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FBI

Law Enforcement Bulletin



Aerial Surveillance



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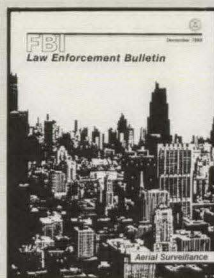
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Washington, DC 20535

William S. Sessions, Director

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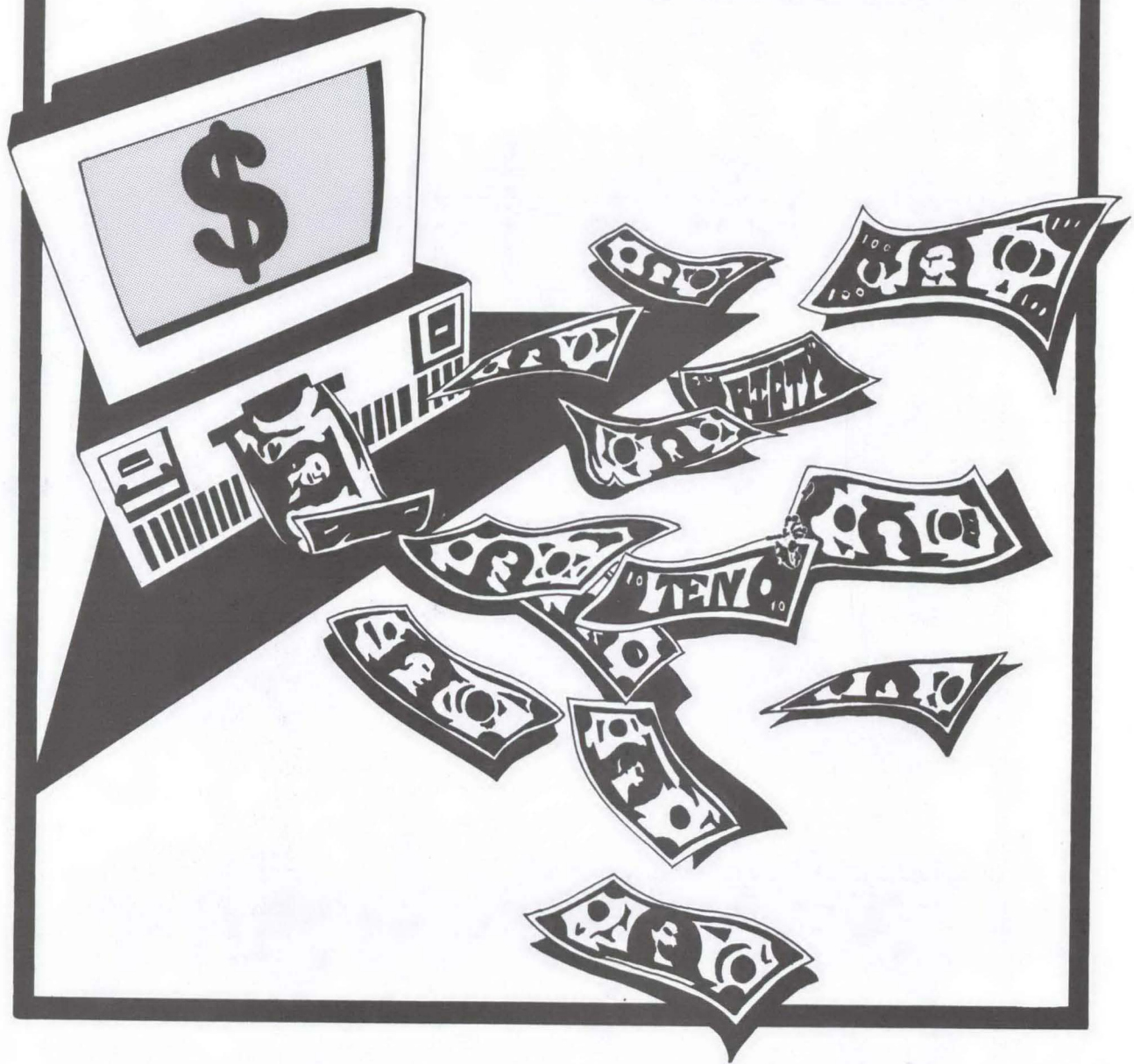
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Thefts of Computer Software

By
WILLIAM J. COOK
Assistant U.S. Attorney
Chicago, IL



Between July and September 1987, a Chicago youth attacked AT&T computers at Bell Labs in Illinois and New Jersey, at a NATO missile support site in North Carolina, and at Robbins Air Force Base in Georgia, stealing software worth \$1.2 million and causing \$174,000 worth of damage.¹

In October 1988, Scotland Yard arrested an English hacker who had broken into over 200 military, corporate, and university computers in the United States and Europe. The indication was that he planned to extort money from one of the victim corporations.²

In November 1988, a college undergraduate planted a computer virus that temporarily disabled 6,000 computers on the U.S. Army research computer network (ARPANET).³

As evident by these accounts of computer piracy, computer-aided attacks on Government and corporate networks are becoming more numerous and sophisticated. While estimates vary, computer industry sources indicate that computer-related crime (including software theft) annually costs U.S. companies as much as \$555 million per year, with each incident costing approximately \$450,000.⁴

More importantly, however, the infiltration and theft of computer files is a growing Federal crime problem, since many such actions jeopardize the security and defense of the United States.

This article gives a brief overview of the thefts and illegal export of computer software. It also details steps taken by the U.S. Government to protect national security and defense information with the intent of curtailing

and hopefully eliminating the occurrence of such actions in the future.

International Computer Hackers

While most computer attacks are done by hackers who are not agents of a foreign government, the growing attention of Eastern Bloc governments to hackers indicates that these nations clearly recognize the benefits of using them to expose openings in U.S. computer networks.

In March 1989, it was disclosed that West German hackers sponsored by Eastern Bloc intelligence agencies had been systematically searching for classified information on Government computers throughout the United States through a weakness in a computer network at a California university.⁵ The following month, Canada expelled 19 Soviet diplomats for wide-ranging espionage operations to obtain Canadian defense contractor information for military and commercial purposes.⁶ And in December 1988, a search warrant filed by U.S. Customs agents in Chicago disclosed that a confederate of the Yugoslav Consul-General in Chicago was using a hacker to attack defense contractors by remote access in order to steal computerized information. According to the affidavit, the information obtained by the hacker was subsequently smuggled out of the United States in diplomatic pouches with the help of the Counsel-General.

Public access information and published reports reflect that Soviet efforts to obtain technical information are not an illusion. A

major daily newspaper reported that the Soviet Union was actively fostering hacker-to-hacker ties between the Soviet international computer club and computer firms and hackers in the United States, Britain, and France.⁷ Another newspaper account told of the Soviet Union setting up programmers in Hungary and India for the purpose of translating and converting U.S. origin software to the format of Soviet and Warsaw Pact country machines.⁸ Then in March 1989, a member of the Soviet military mission in Washington, DC, was arrested and expelled from the United States for attempting to obtain technical information about how U.S. Government classified information is secured in computers.⁹

The Soviet's main targets are U.S. Government agencies, defense contractors, and high-tech companies and are purportedly backed by a \$1.5 billion annual "procurement" budget. Further, Soviet satellite countries have become very active in the Soviet high technology procurement effort. For the past several years, Hungarian, Bulgarian, Yugoslavian, and Polish intelligence officers and their agents have participated in the high-tech theft effort, along with agents from Vietnam, North Korea, and India.¹⁰ Also, Cuban and Nicaraguan intelligence officers are using front companies in Panama to obtain U.S. technology.¹¹

News accounts suggest that these efforts are successful; 60-70% of the technology is obtained, while 90% of non-classified high technology data is acquired. More than 60% of the stolen technology comes from the United States.¹²

As a result, the U.S. technological "lead" over the Soviets has gone from 10-12 years in 1975 to 4-6 years in 1985.¹³ And the savings to the Soviets have been impressive. It has been estimated that in 1978 the Soviet Union saved \$22 million in research and development costs by stealing U.S. technology; the following year, they saved \$50 million.¹⁴ Between 1976 and 1980, the Soviet aviation industry alone saved \$256 million in research and development because of stolen U.S. technology.¹⁵ More significantly, much of the stolen technology is critical to the national security and defense of the United States.

