Thomas L. Freedman
12/18/98 01:59:26 PM

Record Type: Record

To: Jose Cerda III/OPD/EOP

cc:
Subject: email -Reply revised. I was right the first time

---------- Forwarded by Thomas L. Freedman/OPD/EOP on 12/18/98 01:59 PM ----------

Roger Conner <CONNERR @ ojp.usdoj.gov>
12/17/98 04:15:14 PM

Record Type: Record

To: Thomas L. Freedman/OPD/EOP

cc:
Subject: email -Reply revised. I was right the first time

To: Tom
From: Roger Conner
re: status and history of gun detection research

I have confirmed the following:

James Q Wilson wrote article in July -Sept 94. Clinton read. said "big help if police could check guns from distance." Clinton sent message to AG at that time.

In response, NIJ initiated research Response: Research intitiated on several advanced technologies for gun detection. Now have results
1. Prototypes have been completed of system allow officer to tell whether a suspect has a weapon-like object and where it is on the person from a distance. Some of prototypes are a bit too large and bulky, like the first computers, but a second generation is now being developed. By the end of the year 2000, NIJ will field test the first units, leading to a product that can be commercially distributed early in the next century. NIJ has is also alert to need for civil liberties protection, so Pres can say I have directed AG to make sure that guidelines for use are developed at the same pace as the technology. (Note: this stuff sends NRA up the wall, also ACLU has some fears, just so you know). But it will allow officers to be safe and reduce the risk of use of force based on incorrect assumptions about a "bulge in the pocket." n.b.: won't be perfect, so be careful re that. NIJ believes the ultimate system will be the size of a the lights the officers used to have beside their rear view mirror. This version of events has been confirmed with the staff directly involved.


18 USC 1111A

2. In the process of developing this technology, NIJ has also uncovered a portal technology that is portable and more accurate than current systems. Prototype has been installed in Pocatello, ID, where a person entered with a gun several years ago and killed wife. New system allows the traditional doors to the courthouse to remain open, with sensors on each. Sensors are unobtrusive and more accurate than current generation. If someone approaches with metal mass, door locks, video comes on, and one guard at a central security desk can ask the person to empty the particular pocket where the metal mass is. Then he lets them in if its ok. Three gun carrying persons have been arrested in the first year, several guns and over 100 knives discovered in the bushes outside. The court house is more safe for victims of domestic violence, witnesses and judges from the occasional crazy, without having to make it into a fortress.

3. If you want to frame this as "using technology to make our law enforcement officers safe while we make communities safe", you could add smart guns --the ones that know the fingerprint of the officers. These are being tested in training academies this year, and by the end of the year 2000 will be ready for commercialization to police depts. One out of six officers killed int eh line of duty is killed with his or her own gun -often after they made an initial decision to use less than deadly force to control the suspect, and then a physical confrontation occurs.

Recall, Admin has pioneered getting armor to police officers. This is part of your goal * protecting the protectors.
4. Final point: If you want to make this part of reinvention theme, many govt agencies hae been working together to make this happen, including DOD (MOU was created), and five regional technology centers ahve ben ccreated (the gun detection was done at the one in Rome, NY, Cong Bolert is big on this). I havethe alphabet soup of agency names.

Sorry re misspellings.

NATIONAL INSTITUTE OF JUSTICE

OFFICE OF THE DIRECTOR, *Science and Technology*

Dear Mr. Cerda:

Jeremy Travis asked me to send you the attached information regarding NIJ's Concealed Weapons Detection program. If you would like additional information you may wish to contact the NIJ program manager, Irv Smietan at 703-351-8821 or you may call me at 202-616-9794.

Sincerely,
David Boyd

DAVID G. BOYD

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TECH b·e·a·t

October 1997

National Institute of Justice
National Law Enforcement and Corrections Technology Center

JEREMY TRAVIS, DIRECTOR, NATIONAL INSTITUTE OF JUSTICE

Image Analysis Convicts Killer

Charles Rathbun was one of the best in the business. As an automotive photographer, he had a special talent for making fast cars look faster and sleek cars even more glamorous. He also had a particular talent for posing beautiful women next to these shiny four-wheeled subjects. Dubbed "cheesecake-and-car" shots, Rathbun's work frequently appeared in automotive magazines. It was ironic, then, that the very thing that brought him a measure of fame and fortune was also the thing that sent him to prison for the rest of his life.

Rathbun was convicted of murdering Linda Sobek, a model and former Los Angeles Raiders cheerleader, during an assignment in which he was to photograph her driving a sport utility vehicle. Initially, he claimed he accidentally ran over Sobek while trying to demonstrate a high-speed turn. He said he panicked and buried the body. But the investigation revealed that Sobek was raped and died from asphyxiation. The defense tried to prove there was no rape, that the sex was consensual. The defense offered the court a set of photographs it claimed Rathbun took in the back seat of the vehicle during the alleged sex act. However, using sophisticated computer technologies, detectives with the Los Angeles County Sheriff's Office compared the pictures with photos taken of Sobek after her death. It was unmistakable. The woman in the pictures was not Linda Sobek. In fact, it wasn't even the same vehicle.

That analysis came from the National Law Enforcement and Corrections Technology Center (NLECTC)–West facility, which has done image analysis and enhancement for police departments in more than 200 criminal cases. Located on the grounds of The Aerospace Corporation in El Segundo, California, NLECTC–West, under the auspices of the National Institute of Justice, actually draws on Aerospace's expertise in space technology and security systems to provide this kind of service to departments throughout the country.

"We probably have the best equipped troubleshooting laboratories in the world," states Bob Pentz, director of the center. "The reason is that when a satellite is launched, it costs hundreds of millions of dollars. Every minute it remains on the launching pad costs a million dollars. So we have to make sure we can troubleshoot any launch problems in a very timely way. We have all kinds of cameras and can watch everything that happens on the pad from every angle. We know how to analyze what we're seeing. It is through this kind of technology transfer and expertise that we can also help police departments."

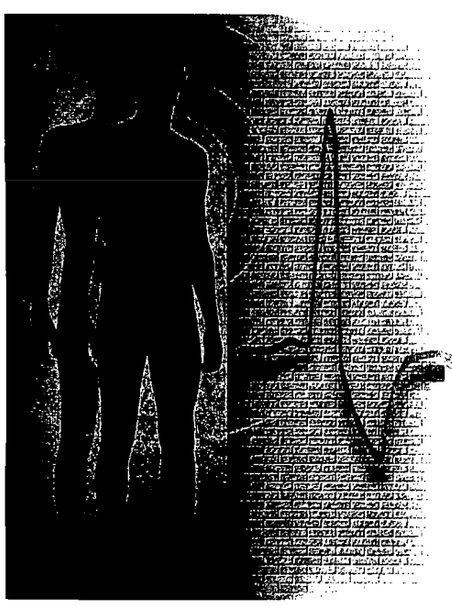
Pentz says that by using sophisticated computer software, experts help detectives extract vital information from video evidence, whether that evidence comes from an automated teller machine (ATM); a bank, store, or shopping mall camera; by way of the news media; or through the unexpected act of a citizen bystander roaming around with a video recorder. Although NLECTC–West also works in analyzing audio tapes, the center has become especially well known for its work in imagery. It has analyzed photos and videotapes in cases ranging from serial rapes and kidnappings to homicides and robberies. Working side by side with detectives, NLECTC–West has helped investigators identify suspects, create pictures to show witnesses, reconstruct crime scenes, and obtain clearer images of license plates and vehicles.

The center's experts helped police apprehend the killer of a Manhattan Beach, California, officer by establishing a link between the suspect and a car that was shown in surveillance photographs taken at the scene of the crime. In another case, the center produced high-quality photographs of the suspects in a convenience store robbery/homicide. The photos were widely broadcast by print and electronic media, and the suspects identified and arrested. Its enhancement of a

(See image, page 2)

"We have rolled people in bubble wrap, in mattresses, in comforters . . . and the technology still works."

Leo Labaj
Oak Ridge
National
Laboratory



Just a Heartbeat Away

Inmates trying to escape from prisons and jails may find themselves just a heartbeat away from freedom when they are apprehended by a device so sensitive it can pick up the soft beat of a human heart.

Developed by the U.S. Department of Energy's Oak Ridge National Laboratory (ORNL) and marketed by GeoVox, the Advanced Vehicle Interrogation and Notification (AVIAN) system is the newest technology in correctional security. It consists of a computer loaded with specially developed software, a touch-screen monitor, and special sensors that detect the shock wave created by the heartbeat of someone hiding in a vehicle or any other type of enclosed space.

