolet light, as well as
a Social Security Number check with the
Social Security Administration. Colorado State institutions lost more
than $9 million in 2001 due to identity
theft crimes. Nationally, 55,843 identity
theft crimes were reported ac-

Associated Press Newsletter

The Alcohol Beverage Control Administration (ABC) is considering
using a new scanner to keep
drunk drivers from getting
behind the wheel.

West Virginia looking at Device To Scan Licenses

Associated Press Newsletter

South Carolina’s Jim Hedges says the addition of new inland roads from the
beach and new technology, such as cam-
era, electronic messaging boards, and
shortwave radios strategically placed
along the road, will prepare residents for the next bad hurricane. When Hur-
ricane Floyd hit the coast in 1999, South
Carolina’s roads became parking lots as
mazes of people evacuating the coast
tried to find a place to stay. In some cases, the
road was a route to nowhere, and new road sen-
sors will alert drivers to troubled

Associated Press Newsletter

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The center system

The Border Research and Technology Center (BRTC) 
1010 Second Avenue, Suite 1920 • San Diego, CA 92101–4912 
Phone: 800–656–BRTC (2734) • Fax: 619–440–BRTC (2734) 
E-mail: info@brtc.org

The Border Research and Technology Center works with the Immigration and Naturalization Service, the U.S. Border Patrol, the U.S. Department of Justice, National Drug Control Policy, and the U.S. Attorney for the Southern District of California to develop strategies and technologies that will facilitate control of the southwest border. One of its most recognized accomplishments has been the implementation of SENTRI (Secure Electronic Network for Travelers’ Rapid Inspection). BRTC also supports the joint effort of the Department of State and the National Border Patrol Council to develop battle stations which will stop flying vehicles and is currently participating in a project to detect the breaths of people concealed in vehicles or other containers.

Rural Law Enforcement Technology Center

Hazard, KY

In development.

The Office of Law Enforcement Standards (OLES)

100 Baranac Drive, Suite 810 • Gaithersburg, MD 20877–1002 
Phone: 301–975–2757 • Fax: 301–948–4978 
E-mail: info@oles.org

Supported by N.J., the Office of Law Enforcement Standards applies science and technology to the needs of the criminal justice community. While its major objective is to develop minimum performance standards for equipment and technology, which N.J. promulgates as voluntary national standards, OLES also undertakes studies leading to the publication of technical reports and user guides. In areas of research include clothing, communications systems, emergency equipment, investigative aids, protective equipment, security systems, vehicles, and weapons. It also develops measurement methods for analytical techniques and standard reference materials for forensic scientists and crime labs. Since the program began in 1975, OLES has coordinated the development of nearly 210 standards, user guides, and advisory reports. Housed at the National Institute of Standards and Technology, OLES works closely with N.J.-National to conduct tests and to guarantee the performance and quality of equipment used by police and corrections.

The Office of Law Enforcement Technology Commercialization (OLETC)

2221 Main Street, Suite 700 • Wheeling, WV 26003 
Phone: 888–306–9342 • Fax: 304–230–2310 
E-mail: oletc@oles.org

The Office of Law Enforcement Technology Commercialization, a program of N.J., is located at Wheeling Jesuit University. OLETIC’s mission is to work with industry, manufacturers, and laboratories to facilitate the commercialization of technologies for the law enforcement and corrections marketplace. OLETIC provides special services and assistance to innovators, entrepreneurs, universities, Federal and other laboratories, and U.S. manufacturers nationwide in commercializing tools and methods to develop more effective and safer tools for law enforcement and corrections practitioners. A national partnership is being developed to provide a continual pipeline of innovative products, concepts, and value-added services that will expedite the commercialization of new products and services needed for State and local law enforcement and corrections communities. OLETIC has direct access in commercializing novel innovative products, including the RoadSpike™, a special low-cost, handheld night vision device; an Explosive Ordnance Disposal Technician Training Kit; and the Countertechnique Stop and Safer Protective Vest. OLETIC has identified more than 70 additional emerging technologies and concepts that are currently being evaluated for possible commercialization.