Protecting Technical Data

In 1984, the U.S. Department of Commerce placed expanded export controls on computer software as part of its general protec-

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Federal agents and computer security professionals must recognize the need for rapid mutual cooperation and communication....

”

tion of technical data deemed vital to the national defense and security of the United States. However, export control in this realm is an enormous challenge since modern technology allows the criminal to steal restricted software stored on Government and corporate computers by remote access from a personal computer anywhere in the world. Literally, international border are destroyed when a telephone line plugs into the computer modem.

Observations

Several observations can be reached from this mosaic. Obviously, U.S. taxpayers are subsidizing the modernization of the Soviet military establishment. And it is more economical for the Soviets to steal U.S. technology than to fund and develop their own research and development capabilities. More importantly, however, the United States needs to do a better job protecting its technology.

As noted previously, in response to the Soviet "tech-threat," the United States and other countries expanded controls on high technology computer software by placing them on the Commodity Control List or Munitions List. Commerce Department and State Department licensing officers require that validated export licenses and end-user assurances are obtained before software

named on these lists is exported. Both the Commerce and State Departments routinely call in Defense Department personnel to analyze these export requests.

Prosecution for illegally exporting computer data and software can be brought under several sections of the U.S. Code.¹⁶ However, before prosecution under these sections can be successful, several areas must be developed in the computer industry and the law enforcement community.

- Corporations should consider placing export control warnings on sensitive software programs, which would clearly assist U.S. efforts to enforce national export laws that require defendants have specific knowledge of export restrictions when exporting computer data.

may be the only evidence of "tech-theft."

- Federal agents and computer security professionals must recognize the need for rapid mutual cooperation and communication, with security professionals providing background information on the attacked

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... Eastern Bloc governments ... clearly recognize the benefits of using [hackers] to expose openings in U.S. computer networks.

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- Federal agents need to become oriented to the computer industry and computers to overcome computerphobia.
- Corporate and Government hirings must be done with great care when the employees will have access to computer networks or trash from computer centers.
- Computer security specialists and systems administrators must be alert to internal unauthorized access and external hacker attacks and the potential ramifications of such activities. They must also be aware that the modem plug-in on one of their computers could be the international border in the export violation and that computerized log records

computer network and assisting Federal investigations and search warrant efforts.

Conclusion

It is folly to assume that U.S. industry can continue to make sufficient research and development advances each year to ensure that the United States keeps an edge on Warsaw Pact countries. These countries continue to rob the United States of advanced technological information critical to defense and security of this country. The taxpayers and consumers writing the checks for Government and private sector technological research and development deserve a coordinated Federal law enforcement and computer industry response that recognizes software and computer-related engineering as one of our country's greatest resources.

FBI

Footnote

¹ComputerWorld, February 20, 1989.

²Sunday Telegraph, October 23, 1988.

³The Boston Globe, November 14, 1988.

⁴ComputerWorld, April 3, 1989.

⁵Hamburg Ard Television Network, March 2, 1989; see also, Cliff Stoll, "Stalking the Wiley Hacker," *Communications of the ACM*, May 1988.

⁶Reuters, June 28, 1988.

⁷The Washington Post, January 2, 1989.

⁸The New York Times, January 29, 1988.

⁹Reuters, March 9, 1989.

¹⁰"Soviet Acquisition of Militarily Significant Western Technology: An Update," published by the Central Intelligence Agency, 1985.

¹¹The Los Angeles Times, November 21, 1988.

¹²Supra note 10.

¹³Ibid.

¹⁴Ibid.

¹⁵Ibid.

¹⁶18 U.S.C. sec. 1029 (fraudulent activity in connection with using accessing devices in interstate commerce); 18 U.S.C. sec. 1030 (remote access with intent to defraud in connection with Federal interest computers and/or Government-owned computers); 18 U.S.C. sec. 1343 (use of interstate communications systems to further a scheme to defraud); 18 U.S.C. sec. 2512 (making, distributing, possessing, and advertising communication interception devices and equipment); 18 U.S.C. sec. 2314 (interstate transportation of stolen property valued at over \$5,000); 17 U.S.C. sec. 506 (copyright infringement violations); 22 U.S.C. sec. 2778 (illegal export of Department of Defense controlled software); 18 U.S.C. sec. 793 (espionage, including obtaining and/or copying information concerning telegraph, wireless, or signal station, building, office, research laboratory or stations for a foreign government or to injure the United States); 18 U.S.C. sec. 2701 (unlawful access to electronically stored information); 18 U.S.C. sec. 1362 (malicious mischief involving the willful interference with military communications systems); 18 U.S.C. sec. 1962 (RICO—20 years/\$25,000/forfeiture of property for committing two violations of wire fraud and/or transportation of stolen property).



Photo Courtesy of Ron Dunnivan

Sneak Thefts

By
MICHAEL P. KEELEY
*Special Agent
Federal Bureau of Investigation
New York, NY*
and

JOSEPH J. GANNON
*Chief Investigator
Security Department
American Express Company
New York, NY*

On Memorial Day weekend in 1987, a New York bound Western Airlines 727 nosed its way up around the Great Salt Lake and across the Wasatch Mountains. Despite its almost due easterly course, the aircraft lost time due to the weather, and its arrival at Kennedy Airport in New York City was delayed for over an hour. However inconvenient for the passengers, this air

traffic delay was a plus for FBI Agents from the New York Office and the New York Port Authority Police as they made arrangements to meet that Western Airlines flight.

This scene was the culmination of an investigation begun in 1985 concerning the increasing number of thefts of blank travelers cheques from several companies. As they are commonly called,

these "sneak thefts" are larcenies¹ committed by gangs using various distracting techniques to facilitate the crime, usually in banks and other financial institutions.

SNEAK THEFT TECHNIQUES

How It's Done

Normally, the gang is comprised of 4 or 5 members and may include a female, possibly with a small child. The gang's initial objective upon entering a financial institution is to determine where the cheques are stored, which is usually in a platform or customer service area. Once the storage area is known, some additional surveillance is required by the gang to determine the optimum striking time. Then, when the time is right, a member of the gang may purchase or pretend to purchase a small amount of cheques. And, as surveillance film taken during this stage will often show, the other gang members are positioned in various locations in the bank.

Since distraction is the key to masking the larceny, a coffee can full of coins dropped on a terrazzo floor, for example, will sufficiently occupy everyone's attention for the necessary time period. Other distracting techniques include gang members starting loud arguments between themselves or asking for the exchange of U.S. and foreign currency while speaking loudly in a foreign language. These techniques are especially effective in suburban areas where the modus operandi of such gangs may be unknown.