AVIAN already has been successfully demonstrated by the National Institute of Justice's (NIJ's) Border Research and Technology Center and the U.S. Border Patrol at the San Clemente border checkpoint and at the San Ysidro and Otay Mesa ports of entry in California in tests designed to detect illegal aliens. The system's immediate focus, however, is in the correctional arena, where it has thus far been 100 percent effective at detecting prison escapees. "Prisons may have 100 or more

(See Just, page 2)

National Institute of Justice: Concealed Weapon Detection Program

The Concealed Weapons Detection Program seeks to enhance the safety of the public and law enforcement and corrections officers by providing better ways to detect weapons in the hands of criminals. President Clinton directed the Department of Justice in 1994 to address the problem of detecting concealed weapons. In response to the President's directive, the National Institute of Justice initiated the Concealed Weapons Detection Program in March of 1995. Concealed weapon detection is among the highest of priorities for state and local law enforcement officials. This program pursues development of devices to detect concealed weapons that are more accurate than those in use today; are able to detect non metallic as well as metallic weapons; and that are able to detect weapons at a safe distance.

The program started with three efforts. INEL, Raytheon and Millimetric (formally Millitech) were awarded the first three grants. They were followed by contracts issued to Nicolet, Jaycor, Lockheed/Martin, and SPEC. The sensors that have been focused on are magnetic, backscatter imaging, millimeter wave, infra-red, and acoustic; each having its own advantages as well as challenges. The Program has already produced two technologies that are ready for commercialization. Nicolet, now Rapiscan, has developed a detector that uses a backscatter imaging system to identify metallic and non-metallic objects on a subject's body. INEL has installed weapons detector portals in the Bannock County, Idaho Courthouse that are proving very successful (see detail below). Other technologies have produced working prototypes and are undergoing laboratory testing.

Currently, there are 10 projects underway. The systems being produced range from small, handheld devices to be used by the cop on patrol, to large portals that screen people as they enter public buildings such as courthouses.

Akela Incorporated: Hand-Held Radar CWD Device

Akela received grant approval in May of 1997. Their objective is to develop a breadboard model utilizing wideband radar techniques and neural networks. The model is proposed to be capable of locating weapons concealed on the body, behind the body, in body cavities, and through-the wall. It avoids the privacy issues associated with imaging methods of detection. As of August 1998, a breadboard model has been developed and field testing is underway. Data has been obtained at ranges of 10 to 15 feet. A final breadboard model is expected by October of 1998.

Chang Industry, Inc.: Short-Range, 94 Ghz Active MMW Radar CWD Device

Chang was awarded grant funds to develop a hand-held detector in May of 1997. They are developing a hand-held portable concealed detector that utilizes short-range, 94 Ghz active millimeter wave radar. Originally, the detector was to be capable of scanning at a

distance of four feet, but it appears to be accurate at up to approximately 20 feet away from the individual being scanned. It is able to scan through heavy clothing such as leather outerwear. The final breadboard will have external processing. Software has been developed to handle the data and image processing and a fiberglass model has been constructed.

Georgia Tech Research Corporation: Radar Flashlight

A low-cost hand held detector that utilizes radar, and is similar in size to a flashlight, is being developed by Georgia Tech Research Corporation. This is a new grant, awarded in July 1998, and work has not yet begun. The detector will be able to detect humans hiding behind doors, walls, or any barrier opaque to light. It will also be able to detect humans hiding in shipping boxes, non-metal false walls in vehicles, or in tall grass. A laboratory version has been developed and limited testing conducted. The purpose of the grant is to support development of a prototype. Performance requirements will be developed first and prototype field tests are planned for July of 1999.

Idaho National Engineering Laboratory: Detection and Classification of Concealed Weapons Using Magnetic Gradient Measurement

INEL was one of the first three companies to receive a grant from the program. They have developed a magnetic portal that detects anomalies in the earth's magnetic field caused by magnetic material objects. It has a much lower false alarm rate than metal detectors and will indicate where, on his/her person, that the subject who is passing through the portal is carrying a magnetic object. Most commercial weapons contain ferrous metal which is magnetic and thus detected by the portal sensors. A portal system has been successfully installed in the Bannock County, Idaho Courthouse. Bannock County has purchased all of the equipment and the Concealed Weapons Detection Program provided the technical assistance. Bannock County officials are very satisfied with the results as numerous knives and weapons have been detected and prevented from being brought into the Courthouse since the systems' installment. INEL is continuing to provide technical engineering support in the area of concealed weapons detection.

Jaycor, Inc.: Hand-Held Acoustic CWD Device

Jaycor received grant approval in June of 1997 to develop a detector utilizing acoustic techniques to detect metallic and non-metallic weapons hidden beneath clothing. Jaycor's detector will be able to detect weapons on individuals up to 15 feet away. This detector will be inexpensive and affordable for even smaller law enforcement agencies. A breadboard model has been demonstrated with positive results. It was able to detect a plastic knife concealed under a heavy sweatshirt at a distance of 7 feet. Two different-sized working models have been developed and testing is being conducted to determine performance parameters. The working models were recently demonstrated at the California Border Alliance Group and received a positive reception from the law enforcement representatives that were there.

Lockheed Martin Electronics and Missiles: Hybrid Millimeter Wave Infrared Sensors CWD Device

The Lockheed Martin grant is in its' second phase. The first phase was awarded in September 1995, and the second phase in June 1997. They are developing a dual mode camera to detect weapons hidden on individuals 10 to 40 feet away without the control or cooperation of the individual under surveillance. The camera will use both millimeter wave and infrared technology to reveal hidden weapons. Combining the two technologies greatly enhances accuracy in detecting both metallic and non-metallic weapons.

Quantum Magnetics, Inc.: Patrol Car-Mounted CWD Device

Quantum Magnetics was awarded funding for this concealed weapons detector in May 1998. This magnetic detector will be mounted to the front of police patrol cars enabling law enforcement officers to screen individuals for the possession of concealed weapons. The individual being screened will stand 10 to 15 feet in front of the patrol car as the officer stays within the protection of the patrol car. The detector will utilize a five axis magnetic gradiometer to scan the subject for weapons. The grant is being awarded in three phases, with the second and third phases contingent upon the feasibility study of the first phase. The second phase will be the development of a brassboard system and the third phase will be delivery and operational testing of a prototype. Quantum Magnetics will make use of equipment loaned by the U.S. Navy for the project.

Quantum Magnetics, Inc.: Body Cavity CWD Screening System

With this grant, Quantum Magnetics is designing a stationary screening system to detect nonmetal weapons and contraband concealed within the lower body cavities. The grant was awarded in May of 1997. Law enforcement and correctional facilities have expressed a significant need to be able to easily detect contraband hidden in the body. The system uses a simplified magnetic resonance imaging as a safe, non-invasive alternative to x-ray. Quantum Magnetics was able to locate a surplus MRI magnet to use. The brassboard model requires a lying-down posture of the person being screened. The system is partially assembled and is being tested using materials that simulate weapons hidden inside body cavities. This type of technology is called "Void Imaging."

Raytheon Systems Company: Portable Through The Wall System

The Portable Through The Wall System grant was first awarded in June 1997 to (then) Hughes Missile Systems Company. The grant is now in its second phase, which began in August 1998. Raytheon/Hughes has developed a system using a motion detection radar that allows law enforcement officers to locate and track the movement of people on the other side of opaque barriers such as brick, wood, stucco and other non-metallic walls. It displays and tracks the distance between the radar and the subject. The second phase of the grant provides funding to develop four units of the system in attaché cases.

ThermoTrex Corporation: Passive Millimeter Wave Camera

The grant for development of ThermoTrex's detection system was awarded in September of 1997. ThermoTrex is developing a detector that will be able to monitor crowds and wide-areas using a passive millimeter wave system. It is able to detect the natural millimeter wave thermal emission that is emitted by live and inanimate objects through

both clothing and wall board. With this detection system, subjects being screened need not be aware of the screening and no cooperation from them is needed. ThermoTrex has obtained images of real weapons through clothing in both indoor and outdoor surroundings. Developmental testing should begin about December 1998.

The New York Times

April 7, 1997, Monday, Late Edition - Final

SECTION: Section A; Page 1; Column 5; National Desk

LENGTH: 1252 words

HEADLINE: New Devices May Let Police Spot People on the Street Hiding Guns

BYLINE: By FOX BUTTERFIELD

BODY:

Law-enforcement authorities have begun installing a new generation of sophisticated security devices that are expected to lead quickly to technology that will let police officers spot people on the street carrying concealed guns.