The NLECTC–Northeast is located at the Air Force Research Laboratory, Rome Research Site (formerly Rome Laboratory), on the grounds of the Griffiss Business and Technology Park. The center sponsors research and development efforts into technologies that address command, control, communications, computers, and intelligence. This center draws on the expertise of Air Force scientists and engineers in its development of technologies that can be used to detect and neutralize explosive devices.

NLECTC–National

2277 Research Boulevard • Rockville, MD 20850 
Phone: 800–248–2742 • Fax: 301–519–5140 
E-mail: asknlectc@nlectc.org

The National Center, located just 30 minutes north of Washington, D.C., is the hub of the NLECTC system. It provides information and referral services to agencies with a question about law enforcement and correctional equipment or technology. It will manage the voluntary equipment standards and testing program that tests and verifies the performance of body armor, metallic handcuffs, shotguns, and police vehicles and tires. This office produces and distributes for law enforcement agencies, private industry, and national governments the information about equipment, technology, and research findings.

NLECTC–Northwest

26 Electronic Parkway • Renton, WA 98057 
Phone: 800–330–6084 • Fax: 315–330–4315 
E-mail: info@nlectc.org

NLECTC–Northwest is located at the Air Force Research Laboratory, Rome Research Site (formerly Rome Laboratory), on the grounds of the Griffiss Business and Technology Park. The center sponsors research and development efforts into technologies that address command, control, communications, computers, and intelligence. This center draws on the expertise of Air Force scientists and engineers in its development of technologies that can be used to detect and neutralize explosive devices.

NLECTC–Southeast

3900 International Boulevard • North Charleston, SC 29418 
Phone: 800–392–4385 • Fax: 803–760–4611 
E-mail: nlectc-sou@nlectc.org

Two of the focus areas of NLECTC–Southwest are corrections and technology and surplus property acquisition and distribution for law enforcement and corrections. The center facilitates the acquisition and redistribution of Federal surplus/excess property to State and local law enforcement and corrections agencies. The equipment must be used for law enforcement purposes only. Utilizing the JUSTNET website, the center educates law enforcement and corrections professionals about Federal surplus and purchasing programs. The efforts of NLECTC–Southeast have resulted in the expectation that they would not only have access to or might not have been able to afford due to budget constraints. This facility also studies the needs of corrections agencies. It is guided in this mission by a committee of criminal justice, law enforcement, and corrections practitioners that identifies requirements and sets priorities for research and development. NLECTC–Southeast is allied with the South Carolina Research Authority (SRA) and the Space and Naval Warfare Systems Center (SPANWAR). NLECTC–Southeast also focuses on information management and technologies, simulation training, and designated special projects.

NLECTC–Rocky Mountain

2050 East 8th Avenue • Denver, CO 80203 
Phone: 303–415–4600 or 303–417–2522 in the Denver area 
Fax: 303–417–2500 • E-mail: nlectc@nle.org

Located at the University of Denver, NLECTC–Rocky Mountain focuses on communications and information technology and the difficulties that often occur when different agencies and jurisdictions try to communicate with one another. This facility works with law enforcement agencies, private industry, and national governments the information about equipment, technology, and research findings. The laboratory works in partnership with NLECTC–Rocky Mountain and focuses on technology for detecting and neutralizing explosive devices.
Public crime laboratories historically have suffered from low funding, understaffing, and high personnel turnover, leaving them in some cases with incompetent, inexperienced personnel, and tremendous backlogs. Nevertheless, reliable and timely forensic DNA testing is essential to protect the innocent and to ensure convictions. We cannot afford to waste evidence, and we cannot allow our law enforcement to languish, often for years. “Some crime lab directors have weeks to months working on individual cases, and they have to prioritize their caseloads,” said Deborah Midkiff of the FBI. “If you don’t have the infrastructure in place, it becomes impossible to work the caseload.” In April 2003, the woman’s attackers were caught, and the DNA evidence was submitted to the Florida Department of Law Enforcement (FDLE). It would take 15 years for the results to be returned.