Salt Lake City Larceny

On May 30, 1987, at least two males entered the First Security Bank of Utah in Salt Lake City. Unfortunately, the foreign currency exchange and special service facilities were located in an alcove out of sight of the main banking floor. A newly trained teller on duty that day was approached by these two males,

who began to wave foreign currency at her while speaking in a foreign language she did not understand. Somewhat flustered, she left her post to seek help from a supervisor in a back office, leaving her cage door ajar. When she returned with her supervisor, the men were gone, as were \$65,000 in American Express travelers cheques and a quantity of official bank checks. The Salt Lake City Police were notified, and a call was placed to American Express.

Since it had already been determined that almost all the members lived in the Elmhurst - Corono - Jackson Heights area of Queens, NY, and that they would immediately return to New York to expeditiously sell the cheques to local fences, American Express security notified their New York headquarters, who in turn notified the New York FBI Office.

The previous year, the FBI had distributed 50,000 warning notices, principally to banks who sold cheques, describing the modus operandi of this particular gang. The flyer also had photos of a few of the gang members for whom Federal warrants had been obtained. One of these flyers finally paid off.

The American Express security officer in Salt Lake City, obtaining the assistance of airport police, went to the appropriate Western Airlines gate. Although the flight had already departed, the officer determined from ground personnel that five Hispanics (four males and one female) had purchased tickets with cash a few minutes before departure using the surname Rodriguez. The ticket



Special Agent Keeley



Investigator Gannon

agent also stated that they carried a plastic garbage bag.

In New York, a reception team was starting to form at the Western Airlines terminal for the delayed flight from Salt Lake City. The station superintendent was contacted and apprised of the situation. She, in turn, made radio contact with the aircraft, now about an hour from touchdown. Since the seat numbers of the suspects were obtained at Salt Lake City, the rear cabin attendant was summoned to the flight deck and interviewed via radio by the FBI Agent leading the investigation.

A conference was quickly held with all of the participating agencies. It was determined that two of the five individuals on board the plane were subjects of warrants and were listed on the aforementioned flyer. It was decided that all five would be apprehended after they had exited the aircraft, and that the three unknown subjects would be detained before leaving the security area. Contact was again made with the aircraft commander, and with his concurrence, it was agreed that the rear cabin attendant would come forward after landing to "assist" with opening the front door. The individual standing at the top of the jetway appearing to be a Western Airlines employee would actually be an FBI Agent. The Agent then would follow the unknown subjects down the jetway signaling to police officers as they exited. Port Authority Police SWAT teams were also hidden under the jetway and adjacent tarmac area should the subjects attempt to bolt through the rear or

side of the aircraft or through the jetway door.

The apprehensions were made quickly and smoothly. A package was recovered from the female containing the entire proceeds of the Salt Lake City loss. Also recovered was the foreign currency, later determined to be Soviet, used in the Salt Lake City bank larceny, as well as other par-

is not insurable. Examination of the cashed cheques showed that, indeed, the same individuals were involved.

A break in this investigation finally came on August 31, 1987, when two branches of the same bank, one in downtown Cincinnati, OH, and one at the Greater Cincinnati Airport in Kentucky, were victimized by five thieves.

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The gang's initial objective upon entering a financial institution is to determine where the cheques are stored....
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aphernalia used by the sneak theft subjects. A number of prosecutions ensued, notably in the Northern and Eastern Districts of New York and the District of Utah, all resulting in substantial sentences up to a maximum of 15 years.

Other Sneak Theft Gangs

Even though it had been determined that while this group was responsible for the bulk of sneak theft losses, other groups were sporadically active in this crime. So, within a short period of time, another incident occurred.

The Postal Service was losing large quantities of registered mail pouches through assaults on postal vehicles. A roving, motorized gang was using prybars on locks and, in some cases, stealing the entire mail truck. The same gang was also preying on private mail and parcel delivery services. The cheque issuers were particularly hurt because blank, financial paper

Again, prompt notification to the FBI in New York, where the gang was heavily active, resulted in a timely identification of the gang leader as a known and wanted felon. The gang members had also been previously investigated after a bank larceny in San Francisco, CA. Based on this information, all five were taken into custody. Subsequent prosecution in the Eastern District of Kentucky netted each defendant a 20-year sentence. The group leader was also convicted in a similar case in San Juan, Puerto Rico.

In 1988, another group started up in a somewhat more timid fashion. This new group, because of its propensity for victimizing New York suburban area banks and because it never drove further than a 1-day roundtrip, victimizing banks along I-95 from New York to Massachusetts, became known as the "I-95" gang.

Police Practices

Review of the bank film clearly showed two gang members known to the postal inspectors for previous truck assaults. One of the members was also noted for his acrobatic prowess in crawling under and over teller cage doors during a larceny, seemingly unnoticed by bank staff or a lobby full of customers. After two bank larcenies of \$50,000 and \$100,000 in cash caused an alert along the Connecticut portion of I-95, three gang members were apprehended by the police in Stamford, CT, and turned over to the local FBI.

CONCLUSION

The arrests of the members of each of these gangs are significant. However, the problem does not stop here. Statistical information covering the years 1983 through 1988, gathered by the New York FBI Office, reveals approximately 130 reported sneak theft incidents, with travelers cheque losses by banks and issuers amounting to \$3.5 million. These incidents represent approximately 10 percent of bank larcenies nationwide reported to the FBI. In view of these numerous occurrences, it is incumbent upon banks, financial institutions, and everyone involved to help instill a greater awareness toward possible security breaches, especially when faced with experienced and cunning sneak thieves who will surely attempt to make history repeat itself.

FBI

Footnote

¹Title 18 USC, Section 2113.



Police Substations: The Virginia Beach Experience

The delivery of police services continues to be a concern of law enforcement agencies across the Nation. Governing bodies, civic groups, and individual taxpayers expect their agencies to protect them intelligently, efficiently, and cost effectively. However, many elements influence the manner in which law enforcement serves the people. One particular factor is the area patrolled within a given precinct. The size of the precinct and the number of people assigned to it can greatly effect the quality of law enforcement service.

The Virginia Beach, VA, Police Department realized this when one of their precincts experienced unprecedented growth in the early 1980s. Within this department, the first precinct covers an area of 124 square miles and has 124 sworn and civilian personnel assigned to it. Since much of this area was undeveloped rural land, the majority of the city's growth occurred there. Literally, residential developments, office parks, and commercial projects multiplied overnight.

One particular area within the first precinct which experi-

enced meteoric growth was the Kempsville Borough. In late 1985, the five patrol zones within this borough generated almost 50 percent of the calls for service within the precinct. Obviously, a change to enhance service delivery to this area was necessary. The question to be answered was, "What problems needed to be addressed to provide citizens the type of service they deserved and had a right to expect?"

The one problem immediately recognized was the location of the first precinct's facilities, which were located in the Public Safety Building at the city's municipal center complex. This building was located more than 11 miles from some points within the precinct. In addition, the rate of construction outpaced the city's road building and improvement program. This resulted in a dramatic increase in motor vehicle traffic and subsequent back-ups, making travel during peak times especially frustrating. The bottom line, however, was that response times suffered.

The idea to build a substation, or mini-precinct, was recognized as the most viable solution. Such a facility would allow units to get to their assigned patrol zones quicker and would reduce time spent away from their patrol area when handling administrative functions. At the outset, however, the substation was envisioned as only a staging area, not a facility prominently identified or designed to handle walk-in traffic. There would be no desk officers, and

the substation would be closed when officers and supervisors were "on the street."

After considering several places to lease, an existing fire station in the Kempsville Borough was chosen as the site for a police substation. The fire department allocated approximately 675 square feet for police operations, which was enough space for two offices, a muster area, and a supply room.