Justice Department officials are encouraged by the speed with which the new technology is moving from the planning stage into use. The first fruits of the research are highly sensitive weapons detectors being installed for final testing at a Federal Courthouse in Los Angeles and a prison in North Carolina.

But the device for which officials hold the most hope is one that would use a camera employing electromagnetism to enable the police to detect a weapon hidden under someone's clothing up to 60 feet away.

A version of that might be ready to test in 18 months and in use in four years.

"It can save a lot of lives," said Jeremy Travis, the director of the National Institute of Justice, the research arm of the Justice Department that has overseen a development program for the new technologies for two years.

"If you think of the situation cops face day in and day out, the greatest risk is approaching a subject who may be armed," Mr. Travis said. "So to be able to know in advance whether the individual is armed gives the officer an enormous advantage in safety and tactics."

Security at airports, courthouses and schools could be greatly improved by the new technologies, which include equipment using ultrasound imaging, an innovative type of X-rays and computer-aided versions of metal detectors. The advanced metal detectors would enable officers to screen more people more quickly and thoroughly with far fewer annoying false alarms.

Some of the equipment is ready to be manufactured now, and experts say that even the most advanced devices, which draw on technologies used by the Defense Department to find enemy tanks, track Russian submarines and locate buried nuclear waste, may be in use by police officers within four years.

"They are coming to field very quickly," Mr. Travis said, "much faster than any of us anticipated."

The devices closest to being operational use a back-scattered X-ray imaging system that does not penetrate a person's body. Unlike traditional X-rays, the system emits a very low dosage of radiation, equivalent to about five minutes of exposure to the sun at sea level. The rays are reflected off the skin and are used to develop, in less than a second, an electronic image of the body and everything the person is carrying.

David G. Boyd, director of the institute's office of science and technology, said the equipment had been tested at a prison where large amounts of weapons and drugs were being smuggled in; he would not identify the prison. It worked so well, Mr. Boyd said, that people stopped trying to sneak in contraband.

The devices being installed in the prison in North Carolina and the Federal Courthouse in Los Angeles are made by Nicolet Imaging Systems of San Diego. They will be used in the courthouse as part of security for a trial there in which two dozen people are accused of being Mexican drug lords, officials said.

Some of the new weapons detectors are expected to raise novel constitutional questions about police searches, and there are no exact precedents for the answers.

The millimeter-wave camera could let police officers detect weapons inside someone's clothing from across the street. Would that constitute an illegal search or would it provide probable cause to confiscate the gun?

Would use of devices that can look through clothing, even though manufacturers say they do not reveal intimate details, amount to an invasion of privacy?

And how will the public react in states like Texas and Florida, which have recently legalized the right to carry concealed weapons?

Legal experts say the courts will eventually approve the new technology's use but will have to deal with issues that will depend on where the detectors are used -- whether they are used on the street, for instance, or in airports or courthouses.

The millimeter-wave camera is the detector that most excites law-enforcement officials. It was originally developed by the Millitech Corporation of South Deerfield, Mass. The camera takes advantage of the human body's emission of very strong electromagnetic signals with wavelengths in the millimeter range. Colder objects, like guns or knives, emit almost no such signals and essentially block the body's emissions. The camera projects a clear image of those objects on a monitor.

Mr. Boyd said the Government believed that it would be possible within 18 to 24 months to have a demonstration version of the camera ready for field tests and to have it on the street within four years. The camera could be hand-held or mounted on a police cruiser to detect both metallic and nonmetallic weapons, including plastic explosives, so a police officer could screen a suspect without having to leave the safety of the squad car or alert the suspect.

In a new development, Mr. Boyd said, the Government has decided to combine the millimeter-camera idea with a similar device, developed for the Army by the Lockheed Martin Corporation, that is faster and works at longer distances. Its military use is to locate enemy tanks or trucks that are far away.

A third promising technology uses very-high-frequency sound waves, which bounce off objects in much the same way radar does but show the shape of the object more clearly. This ultrasound radar was developed by Jaycor, a company based in San Diego, on a defense contract.

Mr. Boyd said it also was effective at detecting weapons from 30 to 60 feet away, even underneath clothing, and should be available within 18 to 36 months in a hand-held unit that would cost less than $1,000, making it affordable by police forces.

Altogether, Mr. Boyd said, the Justice Department is working on 12 promising weapons detection technologies, up from only 3 when the program began two years ago. The institute has been inundated with proposals from private companies; it received a total of 600 proposals this year, up from an annual average of 12 to 18 before 1995.

Mr. Boyd said that as a result, "we expect to have a steady stream of these new things available in the next four to five years."

Another technology, which will be tested in an Idaho county courthouse later this year, resembles the familiar gate-style metal detectors used in airports. It will combine advanced magnetic sensors with a computer that can correlate scans with a database of images of weapons.

That device, developed by the Idaho National Engineering Laboratory, part of the Department of Energy, is too heavy to be easily transported. But it can be remotely operated by a security officer in another room, providing more safety, and it will give off far fewer false signals than the current models, Mr. Boyd said.

The Justice Department's program has benefited from the defense industry's contraction because many contractors have turned to civilian projects, Mr. Travis said.

The idea for the advanced concealed-weapons detectors was suggested in an Op-Ed page article in The New York Times in 1994 by James Q. Wilson, a professor of management at the University of California at Los Angeles.

President Clinton read Professor Wilson's article and pushed the Justice Department to begin financing the research program for anticrime technology. The new devices are the first fruits of this project, Justice Department officials say.

GRAPHIC: Chart: "A CLOSER LOOK: Some New Ways to Spot Concealed Weapons"

MILLIMETER-WAVE CAMERA

TECHNOLOGY The human body emits electro-magnetic signals with wavelenths in the millimeter range. Colder objects, like guns or knives, emit almost no such signals. The camera projects a clear image of any object that blocks the wavelength.

MACHINERY A portable, hand-held camera with a range of 12 feet that could be mounted in a police car.

DEVELOPMENTAL STAGE Ready for field tests in 18 to 24 months.

BACK-SCATTERED X-RAY

TECHNOLOGY Low doses of X-rays are reflected off the skin and used with computer image processing to develop an electronic image processing to develop an electronic image of objects on the person's body.

MACHINERY A person must stand in front of the system for about three seconds. Only suitable for fixed-site configurations in controlled areas like prisons.

DEVELOPMENTAL STAGE To be installed in a state prison in North Carolina and at the Federal Courthouse in Los Angeles.

ULTRASOUND RADAR

TECHNOLOGY Combines ultrasound technology with radar technology in which high-frequency sound waves bounce off objects. Operators will have to be trained to interpret the images. Can detect weapons from 30 to 60 feet away.

MACHINERY Suitable for fixed-site use, but the radar component will be suitable for hand-held use.

DEVELOPMENTAL STAGE Ready for testing in 18 to 36 months.

MAGNETIC GRADIENT

TECHNOLOGY Combines advanced magnetic sensors with a computer database of images of weapons. Sensors provide the operator with a magnetic profile. The location and magnitude of any magnetic anomalies would raise the operator's suspicion.

MACHINERY Resembles metal detectors in airports. Can be built directly into building doorways or halls and be remotely operated for added operator safety.

DEVELOPMENTAL STAGE To be installed in an Idaho county courthouse later this year. (Sources: National Institute of Justice, National Law Enforcement and Corrections Technology Center)(pg. B8)

LANGUAGE: ENGLISH

LOAD-DATE: April 7, 1997

TECHNOLOGY POLICY COUNCIL DATA SHEET

Federal Agency: Joint (DOJ/DoD) Program Steering Group

Agency Contact: Pete Nacci, Ph.D. Ph.# 703-351-8221

Program/Project Name: Concealed Weapons Detection Technology (CWDT)

Contract/Grant Number: Various

Development Agency/Lab: Various

Technology Description: The CWDT program seeks to develop and demonstrate CWD technologies capable of effectively detecting weapons concealed on individuals by themselves or in crowd to a range of 10 m. The focus of this program is on technologies suitable for fixed site application. Four approaches are being explored:

A. Nicolet Imaging Systems is demonstrating a modified off-the-shelf Compton (back) scattered x-ray imaging system. This system's ability to confirm the presence of a weapon is predicated on the ability of the operator to interpret an x-ray image. This technology is suitable for fixed site configurations in controlled areas, such as prisons.