DNA testing also cleared a series of cases that occurred in 1986. Of the cases, many of the crimes were solved, including two cold cases. The cold cases were solved due to advances in forensic technology, including improved DNA analysis technology. The cases included a series of rapes in Marion County, Florida, in the 1980s. There was no DNA analysis, only blood analysis, which was requested when the bodies were cleared of obvious signs of life. There was not enough evidence to proceed with charges.

The FDLE’s analysis of the case revealed that the suspect had a larger sample of semen left in the case. This evidence was then linked to a rape that occurred in 2003 in the same area. This case was solved due to the advancements in DNA technology from the 1980s. The suspect was charged and convicted of both cases.

The advancements in DNA technology have allowed for more accurate and reliable analysis. This has led to more convictions and reduced backlogs in crime laboratories. However, funding and staffing remain critical issues for crime laboratories across the country.

The Susan Smith case is one of many that demonstrates the importance of accurate and timely DNA analysis. The Smith case highlights the importance of having sufficient funding and staffing to ensure that crime laboratories can provide reliable and timely forensic DNA testing.

The Smith case also highlights the importance of having a strong and independent forensic science community. The Smith case was eventually solved due to the work of Dr. Shawn Parson, a forensic scientist who was able to link the DNA evidence to the suspect.

In conclusion, while the advancements in DNA technology have led to more accurate and reliable analysis, funding and staffing remain critical issues for crime laboratories. The Susan Smith case demonstrates the importance of having a strong and independent forensic science community to ensure that justice is served.

For further information, contact the Office of Justice Programs at 800-837-1944 or 202-606-8386. To request access to the DNA database, contact the FBI at 800-842-3647. For more information about the DNA database, contact the National Institute of Justice at 866-672-6729.
Until recently, manufacturers’ claims regarding their less-than-lethal (LTL) products have not been verified by independent testing. Law enforcement and corrections professionals now have a source of information about LTL munitions and launchers—one that can help with purchasing decisions and operational choices.

In a joint study titled Attribute-Based Evaluation (ABE) of Less-Than-Lethal, Extended Range, Impact Munitions, by Pennsylvania State University’s (PSU’s) Institute for Emerging Defense Technologies and the Los Angeles Sheriff’s Department (LASD), less-than-lethal munitions were tested under simulated field conditions to give police and corrections personnel not only more information than is typically found on manufacturers’ data sheets, but also comparative information among manufacturers.

The study involved a coalition of law enforcement, academia, and manufacturers of LTL projectile designers, who donated more than $20,000 in time and ammunition. Not all LTL projectiles were designed for the test; however, those that were had to meet certain criteria: They had to be capable of being launched; they had to be effective beyond the muzzle (also known as extended range munitions); they had to be designed as a less-than-lethal munition; and they had to rely on impact for effectiveness.

To replicate field conditions, researchers fired from two ranges: 21 feet and 75 feet. The 21-foot range is generally considered to be the distance at which an adversary armed with a knife or blunt object can close on an officer. The longer range of 75 feet is based on a nationwide study that showed that officers on the street typically fire LTL munitions accurately from about 75 feet. However, the minimum "far range" desired for the effective deployment of LTL munitions is 180 feet or more, which is considered the distance a person can throw an object large enough and hard enough to cause injury. This distance is based on a December 2000 LASD test in which male cadets hurled items commonly used in riots—bricks, rocks, baseballs, and water bottles. Less than 3 percent could throw objects weighing 1.2 pounds farther than 180 feet, with a mean range of 95 feet. However, some small objects, such as golf balls, spark plugs, and lead wheel weights were hurled farther than the 20 yards. Because some launchable, extended-range-impact munitions are not capable of reliably hitting a man-sized target at these distances, the 75-foot benchmark was selected until LTL munitions technology advances to provide the desired tactical advantage.