Initially, the substation operated on day and evening shifts, 5 days a week. Weekend and midnight shift coverage continued to work out of the Public Safety Building, until a midnight shift was added to the substation 5 months later. At the end of 11 months, the reduction in mileage on substation patrol cars, coupled with an average additional patrol time of one-half hour per officer per shift, amounted to a savings of approximately \$26,000.

A year after opening, the substation's staffing was increased to provide complete coverage of Kempsville's five patrol zones 24 hours a day, 7 days a week. Although the substation is part of the first precinct's overall operation, especially with regard to command and administration, it functions operationally as a separate precinct in many respects.

An additional benefit realized by housing the substation in an existing fire station has been the enhancement of the relations between police and fire personnel. The daily contact by the officers and firefighters helped developed both personal and professional friendships that continue to benefit both departments.

It has been substantiated that law enforcement agencies responsible for patrolling large areas can significantly enhance their operational effectiveness and efficiency by establishing substations. With shorter distances to travel, officers can decrease time needed to respond to calls for service. Further, if the site selected for a substation is shared with another public service department, even more benefits can be realized.

Police substations, like the one established by the Virginia Beach Police Department, can be a viable alternative for those departments looking for ways to better serve the citizens whom they are sworn to protect. **FBI**

Information for this column was submitted by Lt. A.M. Jacocks, Jr., Virginia Beach, VA, Police Department.

Police Practices serves as an information source for unique or noteworthy methods, techniques, or operations of law enforcement agencies. Submissions should be no more than 750 words (3 pages, double spaced and typed) and should be directed to Kathy Sulewski, Managing Editor, *FBI Law Enforcement Bulletin*, Room 7262, 10th & Pennsylvania Ave., NW, Washington, DC 20535.

Graffiti Wipeout



By
DET. LT. DAVID SCOTT
Southeastern Pennsylvania
Transportation Authority
Police Department
Philadelphia, PA

Today, the crime of vandalism has become a frightening reality in the lives of many Americans. However, vandalism in the form of graffiti is one crime that exists in almost every community throughout the United States, from the small country town where names and telephone numbers are etched in bathroom stalls to the Nation's most populated cities where every subway concourse is a drawing

board for artistic vandals. Throughout the country, its effect is pervasive and devastating.

Graffiti is a forgotten crime. It is ignored and often times even accepted. However, the costs associated with it can be staggering. Everyone pays for it in taxes, increased transit fares, and insurance premiums. And, although it is not viewed as serious as major crimes, graffiti is an expensive form of art.

This article focuses on how the Southeastern Pennsylvania Transportation Authority (SEPTA), whose jurisdiction covers five counties in the Philadelphia area, manages to contain its graffiti problem, which costs the area over \$2 million a year.

As is typical in many major cities, graffiti has become part of the urban environment. An entire subculture (gangs) exists which places great emphasis on commit-

ting this type of vandalism. In fact, the sole purpose of some of these groups is to write graffiti. However, SEPTA was able to significantly reduce incidents of vandalism and graffiti in the transit system by 75 percent in just over 1 year despite the continued efforts of graffiti writers. Not only have the results been outstanding, but the authority's anti-graffiti program has served as a model for cities such as Philadelphia, Boston, San Francisco, Los Angeles and New York. It has also gained international attention from cities such as London, England.

The Problem

Graffiti has existed throughout the ages. But, in 1971, the mayor of Philadelphia decided to break from tradition. He declared that he wanted the city "cleaned up and kept clean" of graffiti.¹ As a result, a new unit was formed which consisted of six detectives attached to the Philadelphia Police Department's Intelligence Unit. Although this special unit did make some arrests, incidents of graffiti continued to increase over the next decade. Despite the fact that while numerous persons were involved, most of the handwriting was done by only 15 to 20 people. And, unfortunately, after the mayor left office, the unit was disbanded.

Over the next decade, graffiti grew at such a rate that in some neighborhoods, it could be seen on almost every wall. During this time, graffiti artists generally worked alone; however, on occasion, high profile writers would band together, go out on the town, and spray their names in rather

risky and daring places, such as the tail of an airplane. Gradually, graffiti became more elaborate in style, and it became apparent that the vandals were helping each other to create murals.

By the late 1970s, these graffiti gangs, which met in underground stations, train yards and subway tunnels, were in full gear, and the Philadelphia area seemed to be experiencing a graffiti epidemic. In fact, graffiti could be seen throughout the city, and the mass transportation system became a prime target for the devastation. What better way to publicize a name or a gang than to have it sprayed on an elevated train or bus that continuously travels around the city every day!

Who are these latter-day Kilroys, and how have they continued to flourish in spite of multimillion dollar campaigns to combat them? In 1980, a New York Transit Authority report described the typical graffiti artist as "male, of a lower socioeconomic status,

fourteen to sixteen years of age, who seeks recognition by placing his 'trademark' where his peers will see it and possibly identify it. He does not feel he is destroying property by his action."² Despite the fact that the typical artist is usually male, one graffiti artist named Kim, 17 years of age, who asked that her last name be withheld, described herself as more than a "writer." With a black address book crammed with 170 names, she is a human switchboard for Philadelphia's most dedicated graffiti artists.³

The Solution

In December 1981, the general manager of SEPTA initiated an anti-graffiti program designed to increase ridership by providing a clean, safe system controlled by the Authority. From its inception, all departments within SEPTA have participated in this program in some way. Because graffiti breeds graffiti, the program's emphasis was to remove it as

“ Since SEPTA's anti-graffiti program began, over 2,700 arrests have been made relating to vandalism. ”



Detective Lieutenant Scott

quickly as possible. Even so, removal efforts for a 6-month period involved up to 3,000 man-hours, 900 gallons of shellac, paint and thinner, and 30 gallons of cantol.

Throughout the program, daily inspections of all city division subway stations and elevated

SEPTA's graffiti attack and allocated a courtroom to hear all SEPTA cases.

Violators are most often charged with defacing public property (prohibited conduct), criminal mischief, and found in violation of a law entitled "Liability for Acts."⁴ This law places financial

information on the student's offense. One SEPTA detective is also assigned to process graffiti arrest cases, beginning with the preparation of a weekly graffiti/vandalism arrest memorandum compiled from the daily control log. Copies of this memorandum are sent to specific departments responsible for providing itemized material and labor cost estimates. These damage estimates are forwarded to the court liaison detective, who records them for use at the judicial hearings.

All graffiti arrest cases, both juvenile and adult, are held at a special court every Wednesday. These cases are heard by a trial commissioner and attended by the court liaison detective.⁵ Arresting officers are not required to attend.

At this time, defendants and/or parents are informed by the court liaison detective of their respective damage costs. First-time offenders who admit their guilt are permitted to pay the cost of damage and have prosecution withdrawn. Those who wish to pay, but are unable to do so at the initial hearing, sign a restitution agreement. They are then given a copy of the signed agreement which lists the court status date and the date by which the restitution is to be paid. Defendants may also appear at status hearings and request additional time in which to pay the restitution. Such requests are honored by SEPTA and sanctioned by the court.⁶ They also receive a court notice to appear (subpoena) that must be adhered to only if the restitution is not paid. If the restitution is paid by the agreed time, the court liaison detective attends the status hearing and requests that prosecution be

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... SEPTA was able to significantly reduce incidents of vandalism and graffiti in the transit system by 75 percent in just over 1 year
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stations were conducted and maintenance employees were assigned to remove the graffiti and/or repaint if necessary. A list of the stations which suffered from the heaviest graffiti damage was also sent to the SEPTA Police Department each day. Plainclothes officers were then assigned to those locations.