B. Lockheed-Martin is developing and demonstrating a passive approach to CWD through use of millimeter (MMW) radiometric and Quantum Well (QW) IR cameras, each as a stand-alone means to detect concealed weapons, and in combination as a sensor suite. The MMW camera exploits the phenomenon of Blackbody radiation. Initially, the MMW camera will only be suitable for fixed site operation. The QW camera will also be suitable for handheld operation.

C. JAYCOR proposes to explore an active approach to CWD, employing a sensor suite combining radar and ultrasound. The radar is used to cue the ultrasound sensor, at between 5 m and 10 m range, for ultrasound imaging, at from 3 m to 5 m range. The system's ability to confirm the presence of a weapon is predicated on the ability of the operator to interpret an ultrasound image. The radar component of this system is suitable for fixed site operation. The ultrasound component could be handheld.

D. Systems and Processes Engineering Corporation proposes to explore an active approach to CWD through the application of a low-frequency magnetic imaging system. This technology is suitable for fixed site configuration only.

These efforts were selected to complement NIJ efforts in this area. The same Program Manager, and technical agent, are directing both efforts.

Program History: CWDT is sponsored under the Memorandum of Understanding (MoU) between the Departments of Defense and Justice, for the sharing and joint development of technologies of use in both operations other than war and law enforcement executed April 20, 1994. The program plan implementing this MoU was approved in a Memorandum of Agreement executed on March 3, 1995. The efforts being pursued were competitively selected for award in June 1995. This program is funded to proof-of-concept demonstration at $2,300,000. –

Program Impact: Concealed weapons, principally hand guns and stabbing and edged weapons, pose a significant threat not only to military and LE personnel--in performing such diverse tasks as manning roadblocks, protecting secured areas and facilities or apprehending and guarding detainees--but also to the civilian community at large. The technologies employed today to detect concealed weapons, principally metal detectors, are of limited range, have a high false alarm rate and are obtrusive, lending themselves to circumvention. Low metal content hand guns, and non-metallic stabbing and cutting weapons are making effective detection ever more difficult. The products of the CWDT program are seen as a potential solution to this problem.

Testing: Technology demonstrations will begin April '96 and are scheduled to be completed before September '96.

Production and Marketing: The focus of this program's marketing strategy is development of a user constituency. To that end, there has been early and continuous user involvement in requirements formulation and definition. Technology demonstrations will be conducted with user participation, in as much as possible. For example, the Nicolet system will be first demonstrated in LA County detention and court facilities.

Justice Dept. Awarding Grants to Develop Gun Detectors

By FOX BUTTERFIELD

The Justice Department today announced that it was awarding $2.15 million in grants for the development of new high-technology gun detectors that would permit the police to spot people carrying concealed guns on the street or inside stores.

Department officials said that prototypes, which draw on technologies used by the Defense Department to track Russian submarines and locate buried nuclear waste, would be ready within 18 months and that one or more of the detectors would be in production within two or three years.

Law enforcement experts say the detectors may be one of the most important breakthroughs in crime prevention in decades. James Q. Wilson, a professor of management at the University of California at Los Angeles who is one of the nation's leading criminologists, said the announcement today had potentially "enormous prospects."

"When you think about what scientists have been able to do with radar for decades, this is long overdue," Professor Wilson said.

Representative Charles E. Schumer, Democrat of Brooklyn, and a longtime advocate of applying new technologies to crime prevention, said: "This type of technology gives me more optimism about winning the war on crime than anything in the past two decades. It is a really positive use of all that technology and all those billions of dollars that were spent on fighting the cold war."

Once in use, however, the new gun detectors are expected to raise novel constitutional questions about police searches for which there are no exact precedents. For example, will the devices violate rights to privacy by revealing intimate details about a person's anatomy or lead to illegal searches by police officers who use them arbitrarily?

But Prof. Philip Heymann of Harvard Law School, an expert on criminal law, said he expected the courts would eventually approve the technology's use, expanding the circumstances under which the police might conduct legal searches of individuals on the street.

Another issue is whether and how the devices will be used in states like Texas and Florida, which are making it easier for citizens to legally carry concealed weapons. Professor Wilson said ultimately it would be up to the local authorities in those states whether to use the technology.

Today's announcement was made by the National Institute of Justice, the research arm of the Justice Department, which awarded the grants to the Millitech Corporation in South Deerfield, Mass.; the Raytheon Equipment Division in Portsmouth, R.I., a subsidiary of the Raytheon Corporation, and the Idaho National Engineering Laboratory, a branch of the Department of Energy that works on nuclear weapons, to build three different types of detectors.

Justice Department officials said today that it was only after President Clinton read an article by Professor Wilson on the Op Ed Page of The New York Times last year proposing an advanced gun detector and called it to the attention of Attorney General Janet Reno that they felt they had the support to commit enough money to the project to make it feasible.

The most revolutionary of the new detectors will use a millimeter wave camera, hand held or mounted on a police cruiser, to detect metallic and nonmetallic weapons at a distance of up to 12 feet.

Jeremy Travis, the director of the National Institute of Justice, said that police officers who stopped a car and then ordered suspects out would be able to scan them for concealed weapons without leaving the safety of their squad car.

The camera works because the human body naturally emits very strong electromagnetic signals in the millimeter wavelength, said Dr. G. Richard Huguenin, the inventor of the device at the Millitech Corporation. Colder objects, like guns or knives, emit almost no such signals and effectively "block" the body's emissions. They can thus be "seen" by the camera, forming a clear image on a monitor.

Unlike X-rays or other metal detectors in current use, Dr. Huguenin said, this technology relies on passive natural emissions that do not expose the people being scanned to radiation or electromagnetic fields.

A second device, the most conventional of the three, is a greatly enhanced version of the metal detectors now used in airports and courtrooms. It will combine an array of advanced magnetic sensors with a computer to provide a signal to a monitor if someone is carrying a gun or other metallic weapons.

Justice Department officials say it would provide a more reliable reading of whether someone was armed than the current versions. Its disadvantage, they said, is that it is not transportable. This technology will be developed by the Idaho National Engineering Laboratory.

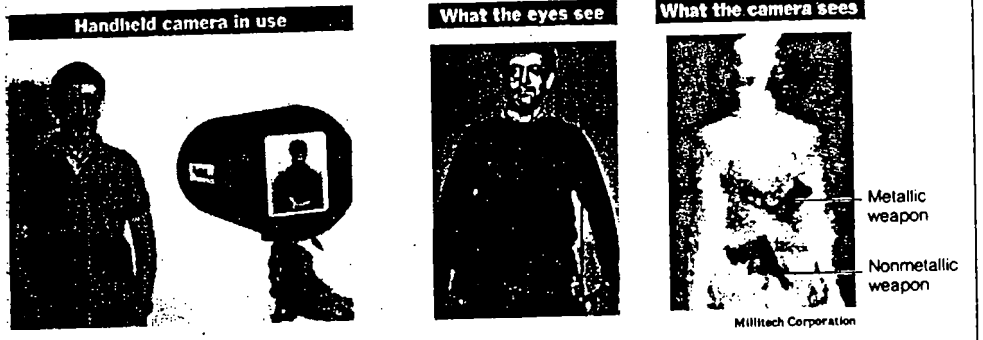
The third technology will use a low-intensity electromagnetic pulse that can be trained on a subject and, when linked to a computer, will send a signal, like a red or green light, indicating that the person being scanned is armed. The device, which can be housed unobtrusively in a briefcase, could be placed in stores, banks or shopping malls and operated by remote control, Justice Department officials said. It is to be developed by the Raytheon Corporation.

Mr. Schumer and Professor Wilson both said they hoped that successful testing of the new gun detectors could lead to more Congressional support for research by the National Institute of Justice. It now has a research budget of less than $10 million a year, a tiny fraction of what the Federal Government spends for research into cancer, heart attacks, AIDS and even the $310 million annually devoted to research on Alzheimer's disease.

HOW IT WORKS

A New Way of Detecting Weapons

One of three new systems of detecting weapons will use a camera to find metallic and nonmetallic weapons. The camera exploits the fact that the human body emits clear electromagnetic signals, called millimeter waves. Colder objects like guns or plastic explosives block those signals and therefore can be "seen" by the camera even if they are not metallic. The camera can be used either in a stationary position or handheld to detect weapons at a distance up to 12 feet.