For the ABE study, members of LASD’s Special Enforcement Bureau fired projectiles using the launcher specified by each manufacturer. A ballistic pendulum and high-speed camera measured the impact momentum of each projectile. Testing took place at the Scientific Applications Research Association’s (SARA) Laboratory in Huntington Beach, California.

The study noted a variety of attributes for each type of munition: method of engagement, cartridge size, material, weight, and the launcher required. Of more importance, though, was the study’s assessment of accuracy and impact.

**Accuracy**. The accuracy of less-than-lethals is not defined by the same parameter as live ammunition—that point-of-aim and point-of-impact are the same. For less-than-lethals, accuracy is generally viewed as a percentile score that the shooter will hit a man-sized target at a given range. Where the projectile hits is not a defining consideration; any hit meets the standard.

To ensure a realistic test, the testers measured the amount of dispersion the rounds had when fired from 21 and 75 feet at a 6-inch bulls-eye paper target centered on the impact plate. Five shots were fired at each range. Accuracy was determined by measuring the smallest circle enclosing all five shots.

**Impacted momentum**. Impacted momentum defines a projectile’s impact. The PSU/LASD study showed that LTL munitions vary widely in impact. According to researchers, “We observed large variations in impacted momentum for a single type of munition. For example, within the five rounds fired of a single type of munition, the highest impacted momentum could be almost three times that of the lowest impacted momentum.”

Another important attribute noted by the study was cost. Prices vary considerably, the study says, from $1.60 to $25 per round. The authors said they felt this was a key consideration in purchasing decisions, since at least four rounds are fired in training for every round fired on the street.

The study does not provide all the answers, but it offers a database into which law enforcement and corrections personnel can enter their requirements and ascertain their own answers. The study’s authors stress that no one type of projectile is appropriate for every circumstance. Some use impact for effectiveness; others use a chemical, such as OC (oleoresin capsicum). What a department buys depends on its operational needs.

The authors also caution that the study is only a snapshot of what was available at the time. In the short time since testing was completed and the report published, new products have become available. They hope future studies will add new munitions to the database and address how impact projectiles affect the human body, an attribute that was outside the scope of the ABE report.

Providing objective performance information for law enforcement was not the only goal of the study. The authors hope it will result in making consumers more knowledgeable and provide realistic guidelines for LTL developers.

For more information about the Attribute-Based Evaluation (ABE) of Less-Than-Lethal, Extended Range, Impact Munitions, contact John Kenny, Ph.D., at Pennsylvania State University’s Applied Research Laboratory, 814-865-3401. The Attribute-Based Evaluation can be downloaded from www.arl.psu.edu/ areas/defensetech/defensetech.html.
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Scientists and engineers may be the authorities on how technology works, but often the people who use technology are experts, too. That's why some of law enforcement's best innovations come straight from the officer on the street.

A Video Call for Help

"It sounds like magic, but it isn't," says Sgt. Dean Zanone of the Seal Beach, California, Police Department. "It is simply a system that uses the Internet to summon police to robberies and burglaries."

The Alarm Triggered Internet Protocol (A-TIP) system alerts the Seal Beach police to an in-progress robbery or burglary through existing bank and merchant video surveillance systems that are tied into a private network. When a robbery or burglary is indicated, the officer or dispatcher, by clicking on an icon, can go directly to the real-time video feed to view what is happening.

The A-TIP system, Zanone says, was the accidental result of a robbery at a local credit union. He happened to mention to a representative of the company that supplied the credit union's closed-circuit television equipment, "Wouldn't it be great if the police department could monitor banks and credit unions in real time?" Apparently the company took Zanone's offhanded comment seriously.

"It's really just high-speed Internet access to the police department," Zanone says. "We use existing cameras, put in a transmitter, and use the Internet as the pipeline to transmit information. We take the camera feed recorded in a bank lobby from what normally are analog cameras and run them through a video compression device and into the website. When an alarm is triggered, the patrol cars or the dispatcher can go to the webpage and double-click on an icon on the screen. They see a map to the location and a default picture, which is in real-time. They can then select a different camera view because each camera is a link on the website."