SEPTA's Police Department, in conjunction with the Philadelphia Police Department, the Philadelphia District Attorney's Office (County Prosecutor) and the Municipal Court System, agreed that vandals would be arrested and processed through the Philadelphia Police Department. To reflect the seriousness and costliness of this form of vandalism and to seek restitution for damages, members of the District Attorney's Office and an attorney from SEPTA's Legal Department prosecute all offenders. In addition, the President Judge of the Philadelphia Municipal Court issued a memorandum informing all municipal court judges of

liability on the parents of juvenile offenders. Many of the acts of graffiti amount to less than \$100 for labor and removal. However, if this cost exceeds \$5,000, it is a felony offense.

After each arrest, a SEPTA police control number is assigned to the case and the information is recorded on a daily control log. The control log contains the following information:

- Name, age, sex, race and address of the person(s) arrested
- Date, time and location of arrest
- Specific graffiti written and the size and color of the markings
- Method used (magic marker or spray paint)
- Philadelphia Police Department district control number
- Hearing date
- Arresting officer

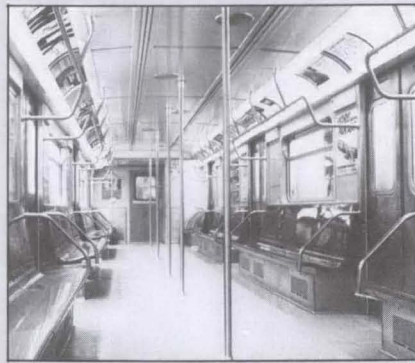
The arrestee's school principal is also sent a letter containing infor-

NYC'S CLEAN CAR PROGRAM



For nearly 2 decades, graffiti has blighted every surface and rail passenger vehicle operated by New York City's Metropolitan Transit Authority (MTA). Today, signs of this crime of vandalism have been eliminated from the system's 6,200 subway cars and 3,800 buses.

It has taken 5 years of coordinated effort for the Metropolitan Transit Authority to accomplish this feat, which became a reality when the last graffitied train rolled out of service in May 1989. According to the President



of the Metropolitan Transit Authority, "Credit for our success goes to the men and women who work for the MTA. This was truly a team effort with some 16 different departments working together toward a common goal."

The MTA's Clean Car Program began in May 1984, with one train on each of two different lines. Within a year, both lines were graffiti-free and the cleaning program began to spread, line by line, throughout the system.

Once a car was enrolled in the program, it could not be

placed into service with graffiti—inside or out. Cleaners were stationed at terminals, and any graffiti applied enroute was immediately removed. This speedy removal discouraged vandals who could no longer see their "tags" traveling throughout the system.

Key to the program's success was a reallocation of resources and increased productivity. One street shop turned out 10 completely rebuilt cars every month, a 100-percent increase from 5 years ago, even though there was a substantial decrease in the number of employees. According to the Chairman of the Metropolitan Transit Authority, "I think it is important to note that while we have cleaned up our surface and rail fleets, we have also made important gains in both safety and reliability. The almost weekly front page headlines about major fires and derailments have, along with graffiti, become part of our past and not our future."

withdrawn. If it is not paid and the defendant fails to appear, a bench warrant is issued.

If defendants deny guilt, their cases are relisted at another special court, but this time before a municipal court judge who decides guilt or innocence. Arresting officers and/or witnesses are needed at these hearings and are notified to appear by the court liaison detective who also attends.

Second-time offenders, however, are not given the option of paying restitution and having pros-

ecution withdrawn. These cases are relisted before a municipal court judge. If found guilty, the judge can impose a fine in addition to ordering that restitution be paid to SEPTA.⁷

Since SEPTA's anti-graffiti program began, over 2,700 arrests have been made relating to vandalism. These arrests are primarily the result of observations made by the SEPTA Police Department. The Philadelphia Police Department, SEPTA employees and an

increasing number of citizens also played a vital role in the number of arrests.

Conclusion

After 6 months of concentrated effort, a substantial decrease in graffiti in the subway stations and elevated train stations was noticed. However, despite these efforts, SEPTA began to experience moderate amounts of graffiti on surface vehicles, particularly near junior and senior high schools. As a result, plainclothes

Book Reviews

personnel were increased in these areas to contain the problem.

Since many graffiti artists get involved in this type of crime for attention-seeking purposes, the general position of the Authority is not to publicize the names of offenders with the media. However, at the beginning of this program, an aggressive public and press relations program was implemented. This included an anti-graffiti pamphlet, news articles and an agenda for a graffiti conference. SEPTA, through its community relations division, also addressed elementary school children to point out the destructive nature and the penalties of being apprehended for graffiti writing.

SEPTA's program has proven to be a success. As SEPTA's program increased, graffiti and vandalism decreased. Indeed, because of the program, graffiti has been limited to a level low enough to be maintained with only a minimum number of plainclothes officers.

Today, as a result of SEPTA's efforts, graffiti will not revert to being a hidden and forgotten crime. Through this program, the Philadelphia area has curtailed its pervasive graffiti problem and has provided other areas and jurisdictions with the methods and techniques to control vandalism on their home fronts.

Footnotes

¹Alan L. Phillips, "Police Squad to Clean up on Scrawlers of Graffiti," *Philadelphia Inquirer*, 1971.

²Bill Moseley, "Graffiti," *The Arts, Omni Magazine*, March 1982, p. 114.

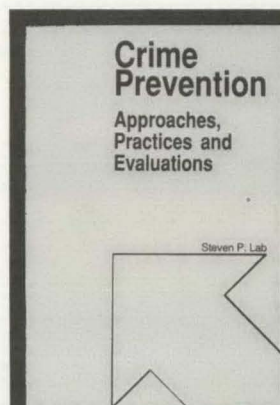
³Michael Marriott, "Graffiti—Fingers on the Triggers," *Philadelphia Daily News*, October 28, 1985, p. 20.

⁴Pa. Stat. Ann. tit. 11, Sec 2001, et seq. (Purdon 1967).

⁵Grace Joyner, "SEPTA's Program on Graffiti," November 1984.

⁶Ibid.

⁷Ibid.



Crime Prevention: Approaches, Practices and Evaluations, by Steven P. Lab, Anderson Publishing Co., Cincinnati, OH, 1988.

This book was born out of the author's search for a text which approached crime prevention from an academic orientation. As the author states in the preface, "The emphasis [of the text] is on presenting a brief description of the more well-known and recent crime prevention approaches and then presenting the results of evaluations which have been performed on each technique."

Lab stresses that the numerical level of crime should not be the only concern of crime prevention because the "fear of crime" poses a greater and more far-reaching problem for society and its members. His subsequent treatment of the "fear of crime" demonstrates a crucial point which has been overlooked in crime prevention discussions.

The author then goes on to explain throughout the text that the key criterion for assessing the

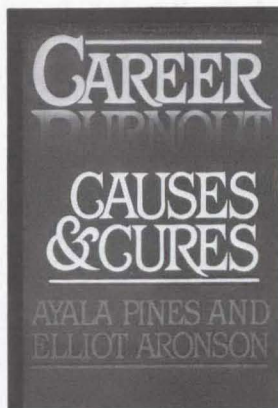
effectiveness of various crime prevention methods is lower subsequent offenses and/or the fear of crime. The major questions posed by the author in the evaluations deal with the extent to which the programs reduce crime and/or the fear of crime.