Source: Millitech Corporation

About Real Estate

Focus on Technology

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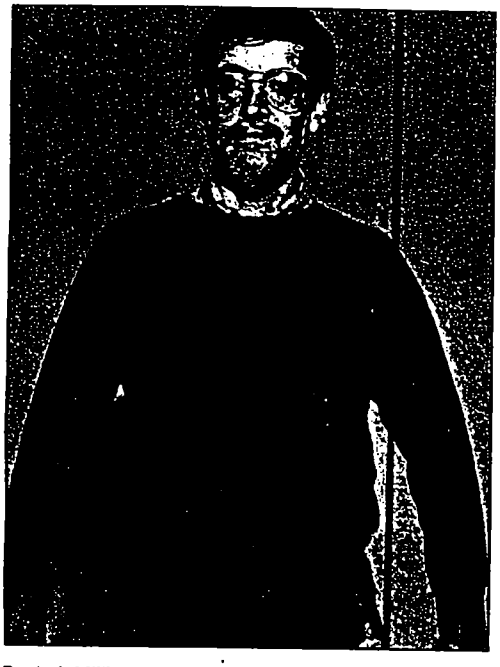
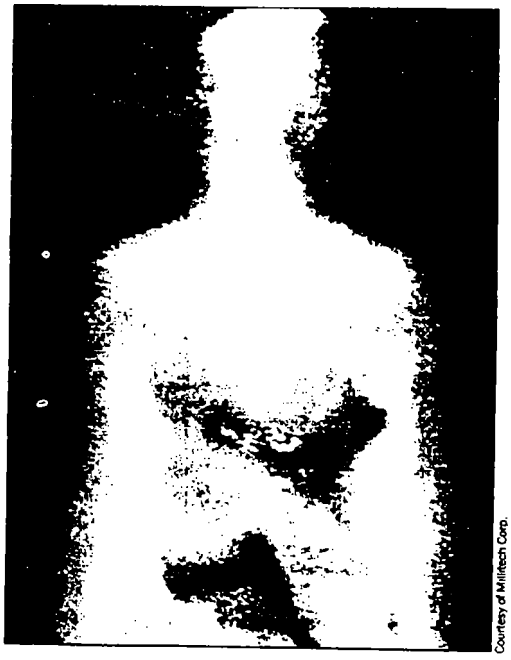




Courtesy of Millitech Corp.

Busted: Millimeter wave weapons detectors can be used to see through smoke, clouds and dust, as well as clothing.

Submarine spinoffs

New metal detectors use magnetic energy

By William Matthews
Times staff writer

WASHINGTON — The technology used to track down enemy submarines during the Cold War is finding a new application hunting an enemy closer to home: concealed guns and knives.

The Justice Department has awarded grants to the Idaho National Engineering Laboratory, Idaho Falls, and Raytheon Co. of Portmouth, R.I., to develop weapons detectors that uses irregularities in a magnetic field to find hidden metallic weapons. A third high-tech firm is developing another detector that uses electromagnetic energy to see weapons beneath clothing.

Since the middle of World War II, the military has known how to use the earth's magnetic field to find enemy submarines. In the Navy the process is called MAD, for magnetic anomaly detection.

Planes and helicopters equipped with magnetometers fly over an area where an enemy submarine is suspected to be. The presence of a large metallic object, like a submarine, causes distortions in the earth's magnetic field. The magnetometers reveal the distortions, disclosing the location of the submarine.

The Navy's MAD equipment can detect a submarine at a range of "thousands of yards," said submarine expert Norman Polmar. Finding hidden guns and knives would be done at a much closer range.

Idaho National Engineering Laboratory, an Energy Department lab, is building a scanner similar to those used in airports and office buildings.

The detector will probably be more sensitive than the current generation of metal detectors. It is expected to be able to tell the difference between weapons and other metallic items such as belt buckles and keys, determine the precise location and possibly tell the type of the weapon detected.

Hitting people with pulses

The gun detector Raytheon is building also uses the magnetic field to find hidden weapons. It emits pulses of electromagnetic energy rather than using the natural magnetic field.

Raytheon's design is also a spinoff from submarine detection technology, said Charles Dyer of Raytheon. But it is based on technology Raytheon was developing for the Navy. Details are classified, he said. And since the end of the Cold War, the project has dropped low on the Navy's list of priorities, he said.

To find hidden guns, Raytheon proposes to hit people with pulses of electromagnetic energy and measure the energy that bounces.

One key advantage to Raytheon's approach is that its gun detectors can be made "nonobtrusive," so the people being scanned for weapons do not know they are being scanned. Another advantage is it can scan many people.

The two characteristics may make the Raytheon system ideal for use at shopping malls, schools, airports, banks and other gathering places.

Millimeter waves

A third type of weapons detector is being developed by Millitech Corp. of Massachussetts.

It uses a "camera" that detects millimeter waves, which is electromagnetic energy naturally emitted by the human body. Objects like guns, knives, plastic explosives, drugs, nonmetallic weapons and other contraband hidden under clothing show up on the millimeter wave camera because they block the millimeter waves the body is emitting.

Millimeter wave technology, an outgrowth of radio astronomy, has potential value to the military. Richard Huguenin, who is developing the detector, said millimeter wave cameras can be used to see through smoke, clouds, dust, fog and some foliage, as well as clothing. Such technology could be valuable for tasks from landing planes in fog to finding targets through clouds, locating enemy tanks through smoke, and seeing enemy troops through foliage.

And since millimeter wave cameras, like visual light cameras, are passive, ... not emit radiation, so they are undetectable by those being scanned, whether a military foe or domestic gunman. The military has expressed interest in the technology, but it is so new it has not been fielded yet, Huguenin said.

The Justice Department is spending $2.15 million to develop the three weapons detectors.

The Washington Times

TUESDAY, AUGUST 13, 1996 ★

'X-ray' camera could reveal criminal intent

Civil libertarians see privacy problems

By Joyce Price
THE WASHINGTON TIMES

A new weapon against terrorism works like Superman's eyes: It looks right through you.

The high-tech camera, known as the passive millimeter wave imager, boasts the equivalent of X-ray vision, which allows it to penetrate clothing to "see" a concealed weapon, plastic explosives or drugs.

The good news for the modest is that the imager's display screen "does not reveal intimate anatomical details of the person," according to the Massachusetts-based Millimetrix Corp., which manufactures the device.

"But it can detect metal or any material that's significantly different from human flesh," said Stephen Bohrer, "Millivision" program manager at the company, which received a $1.4 million federal grant to develop the device.

So if someone is carrying a gun in his clothing and is within 10 feet of the camera, the weapon's image will appear on the screen. "You could definitely see the difference between a gun and something like a fountain pen," Mr. Bohrer said.

The imager is not yet in production. But Millimetrix is being flooded with calls from interested law enforcement agencies "worldwide," he said. "We expect to have a demonstration this fall and . . . to have the product marketed by the end of next year."

But critics of the imager, including civil libertarians and gun owners, say such a device is an invasion of privacy and may be unconstitutional.

"I'm familiar with the millimeter wave technology, and it's an incredible invasion of privacy," said Don Haines, a lobbyist for the American Civil Liberties Union. "It produces a virtual 3-D image, and you can see the contours of breasts, buttocks and genitals."

Mr. Bohrer denied Mr. Haines' assertion, saying, "You don't have that kind of resolution."

Jack King, spokesman for the National Association of Criminal Defense Lawyers, said the imager "seems to be highly intrusive and in violation of the Fourth Amendment, which guarantees the right

see CAMERA, *page A18*

CAMERA

From page A1

to be secure against unreasonable search and seizure."

Mr. King said his organization contends that using this device constitutes a "warrantless search" and noted that the Supreme Court has said "warrantless searches are presumptively unreasonable."

Chip Walker, spokesman for the National Rifle Association, said, "obviously this technology has some usefulness to it" for airport security and in situations "where police arrive on the scene of drug- or gang-related activities."

But he said the NRA is worried that the device might threaten the rights of people in 31 states who are allowed to carry concealed weapons if they have proper licenses.

Mr. Bohrer said he's not a lawyer but recognizes that "search and seizure concerns will come with" the introduction of the imager.

"But it's not different from a visual inspection. It just looks for a different part of the [radiation] spectrum," he said.

The Clinton administration has proposed increased wiretapping and other anti-terrorism steps and is awarding research grants for cutting edge anti-crime technology that may once have been intended for only military use.

Last year, the National Institute of Justice awarded $2.1 million to three companies to develop weapon detectors for airports and other buildings. One was the $1.4 million grant for Millimetrix.