The A-TIP system does not function as a guard service. Police access the cameras only when an alarm is triggered. They get a view of the crime scene with a 1-to 1.5-second delay. It promotes safety by allowing officers to see what's happening at the scene before they arrive.

Zanone says police and city officials are hoping the system, which is now in beta testing at several area businesses, will become a deterrent. Advertising that the system is in place and putting up signs near each camera warning that the image is being transmitted in real time to the police may discourage crime.

Future versions of the system are already dancing in Zanone's head. He envisions that the system someday will be able to transmit video from car to car and from car to dispatch by establishing a webpage for the patrol car and using the same technology to broadcast a picture. He believes the system can help police address workplace and school violence by pinpointing a suspect's location, circumventing the need for office-by-office or classroom-by-classroom searches. Even more advanced would be the ability, via the Internet, to control access to any area of a building, school, or office. And finally, there is the possibility of involving the local alarm companies.

"Alarms go to the alarm company, they call the police, and we respond," Zanone says. "We're moving to a situation where the alarm goes to the alarm company, they contact us and say they have an alarm and live video, and ask if we're prepared to accept the feed. We get the password, link up on the Internet, and go to the business's webpage to see what's going on. Another advantage would be eliminating all the times we respond to an alarm, can't find an obvious point of entry, and have to call the business owner. As it stands now, we might wait 15 minutes to an hour for the owner to show up and let us in. The advantage would be that we can see everything online, and so can the business owner."

The Seal Beach system is sponsored by Cisco Systems, San Jose, California; and Loronix, a Durango, Colorado, data management company. For more information, log on to http://sealbeach.loronix.com. Or contact Sgt. Dean Zanone, 562-799-4128 or dzanone@ci.seal-beach.ca.us.
A harness that carries a transmitter, antenna, and bat-
dog,” he says. “If we have a situation with suspects in a house or a hostage situa-
tion,” he says, “we can send the dog in. We’ll be able to see what the dog sees. An onboard speaker will let us communicate with a suspect or command the dog,” he says. Working with the Space and Naval Warfare Systems Command (SPAWAR) in San Diego, Eberhard has developed a wireless system that uses a custom-
trained police dog with remote surveillance opera-
tions, allowing officers to see what the dog sees.

“I was born in the early 90s, after a big incident in North Long Beach where a guy on meth shot five peo-
ple and was running.” Thompson says. “It wasn’t my area but I rolled up to see if I could help. One of the deputies and I chased the guy down streets, through alleys, and over fences until he finally locked himself in a shed. It was chaos. It was such a mess on the radio that the captain finally came on and demanded that someone take control. I was the only sergeant on radio that the captain finally came on and demanded that someone take control. I was the only sergeant on

“Get out a piece of paper and start writing stuff down.’ He said, ‘What do I do?’ I said, ‘I don’t know. Get out a piece of paper and start writing stuff down.’ The command post finally rolled up 2 hours later.”

In the weeks following the incident, Thompson thought hard about organization and incident re-
sponse. She found a box in her garage and cut it into panels that she stuck together with duct tape. She made cheat sheets with basic information about response to hazardous materials, barricaded suspects, or hostage situations. Thompson’s portable “com-
mand center” folded up like a map and had slots and worksheets for handling every aspect of an incident.

“$30,000 command post doesn’t typically roll to everyday cop situations,” Thompson says. “This doesn’t replace a large command vehicle. It’s for the cop with the flashlight. It brings simplicity and organization to the 211, HadMat split, barricaded sus-
psect, or missing person. When you have a situation like that, you have two responsibilities. You have the responsibility of setting up a command post and the responsibility for the event. It can be totally over-
whelming. The Command Board eliminates half of the problem because all you do is open it up and you have your command post. As things change, you can fold it up and move. It solves the everyday police situation where we’re working off the hood of the car, the picnic table, or the barrel in the warehouse. All a cop needs is a box of crayons and knowledge of department policies.”