The discussion of the future of crime prevention includes advances in electronic surveillance technology, improved alarm systems, and the use of sociobiological principles. However, the author concludes that the evaluation of crime prevention techniques will continue to be a pivotal issue in dealing with crime and the fear of crime throughout the future.

Accompanying the text is an "instructor's guide," which synthesizes and outlines each chapter of the text and includes questions on the subjects covered. The guide not only serves as a testing instrument but also alerts students, law enforcement trainees, and the average citizen/reader as to what they really know and don't know about crime prevention and the methods that work for their security and protection.

Both the book and the instructor's guide are practical and insightful guides for law enforcement officers, as well as for the classroom. The bottom line, once again, remains *education* to prevent crime and the fear of crime.

Reviewed by
Rose Anne Fedorko, Ph.D.
Office of Public Affairs
Federal Bureau of
Investigation
Washington, DC



Career Burnout: Causes and Cures, by Ayala Pines and Elliot Aronson. The Free Press, New York, 1988.

In Herman Melville's 1856 classic, *Bartleby the Scrivener*, the title character begins his career at a law firm initially exercising precision and care in his work. Over time, however, his employer notices a gradual deterioration in Bartleby's performance, accompanied by a simultaneous psychological withdrawal. Soon, every request made of Bartleby is greeted with the response, "I prefer not to." Eventually, Bartleby sinks lower into his depression until he ends up staring at the blank wall of a jail cell, where he soon dies.

While Bartleby may be an extreme case, dissatisfaction with career, life, or both can quickly lead to a deterioration in job performance. This situation can be especially acute in the law enforcement profession.

Authors Pines and Aronson have researched common, unhappy, and dissatisfying life experiences in work and careers. In *Career Burnout: Causes and Cures*, the authors address the causes and consequences of an overly used and somewhat vague term "burnout." They say that the "experience, hour after hour, day after day, week after week, of pouring maximal effort for minimal appreciation is extremely taxing and causes an erosion of the spirit known as burnout." They also note that "a major cause of burnout is existential — that it rests in the human need to ascribe meaning to life."

In chapters on "Burnout in Management" and "Burnout in Bureaucratic Organizations," the authors accurately identify impersonal practices and insensitive systems and managers that create stressful environments. They believe that burnout is a factor in low morale, absenteeism, tardiness, high job turnover, poor management and inadequate

delivery of services. In a particularly good chapter entitled "Organizational Coping Strategies," the authors identify several positive management and organizational development actions that could be implemented to reduce stress, including personal training and development and the improvement of working conditions.

The book also addresses intrapersonal coping strategies and the use of social support systems as prescriptions to treat burnout. Also provided is a self-diagnosis burnout instrument.

Most of this book, like the instrument, tells us what many already know — life can be stressful, most work is not always enjoyable, and some work is never fun. For those who cannot find meaning in life, work can easily become a source of psychic pain and depression. This book offers insight into relieving those forces that cause burnout and suggests ways to restore a healthy sense of meaning in life and career.

Reviewed by
SA Hillary M. Robinette M.A.
Management Science Unit
FBI Academy
Quantico, VA

The Bulletin Reports

Use of Drugs by Criminals

During the last quarter of 1988, from 45 to 82 percent of the men and women arrested in 14 major cities throughout the country tested positive for at least one illegal drug. This is according to the Research in Action report entitled, "**Drug Use Forecasting (DUF)—Fourth Quarter 1988**," which was issued by the National Institute of Justice. The tests revealed the recent use of cocaine, marijuana, opiates, PCP, amphetamines, Darvon, Valium, methaqualone, methadone, and barbiturates.

DUF data were derived from anonymous and voluntary urine specimens and interviews of samples of people arrested for serious crimes. Most of the men tested had been arrested for felony offenses other than the sale or possession of drugs. Slightly more than one-half of the men charged with homicide tested positive for an illicit drug, and

almost three-fourths of the males arrested for robbery in 13 cities tested positive for one or more drugs.

Other highlights of the report include:

- Both long-term and short-term trends show dramatic increases in cocaine use. Between May 1984, and November 1988, cocaine use in the District of Columbia more than tripled, rising from 18 percent to 62 percent of those arrested.
- At least 45 percent of arrestees charged with violent crimes or income-generating crimes (including robbery, burglary, and theft) tested positive for a drug.
- Women tested positive for illicit drugs at about the same rates as did men at all test sites, and in some

cities, the percentage of females who tested positive for cocaine was higher than it was for men.

- About 82 percent of the men arrested in Philadelphia tested positive for at least one illegal drug; 75 percent of the men arrested in that city had been using cocaine.

Other NIJ research projects indicate that drug test data have a forecasting potential that may enable officials to estimate changes in a city's future crime rates, drug-related emergency room admissions, and trends in child abuse.

Single copies of the report can be obtained from the National Criminal Justice Reference Service. Box 6000, Rockville, MD 20850, telephone number 1-301-251-5500.

Resource Guide

To address the needs of correctional officers, the American Correctional Association has released a newly revised publication, **Correctional Officer Resource Guide**. This training tool focuses on security and inmate supervision procedures, taking an up-to-date approach on

many of today's pressing prison problems.

The guide includes sections on special services in institutions, maintaining inmate discipline, institutional classification and programming, handling firearms and dangerous equipment, and a review of AIDS and health

emergencies, to name a few.

For more information, contact the American Correctional Association, 8025 Laurel Lakes Court, Laurel, MD 20707, or call 1-301-206-5051. The toll-free number is 1-800-825-BOOK.

Electronic Bulletin Board

Individuals and organizations involved in criminal justice policy research can now have immediate access to online information with the National Criminal Justice Reference Service (NCJRS) Electronic Bulletin Board. The electronic bulletin board is designed to help practitioners share information and enhance criminal justice networking. Anyone with a modem and a personal computer can use the bulletin board.

Through this service, users are provided press releases, program announcements, research findings, and online reports, as well as other information packages. Users can also add their own information, download questions, access electronic mail, communicate with other users, participate in online surveys, and receive news releases, announcements, and reviews of criminal justice developments, activities, and new publications.

For more information or technical assistance with installation or access, call NCJRS toll free at 1-800-851-3420. For callers in Maryland and the Washington, DC, metropolitan area, the number is 1-301-251-5500.

Injuries From Crime

A special report compiled by the Bureau of Justice Statistics (BJS) revealed that on the average, more than 2.2 million persons suffered injuries from violent crime each year between 1979 and 1986. The report, *Injuries From Crime*, examines the type and severity of injury, the amount of medical care that victims received, and the crimes that caused the injuries. It identifies how these factors are associated with the sex, race, ethnicity, age, income, occupation, and place of residence of crime victims.

Between 1979 and 1986, an estimated 63 million persons in the United States were victims of rape, robbery, or assault. Of this total 17.7 million suffered an injury during the crime. Those injured represented about 28 percent of all the rape, robbery, or assault victims counted by BJS's National Crime Survey during the 1979-1986 period. Offenses such as murder, manslaughter, and child abuse are not reported in the survey.

Among the injured crime victims, an estimated 1 percent suffered gunshot wounds, 3 percent received knife wounds, and 6 percent had their bones broken or teeth knocked out. Each year on

the average, an estimated 350,000 victims had these injuries, were hurt internally, lost consciousness, or were otherwise injured seriously enough to require hospitalization for 2 or more days.

Injury rates were highest for males, blacks, people from 19 to 24 years old, separated or divorced people, and people with a reported family income of less than \$10,000. Elderly and black victims were substantially more likely than were others to require overnight hospitalization. Injuries to 82,000 crime victims annually resulted in more than 700,000 days of hospitalization.