Mr. King said it would be ironic if the Justice Department has given out money for the development of a product that ultimately may be found unconstitutional.

A Los Angeles Times poll last week found that 58 percent of Americans would be willing to lose some civil liberties to help thwart terrorism.

While the Millivision imager can provide X-ray-like vision, Mr. Bohrer said the device is not an X-ray.

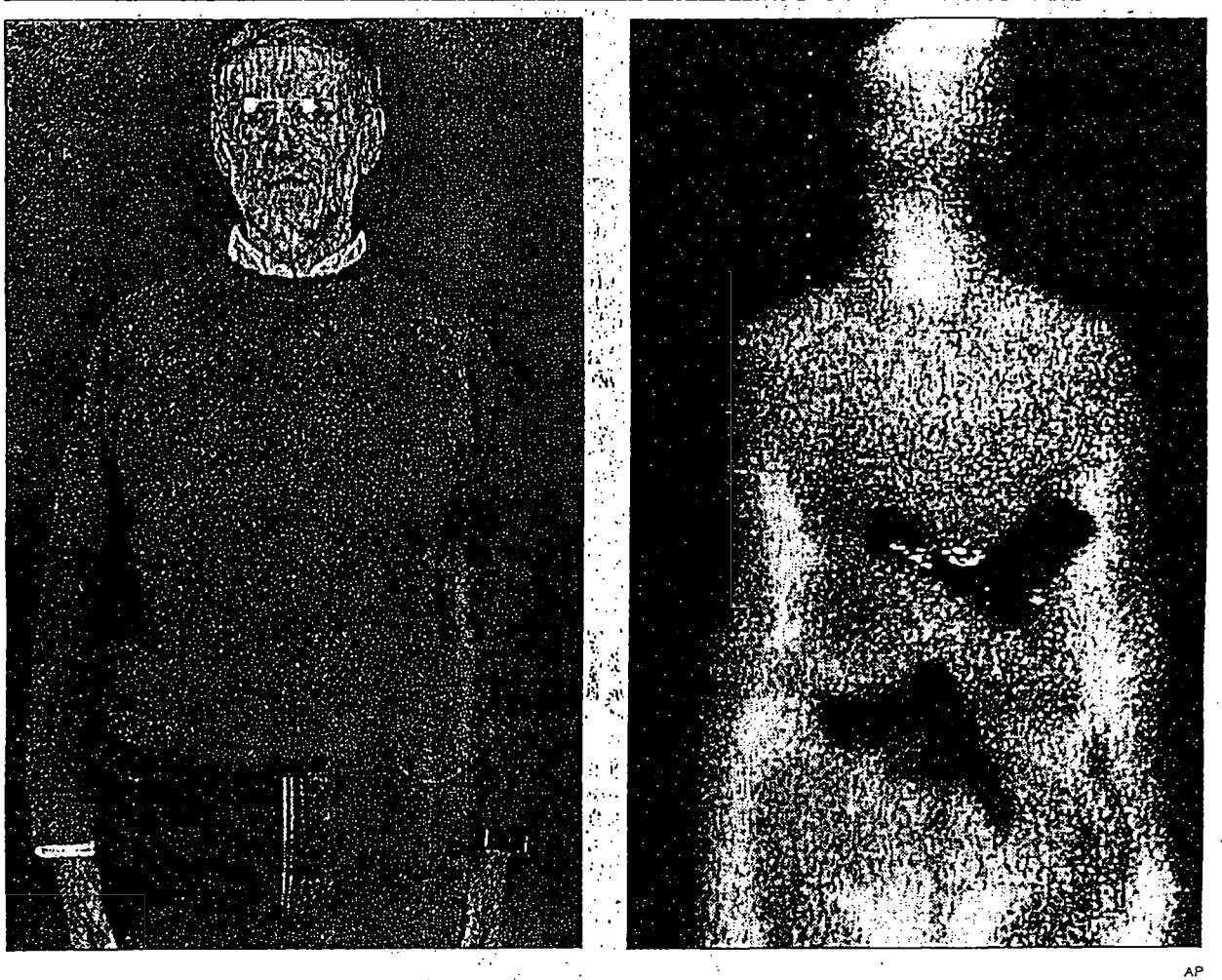
"In X-rays, you transmit energy through something," he said. "With passive millimeter wave imagery, we just look at whatever energy is coming off the body."

Anything that blocks waves from the body, such as a gun, or that is weaker than those waves, such as plastics or drugs, appears on a display screen.

Mr. Bohrer said two versions of millimeter wave imagers are being developed by Millimetrix for possible law enforcement and security use.

The larger one, which he said would be useful at airports and courthouses, will cost about $70,000. It can be mounted on tripods or patrol cars.

A hand-held version, which will be battery-operated, will likely cost about $10,000, he said.



AP

A man in normal clothing is revealed to be carrying two concealed pistols when screened by Millimetrix Corp.'s passive millimeter wave imager. Law enforcement agencies are interested in the device, not yet in production.

X-ray camera to reveal concealed weapons

WASHINGTON TIMES

Joyce Price
WASHINGTON TIMES

8/13/96

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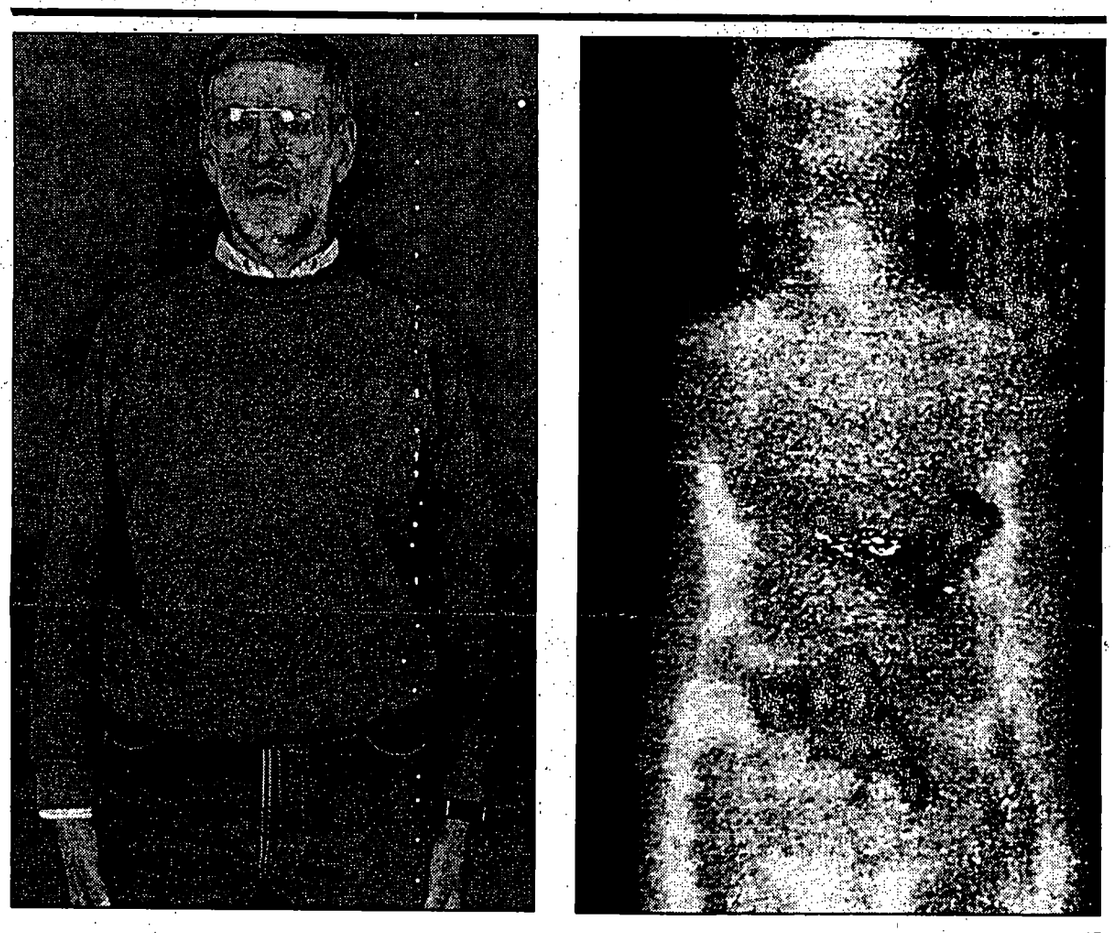

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TECHNOLOGY BEAT

National Institute of Justice ■ National Law Enforcement and Corrections Technology Center

Jeremy Travis, Director, National Institute of Justice

Hands-off frisking: high-tech concealed weapons detection

June 1996

Law enforcement officials have consistently ranked the development of remote weapons detection technology as a top priority. Thus when President Clinton read an article by the eminent public policy analyst James Q. Wilson on "What To Do About Crime" in *Commentary* magazine, he marked two key passages for review and action. Wilson pointed out that although firearms play a key role in rising violence in the Nation, he saw no politically or legally feasible way to reduce the number of guns enough to have a real impact on crime. However, Wilson noted that research was under way to develop technologies that would enable police and other law enforcement officials to detect concealed weapons from a distance, making it easier to identify those involved in criminal activity.