Thompson is in production with the Command Board, but she dreams of being able to interact with other agencies via palm-sized computer technology. During a large, multiagency response, each agency would be able to link up with all public safety respond-
ers and organizations that supply maps and other demographic information.

For more information about the Command Board, log on to www.thecommandboard.com.

[Editor’s Note: The citing of the products in this article does not constitute an endorsement by the National Institute of Justice or the U.S. Department of Justice.]
Big Help for a Small Jail

Oregon’s Harney County Sheriff’s Office had no problems securing inmates in its 22-bed jail, but the facility’s 6 corrections officers needed assistance securing computer equipment to help them do their jobs. They weren’t looking for state-of-the-art software. They weren’t even looking for networked workstations. All they needed was a single personal computer (PC) to help them process the reams of paperwork involved in the routine tracking of inmates. They turned to the National Law Enforcement and Corrections Technology Center (NLECTC)–West and received the PC they were looking for, complete with basic office software and a 56K modem.

“We’re a small operation, but we tackle some big tasks in the course of a day,” says Sgt. Stacey Johnson of the Harney County Sheriff’s Office. “Supervising inmates has to take top priority, so it’s important that our deputies don’t get bogged down with other time-consuming work. We used to do all our recordkeeping by hand on forms that had been copied too many times. The paperwork started to overwhelm us.”

Robert Waldron, director of NLECTC–West, explains his office’s role in helping Harney County locate the computer it needed: “We receive names of potential recipients for surplus equipment by talking to our center’s regional advisory council,” Waldron says. “Then we work with our technical partner, The Aerospace Corporation, to identify used equipment that we can help distribute to agencies that can use them.”

Periodically, Waldron says, The Aerospace Corporation, a nonprofit organization, replaces computers on the desktops of its scientists and engineers. “They hand over surplus equipment, and we get to work wiping off the company’s software and installing standard office software packages,” he says. “In the Harney County case, NLECTC–West’s shipping and receiving department created foam packaging for the computer, monitor, keyboard, and mouse and shipped it along with a folder full of information about the NLECTC system.”

The computer we received has been a significant asset to our small correctional facility,” Johnson says. “Deputies and administrative staff use it regularly for cost accounting and inmate tracking. We also use it to produce legal forms for processing property, bail, and release agreements. As a result, our forms look more professional and are easy to access. This computer has really helped with our jail management system, and we would not have been able to buy it ourselves.

“More importantly, our deputies now have more time to devote to their inmate supervisory roles. We are running a more efficient and safer operation as a result.”

According to Waldron, NLECTC–West has shipped more than 50 computers through this surplus-sharing program. The center is currently working on a request from the Alaska State Troopers for 47 computers for a village police officer program. “This [computer sharing] program operates in bits and pieces, depending on the availability of the surplus computers,” Waldron emphasizes. “It is not a constantly running activity, but makes inroads into addressing the technology needs of State and local law enforcement and corrections agencies and helps spread the word about the NLECTC system.”

Johnson agrees. “If I hear about another agency that needs assistance or equipment for daily operations like we did, I will definitely tell them to call NLECTC. I’m sure NLECTC is involved in a lot of other higher profile activities. But helping the small agency streamline its day-to-day operations is an important service. NLECTC has been a great asset to our office.”

State and local law enforcement agencies can obtain excess Federal property at little or no cost in three different ways: the 1033 Program, the Surplus Property Donation Program, and the 1122 Program. For more information on these programs as well as other important links, access the Federal Property and Equipment Manual, through JUSTNET, the website of the National Law Enforcement and Corrections Technology Center system, at www.justnet.org.

(Editor’s Note: The Aerospace Corporation is a private, nonprofit corporation created in 1960 under the laws of the State of California. The purposes of the corporation are exclusively scientific: to provide research, development, and advisory services. Aerospace operates a Federally Funded Research and Development Center for the U.S. Department of Defense. The corporation’s primary customer is the Space and Missile Systems Center of the Air Force Materiel Command, although work is performed for other agencies, international organizations, and governments in the national interest.)