Crime injury rates differed markedly by occupation. Recreation workers, law enforcement officers, bartenders, and students had rates above the national level. Postal workers, truck drivers, and teachers had injury rates below the national level.

Single copies of the special report may be obtained from the Justice Statistics Clearinghouse, National Criminal Justice Reference Service, Box 6000, Rockville, MD 20850, or call the toll-free number 1-800-732-3277. For Maryland and Washington, DC, metropolitan area callers, the number is 301-251-5500.

The Bulletin Reports, a collection of criminal justice studies, reports, and project findings, is written by Kathy Sulewski. Send your material for consideration to: *FBI Law Enforcement Bulletin*, Room 7262, J. Edgar Hoover Building, 10th & Pennsylvania Ave., NW, Washington, DC 20535.

(NOTE: The material presented in this section is intended to be strictly an information source and should not be considered as an endorsement by the FBI for any product or service.)

Aerial Surveillance

Fourth Amendment Considerations



Photo Courtesy of K.D. Lane

By
A. LOUIS DIPIETRO, J.D.
*Special Agent
Legal Counsel Division
FBI Academy
Quantico, VA*

Law enforcement's use of aircraft as an observation platform to gather evidence, particularly in enforcing laws against marijuana cultivation, and the resulting constitutional challenges to such aerial surveillance have increased significantly since the late 1970's.¹ In three recent cases, the U.S. Supreme Court upheld warrantless aerial surveillance because the government's conduct did not intrude into a reasonable expectation of privacy, and therefore, did not constitute a search or seizure under the fourth amendment to the U.S. Constitution.² However, under certain circumstances, law enforcement's use of aircraft to inspect activity on the ground will intrude into a person's reasonable expectation of privacy and is only constitutionally permissible if conducted pursuant to a search warrant. This article begins with an analysis of the Court's recent aerial surveillance decisions, and then discusses several factors that law enforcement officers should consider in determining whether a particular aerial surveillance is permitted by the fourth amendment.

Naked-Eye Observations From 1,000 Feet

In *Ciraolo v. California*,³ the Santa Clara, CA, police received an anonymous telephone tip that marijuana was growing in Ciraolo's backyard. Police were unable to observe Ciraolo's yard from ground level because of a 6-foot outer fence and a 10-foot inner fence completely enclosing the yard. Officers trained in marijuana identification secured a private airplane and flew over Ciraolo's house at an altitude of

1,000 feet. The officers readily identified marijuana plants in Ciraolo's backyard and photographed the area with a standard 35mm camera. A search warrant based in part on these naked-eye observations was executed, and 73 marijuana plants were seized.

In ruling that the warrantless aerial observation of Ciraolo's backyard did not violate the fourth amendment, the U.S. Supreme Court applied the two-pronged test from *Katz v. United States*,⁴ which required the Court to determine whether Ciraolo by his conduct exhibited an actual (subjective) expectation of privacy in his backyard⁵ and whether that expectation is objectively reasonable by society's standards. The Court began its analysis by first concluding that Ciraolo met the (subjective) prong of the *Katz* test and did clearly "manifest his own subjective intent and desire to maintain privacy as to his unlawful agricultural pursuits"⁶ from at least street-level views.

Then, the Court addressed the second inquiry under *Katz*—whether society as a whole would

recognize Ciraolo's expectation as objectively reasonable. Ciraolo argued that because the yard was within the curtilage⁷ of his home, the warrantless aerial observation was prohibited by the fourth amendment. Ciraolo also contended that he had done all that could reasonably be expected of him to maintain privacy without covering his yard, which would defeat its purpose as an outside living area. The Court stated that even though the marijuana crop fell within the curtilage, that fact does not itself bar all police observation because what a person knowingly exposes to the public, even in his own home or office, is not a subject of fourth amendment protection.⁸

The Court concluded that Ciraolo was not entitled to assume that his unlawful conduct would not be observed by a passing aircraft or by a power company repair mechanic on a pole overlooking the yard.⁹ The security measures taken by Ciraolo were inadequate to prevent observations of his backyard from the airways. The mere fact that an individual

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The fourth amendment simply does not require the police ... to obtain a warrant in order to observe what is visible with the naked eye.

”

Special Agent DiPietro



has taken measures to restrict some views of his activities does not preclude an officer's observations from a public vantage point where he has a right to be and which renders the activities clearly

fourth amendment simply does not require the police traveling in the public airways at an altitude of 1,000 feet to obtain a warrant in order to observe what is visible with the naked eye.¹³

warrant based on these observations was subsequently executed and the marijuana was seized.

Since Riley left the sides and roof partially open, the Court held that he could not reasonably expect that the contents of his greenhouse were protected from aerial surveillance. Although the inspection in Riley was made from a helicopter, the Court considered that fact to be constitutionally irrelevant since private and commercial flight by helicopter in public airways is routine. Riley could not reasonably have expected that his greenhouse was protected from observation from a helicopter that was flying within lawful airspace for helicopters.

Also, the Court noted that FAA regulations permit helicopters to fly below the limit established for fixed-wing aircraft "if the operation is conducted without hazard to persons or property on the surface."¹⁵ While approving the 400-foot, naked-eye aerial surveillance on the facts in *Riley*, the Court cautioned against assuming that compliance with FAA regulations will automatically satisfy fourth amendment requirements since FAA regulations are intended to promote air safety rather than protect the right against unreasonable searches and seizures.¹⁶ The fact that a helicopter can fly over a person's home at virtually any altitude or angle without violating FAA regulations does not automatically defeat an individual's reasonable expectation of privacy from such observation.¹⁷ Instead, courts must determine whether the helicopter is in the public airways at an altitude at which members of the public regularly travel. The Court found that Riley failed to produce

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... the intrusiveness of an aerial surveillance and the degree of disruption caused are relevant in assessing fourth amendment interests.

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visible.¹⁰ The fourth amendment has never required law enforcement officers to shield their eyes when passing by a home on public thoroughfares, and any member of the public flying in this airspace could have seen everything that these officers observed.¹¹

Ciraolo also argued that the observations were not made from police aircraft engaged in "routine patrol" but rather by officers trained to recognize marijuana for the specific purpose of observing his particular yard, and that these "focused" observations violated his reasonable expectation of privacy. In finding this argument concerning "focused" observations to be constitutionally irrelevant, the Court stated: "We find difficulty understanding exactly how [Ciraolo's] expectations of privacy from aerial observation might differ when two airplanes pass overhead at identical altitudes, simply for different purposes."¹²

In summary, the Court concluded that Ciraolo's expectation that his garden was constitutionally protected from naked-eye observation from 1,000 feet altitude is unreasonable and not one society is prepared to honor. The

Warrantless Naked-Eye Observations From Helicopter at 400 Feet

In a more recent aerial surveillance case, *Florida v. Riley*,¹⁴ the Court approved a warrantless aerial surveillance of a partially covered greenhouse within the residential curtilage from a helicopter at 400 feet. The greenhouse was located 10 to 20 feet behind Riley's mobile home on five rural acres; two sides of the greenhouse were not enclosed but the contents were obscured from view from surrounding property. The greenhouse was covered by corrugated roofing panels that were either translucent or opaque, and two of the panels were missing. A wire fence surrounded the mobile home, and the greenhouse and the property was posted with a "do not enter" sign.