On March 9, 1995, the National Institute of Justice (NIJ) launched an initiative to fund and field test three concealed weapons detection technologies. Each technology employs different physical principles and each has situation-specific strengths and weaknesses. NIJ's National Law Enforcement and Corrections Technology Center—Northeast, located near Rome, New York, provides technical and engineering support for the initiative. NIJ expects one or more of the new weapons detection technologies to be in commercial production within 3 years. The technologies, described below, include Passive Millimeter Wave Imaging, Low-Frequency Electromagnetic Radiation, and Magnetic Gradient Measurements.

In addition, under a memorandum of understanding, NIJ and the U.S. Department of Defense, through the Defense Advanced Research Projects Agency, have embarked on a joint research effort to explore additional weapons detection technologies. To date, the joint effort has initiated research on four weapons detection systems, including Low-Level Scattered X Rays and Computer Image Processing, Millimeter Wave and Long Wave Infrared Receivers, Radar and Ultrasound, and a Low-Frequency Magnetic Imaging System (all described below).

Together the two initiatives have made available approximately $4.5 million for concealed weapons detection technology research and development.

Passive Millimeter Wave Imaging

Under development by Millitech Corporation, Passive Millimeter Wave Imaging is a new technology that offers the opportunity for rapid and remote detection at a distance of up to 12 feet—without a direct physical search—of metallic and nonmetallic weapons, plastic explosives, drugs, and other contraband concealed under multiple layers of clothing.

This technology is based on the fact that all objects naturally emit a broad spectrum of electromagnetic radiation. Heat generated by the body in the infrared region is most familiar; less well known is the fact that humans are especially good emitters at millimeter wavelengths. When a person is scanned using technology with sensors sensitive to this wavelength, any concealed item shows up as a dark image against the lighter background image of the

(See "Detection," page 2)

Inside . . .

"Detection"
(continued from page 1)

individual. This difference in image brightness is due to the differences in electromagnetic radiation emitted by the object and the individual.

Because this purely passive imaging technique relies solely on existing natural emissions from objects, it does not require man-made irradiation. Observations can be made remotely and with discretion as required. Although passive millimeter wave imaging devices do literally see through clothing, the resulting image display does not reveal intimate anatomical details.

The versatility of passive imaging allows for a variety of camera systems to be used for different applications. To demonstrate the technology, Millitech is currently developing a proof-of-concept camera with a 300mm aperture and monitoring console for fixed entranceway surveillance. Also planned is a handheld camera with a video screen, in addition to designs for a totally portable, battery-powered camera and a standoff camera system that can be used from a police car.

Low-Frequency Electromagnetic Radiation

In development by The Raytheon Company, this concealed weapons technology involves illuminating an individual with a low-intensity electromagnetic or "Heaviside" pulse and then measuring the time decay of the reradiated energy from the metal objects carried by the person.

The intensity and the time decay of the secondary radiation can be characterized and the "signatures" identified as a gun or nonthreatening metal object.

Much of the basic development work has been completed by Raytheon. In the NIJ project, the company will conduct an experiment testing the system's feasibility and provide performance data on probabilities of detection and false alarm rates. The experiment will establish whether sufficient discriminating ability exists to meet police probable cause requirements for a physical search for weapons. When fully developed, the system is expected to have a low probability of false alarms.

Possible locations to use this technology range from large gathering places such as shopping malls, schools, meeting places, and airports to small stores and banks.

Magnetic Gradient Measurements

The concealed weapons detection initiative being explored by Idaho National Engineering Laboratory (INEL) utilizes a proven, existing technology used in mineral exploration, environmental characterization, military navigation, and submarine detection.

This technology is based on passive sampling of the Earth's magnetic field. Local aberrations in the magnetic field produced by ferromagnetic objects such as guns and knives can be detected by extremely sensitive magnetometers. This is a new application of an existing technology—magnetometer sensors, which are commercially available. INEL's approach is to construct a more reliable scanner that can be used as a stand-alone unit, much like an airport scanner system, or incorporated directly into building doorways or hallways.

Sensors in the system will simultaneously collect the data, thus providing a top-to-bottom magnetic profile of an individual. Reasonable suspicion will be dictated by the location and magnitude of the recorded magnetic anomalies. An electronic catalog of magnetic signatures will be established through the collection of magnetic profiles of a variety of weapons in differing locations and a number of nonweapon personal artifacts. These signatures will later be used in analysis schemes that will determine the presence, location, and, potentially, type of weapon carried. However, this technology will only detect ferromagnetic materials.

Low-Level Scattered X Rays and Computer Image Processing

Under development by Nicolet Imaging Systems of San Diego, California, this technology uses extremely low doses of scattered x rays, in conjunction with advanced computer image-processing techniques, to detect weapons, explosives, illegal chemicals, and other contraband concealed under a person's clothing. An individual being scanned stands in front of the system for approximately 3 seconds. Almost immediately a computer-enhanced image appears on a monitor displaying the outline of the person and any concealed objects. Multiple views such as front, rear, and sides require individuals to turn their bodies for additional scans. The system is suitable for fixed-site configurations in controlled areas, such as prisons.

This technology requires only a fraction of the radiation level previously thought necessary to detect concealed objects. Each 3-second scan exposes a person to 3 microRem of radiation. This level compares with the 10 to 20 microRem per hour that a person receives from naturally occurring "background" radiation, 500 microRem per hour received during a commercial airline flight at 35,000 feet above sea level, and 30,000 to 300,000 microRem received during medical x ray examinations.

Through a process known as Compton scattering, the low-dose x rays collide with and bounce off electrons in the body or another object. When the x rays penetrate materials composed of elements with a low atomic number, such as body tissue, they are more likely to bounce back, causing the image on the monitor to appear light. However, when x rays pass through materials with a high atomic number composition, such as metal or

(See "Detection," page 3)

"Detection"
(continued from page 2)

bone, the radiation is more likely to release energy through the photoelectric effect, producing a dark image on the screen. Thus, a concealed handgun would appear as a dark mass against the light background of a person's body. Because of the low dose used in this method, most of the radiation reaches only the skin or penetrates a few centimeters into the body. The bones of the lower legs are the only internal structures likely to show up on the monitor, because they are so close to the skin.

New Technologies

The following technologies are in the early development stage:

- A passive approach under development by the Lockheed-Martin Corporation would use a millimeter wave (MMW) receiver and a long wave infrared receiver, either individually or together, to measure the difference in temperature between a concealed weapon and an individual's body. When the two types of receivers, which are still being developed, are used in tandem and linked with a computer imaging system, it is expected that the probability of detecting a concealed weapon will increase substantially. Initially, the MMW receiver is planned for fixed-site operation only. However, it is expected that the long wave infrared receiver will be suitable for fixed-site and hand-held use.

- An active approach that combines radar and ultrasound is being explored by JAYCOR. The system operator will have to be trained to interpret ultrasound images. It is expected that the radar component will be suitable for fixed-site operation and that the ultrasound component will be suitable for either fixed-site or hand-held use.

- An active approach using a low-frequency magnetic imaging system suitable for fixed-site operation is being developed by

(See "Detection," page 4)

Winchester® issues product warning on 9mm Luger ammo

Winchester® has moved quickly to resolve problems with its 9mm Luger 147 gr. Subsonic ammunition after the Maryland State Police (MSP) reported problems with the ammunition. In a notice issued to customers, Winchester® noted that a "small number" of rounds from two lots may cause firearms to jam or lock up and offered to replace free of charge any ammunition from the affected lots.

According to MSP Superintendent David P. Mitchell, a number of rounds from certain lots of Winchester®-manufactured 9mm Luger 147 gr., jacketed hollow point Subsonic ammunition, product code XSUB9MM, failed to chamber properly in department-issued Beretta models 92F and 92FS autoloaders.

An indepth investigation conducted by MSP and Winchester® revealed that lots 68GF92, 87GF92, and 016GF92 all contained rounds with cartridge cases of excessive length. MSP also found rounds with bulged cases. Either of these defects could prevent the slide from going into full battery, temporarily disabling the firearm. Often these defective rounds proved to be extremely difficult to extract.

After having identified the cause and extent of the problem, Winchester® issued a nationwide product safety warning.

According to Kathleen Higgins, Director of the Office of Law Enforcement Standards (OLES), domestic and foreign firearms and ammunition sold in the United States today are made to specifications set forth by the Sporting Arms and Ammunition Manufacturers Institute.

"As such, it may be assumed that all ammunition will function safely and efficiently in any firearm for which it is chambered, regardless of the manufacturer," Higgins says. "Generally, that is exactly how it works. However, as the MSP discovered, such is not always the case."

As revolvers give way to autoloaders for law enforcement work, Higgins says, it will become increasingly important that agencies ensure absolute compatibility between the firearm, its ammunition, and the officers to whom they are issued.

"It is the responsibility of each law enforcement agency to randomly sample, closely inspect, and thoroughly test all newly acquired lots of ammunition before any of it ever hits the streets," Higgins says. "The Maryland State Police have begun a rigid inspection procedure for each new lot of ammunition purchased. This includes the use of a simple cartridge gauge to ensure each round is within specifications. All departments should consider a similar program."

Editor's note: With facilities at the National Institute of Standards and Technology, the Office of Law Enforcement Standards provides the National Institute of Justice with expertise and guidance on technical issues related to law enforcement equipment and technology.

The Office's primary mission is to apply the latest scientific and technological knowledge to meet the needs of the criminal justice community, including law enforcement, corrections, forensic science, and the fire service.

For additional information, contact Kathleen Higgins, Director, Office of Law Enforcement Standards, National Institute of Standards and Technology, Building 225, Room A323, Gaithersburg, MD 20899; 301-975-2757.

"Detection"
(continued from page 3)

Systems and Processes Engineering Corporation.

According to NIJ, existing and useful technologies to help fight crime today can be quickly identified and adapted through technology transfer.

"We exploit what's already out there—by taking products straight off the shelf or spending some time adapting them to police use—and we make gains in efficiency," said David Boyd, Director of NIJ's Office of Science and Technology. "And while developing new technologies for law enforcement and corrections is critically important, equally important is the ability to deliver existing technologies into the hands of the police right now."

Under NIJ's charter, relative to its grants program, the Institute is authorized to:

- Sponsor R&D to improve and strengthen the Nation's system of justice with a balanced program of basic and applied research.
- Evaluate the effectiveness of criminal justice and law enforcement programs and identify those that merit application elsewhere.
- Support technological advances applicable to criminal justice.
- Test and demonstrate new and improved approaches to strengthen the justice system.
- Disseminate information from research, development, demonstrations, and evaluations.

New technologies to undergo legal and community review

Research sponsored by the National Institute of Justice (NIJ) on a police department experiment in Kansas City, Missouri,[1] showed that crime rates went down in neighborhoods where police seized illegal weapons.

This experiment was based on adherence to fourth amendment limitations on searching only those individuals for whom there was reasonable suspicion that they were carrying concealed weapons. But what would happen if technologies, such as those described in this issue's cover story, would permit less intrusive searches?

With an increasing demand by law enforcement and corrections for new and improved technologies to help combat crime, issues related to civil liability that may arise from the use of those technologies need to be defined and addressed.

To provide input on potential legal problems resulting from the use of new and developing technologies, NIJ established a task group to review liability issues associated with technology implementation.

In addition to legal implications, new technologies must also be acceptable to the public. In 1994 NIJ entered into a cooperative agreement with the Institute for Law and Justice, Inc., (ILJ) to study public reaction to and acceptance of the use of emerging less-than-lethal (LTL) weapon technologies by law enforcement and corrections officers.

ILJ is a nonprofit organization specializing in providing research, consulting, training, and technical assistance to law enforcement agencies.

"We realized early on in our efforts to develop new tools for law enforcement that we needed a way to ensure that what we were developing met three critical requirements," notes David G. Boyd, Director of NIJ's Office of Science and Technology.

"The technology had to meet a genuine law enforcement need with an affordable product. It could not expose law enforcement agencies to unacceptable risks. And, most importantly, it had to be acceptable to the community. So, to make sure we heard from all voices having an interest in law enforcement technology, we asked ILJ to create a special panel that could involve a wide range of community groups. It is their task to help us ensure that we never lose sight of the real purpose of our work: enhancing the safety of our communities without jeopardizing the principles we hold most dear."

The panel is composed of representatives of the NAACP, American Civil Liberties Union, National Rifle Association, League of Women Voters, Handgun Control International, and members of various police review groups.

"The reason for creating the panel," Boyd says, "is that we wanted to find out up front which technologies we simply could not introduce into the community. The panel has been very helpful in identifying the technologies we ought to produce."

Note

1. Sherman, Lawrence W., and James W. Shaw, *The Kansas City Gun Experiment*, Research in Brief, Washington, D.C.: U.S. Department of Justice, National Institute of Justice, January 1995 (NCJ 150855).

JUSTNET offers online technology information and dialog

Anyone interested in the advancement of technology and improvement in the equipment and products available to law enforcement and corrections will be interested in JUSTNET (Justice Technology Information Network).

A service to the criminal justice community under the auspices of the National Institute of Justice (NIJ), JUSTNET serves as an online technology information gateway for law enforcement, corrections, and other criminal justice professionals. JUSTNET, which is administered and maintained by the National Law Enforcement and Corrections Technology Center (NLECTC), offers a wide variety of features and services via the Internet and World Wide Web.

From JUSTNET's main menu page, a user can access news and information on NIJ programs and new products and technologies, as well as link to NLECTC Regional Centers and Offices and other criminal justice Web sites. JUSTNET also features a *chat area*, which offers live, online dialog between users, in addition to *topic boards*, which provide a user with the ability to post electronic "sticky notes" under specific topics. Other users can then post replies. For criminal justice users, NLECTC can provide special chat areas and topic boards with password protection.

JUSTNET also offers access to a data base containing information on products and technologies commercially available to law enforcement and corrections. Finally, JUSTNET provides online access to NLECTC publications, equipment standards, and testing initiatives, some of which are downloadable to the user's own computer.

For more information about becoming a JUSTNET user or to obtain a copy of the JUSTNET user's guide, contact NLECTC at:

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Director's Notes

The National Institute of Justice's (NIJ's) grants program, operated by NIJ's Office of Science and Technology, has supported research on numerous and diverse issues of importance to law enforcement executives, as well as to officers on the street. Improving fingerprint and trace-evidence identification and the development of DNA standards are some of the notable areas of research. In the late 1980's and early 1990's, a renewed interest in less-than-lethal (LTL) weapons by the criminal justice system led Congress to allocate special funding to NIJ to begin an R&D program in this area.

In late 1992 and early 1993, NIJ initiated an expanded program to investigate all aspects of this issue and to develop a broad-based research program that would lead to new tools and use-of-force options for law enforcement officers. The program has evolved into one that looks not only at weapons but also at the sociological aspects of the use of LTL weapons, e.g., liability and community acceptance issues.

It has also become clear, however, that technologies other than weapons may effectively address the same operational goals of reducing the incidence of death and injury to officers, suspects (or prisoners), and the public when force has to be used to effect an arrest or combat violent behavior during transport or other custodial duties.

Research on new technologies for hands-off detection of weapons, drugs, and other contraband discussed in this issue of *Technology Beat* provides an outstanding example of NIJ's initiatives in this area.

Jeremy Travis
Director
National Institute of Justice

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Your *one-stop shop* for law enforcement and corrections equipment and technology information, the National Law Enforcement and Corrections Technology Center (NLECTC) offers its users centralized technology information, assessment, and referral services.

NLECTC is a program of the National Institute of Justice—the research and development arm of the U.S. Department of Justice.

NLECTC's sole mission is to be the most comprehensive source of product and technology information in the country for law enforcement, corrections, and other criminal justice practitioners.

If you would like to learn about what NLECTC can do for you, call **800-248-2742**; write NLECTC, Box 1160, Rockville, MD 20849-1160; or contact one of our Regional Centers or Offices:

- **National Law Enforcement and Corrections Technology Center**
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  Fax: 301-251-5149
- **National Law Enforcement and Corrections Technology Center-Northeast Region**
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