Officers received an anonymous tip that marijuana was being grown on Riley's property and then discovered that the contents of the greenhouse could not be seen from the road. An officer then circled twice over Riley's property in a helicopter at a height of 400 feet and observed with his naked eye marijuana growing inside the greenhouse. A search

evidence that helicopters flying at 400 feet were so rare that he could not have reasonably anticipated the observation of his greenhouse from that altitude and that in fact there was considerable public use of airspace at altitudes of 400 feet and above.¹⁸

Investigators contemplating aerial observations below altitudes specified for fixed-wing aircraft¹⁹ should seek evidence of the frequency and/or routine nature of other such overflights from sources such as local airport managers, flying schools, flight instructors, FAA flight service stations, military installations and aeronautical charts.²⁰

Finally, the Court stated that the intrusiveness of an aerial surveillance and the degree of disruption caused are relevant in assessing fourth amendment interests. In that regard, the Court found there was no interference with Riley's use of his greenhouse or other parts of the curtilage; no "intimate details" connected with the home or curtilage were observed nor was there any undue noise, wind, dust or other threat of injury.²¹ Law enforcement aviators should therefore endeavor to conduct aerial surveillance with a minimum of disruptiveness to the people on the ground.

Warrantless Enhanced Viewing of Chemical Plant From 1,200 Feet

Dow Chemical Company operated a 2,000-acre facility for manufacturing chemicals which consisted of numerous covered buildings, outdoor manufacturing equipment, and piping conduits located between the various buildings that were exposed to visual observation from the air. Elaborate

security around the perimeter of the complex prevented ground-level public views of the facility. When Dow denied a request by the Environmental Protection Agency (EPA) for an on-site inspection of the plant, the EPA employed a commercial aerial photographer, using a standard floor-mounted precision aerial mapping camera, to take photographs of the facility from altitudes of 12,000, 3,000, and 1,200 feet. At all times the aircraft was lawfully within navigable airspace.²² Dow alleged that EPA's warrantless aerial photography violated the fourth amendment.

In *Dow Chemical v. United States*,²³ the Court noted that one "may not legitimately demand privacy for activities out of doors in fields, except in the area immediately surrounding the home."²⁴

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**... factors such as
altitude, sensory
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observations of a
curtilage.**
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In rejecting Dow's claim, the Court observed that the government has greater latitude to conduct warrantless aerial inspections of commercial property because the expectation of privacy that the owner of commercial property enjoys in such property is significantly less than the privacy and sanctity accorded an individual's home.²⁵ While acknowledging

Dow's reasonable, legitimate, and objective expectation of privacy in its covered buildings, the Court held that the warrantless taking of aerial photographs of the open areas of Dow's plant complex from an aircraft lawfully in public navigable airspace was not a search. The Court also emphasized that EPA's aerial observation of Dow's manufacturing facility took place without physical entry.²⁶

The Court also addressed in *Dow* the constitutional significance of using visual enhancement devices to augment sensory faculties. The precision camera used by EPA's photographer was a conventional, albeit precise, \$22,000 commercially available camera commonly used in map making. It had the capability of taking photographs which could be significantly enlarged without loss of acuity and photographs which could provide the viewer with depth perception.²⁷ The photographs actually taken by EPA were not enlarged "to any significant degree"; yet, simple magnification could permit identification of 1/2-inch diameter wires.²⁸

Additionally, the Court found that although the photographs undoubtedly gave EPA more detailed information than could be obtained from naked-eye views, they were limited to an outline of the buildings and equipment and were not revealing of intimate details protected by the Constitution.²⁹ Although the mapping camera possessed the capability of revealing much greater detail than was actually done, the Court stressed that it is not the potential for an invasion of privacy that constitutes a search but rather the actual exploitation of technological advances.³⁰ Thus, since the

camera used was available to the public and its technology was not exploited to reveal intimate details, the Court held that the mere fact that human vision was enhanced somewhat, "at least to the degree here,"³¹ does not give rise to constitutional problems. However, the Court suggested that a search would have occurred had the government used more highly sophisticated surveillance equipment not generally available to the public.

Factors That Determine the Extent of Fourth Amendment Protection

Courts reviewing the constitutionality of a particular aerial surveillance evaluate various factors to determine whether law enforcement intruded into an expectation of privacy that society is prepared to recognize as reasonable. Knowledge of the following

open fields, and it is unlikely that aerial observations of any property or activity in such open fields (regardless of altitude or sensory enhancement) would intrude upon a reasonable expectation of privacy. However, factors such as altitude, sensory enhancement and intrusiveness take on greater significance with respect to observations of a curtilage. Naked-eye surveillance of the curtilage in a physically nonintrusive manner from lawful airspace routinely used by the public was approved in both *Ciraolo* and *Riley*.

For other areas that are not clearly identified as curtilage or open fields, courts look to factors such as public access to the area and the historical protection traditionally given a particular area. For example, the industrial complex in *Dow* was considered to be more like open fields than curtilage.³³

Steps Taken to Conceal Property and Activity From Aerial Observation

A person must take effective action to ensure privacy against the types of aerial observations that can be commonly made by the public. For example, the two missing roofing panels and open sides of *Riley*'s greenhouse meant that his expectation of privacy was not objectively reasonable; *Ciraolo* concealed his backyard marijuana plot from ground-level observation but made no effort to conceal his crop from aerial inspection. A defendant therefore has some duty to "plug the knothole"³⁵ if he wishes to protect privacy. However, he need not take extraordinary measures to protect his curtilage against sophisticated high-tech sensory enhancement devices that could not reasonably be foreseen.³⁶

Location of Observer

The observations in *Ciraolo*, *Dow* and *Riley* were all made from lawful altitudes. Courts generally approve warrantless aerial observations when police are conducting an aerial surveillance from a lawful vantage point. Although maintaining lawful altitudes under FAA regulations during aerial surveillance remains a very important factor, it is not determinative for all fourth amendment claims. Law enforcement aviators cannot assume that compliance with FAA regulations alone will guarantee that a surveillance will not intrude into an expectation of privacy that society is prepared to recognize as reasonable. However, aerial surveillance of open fields even from below FAA minimums would not

“... compliance with FAA regulations alone will [not] guarantee that a surveillance will not intrude into an expectation of privacy....”

factors can help law enforcement officers to evaluate whether a contemplated aerial surveillance will intrude into an individual's reasonable expectation of privacy and, if so, to adjust their surveillance techniques to ensure compliance with the fourth amendment.

Type of Property

The Supreme Court in *United States v. Oliver*³² ruled that the fourth amendment does not recognize an expectation of privacy in

Frequency of Other Aircraft Flights

If law enforcement can produce evidence that there are routine flights over the suspected area at the contemplated altitude, that evidence will tend to undermine the reasonableness of any claimed expectation of privacy.³⁴ This factor is especially significant where the surveillance is made from altitudes below 500 feet which is the lower limit of navigable airspace for fixed-wing aircraft.

constitute a search since such areas are not afforded fourth amendment privacy protection.

Sensory Enhancement Devices

The decision to use a particular enhancement device should depend on the degree of sophistication of that device and the cumulative effect of other factors present in a particular case. For example, if the aerial mapping camera used in *Dow* were exploited to its full capability to photograph a crop of marijuana growing in an open field and the photographs were then highly magnified to reveal the shape of individual leaves, such surveillance would not violate a reasonable expectation of privacy. The fourth amendment does not prohibit officers from augmenting their sensory faculties with enhancement devices that science and technology can afford them.³⁷ However, if the mapping camera were fully exploited to read an individual's mail or observe "intimate details"³⁸ inside a person's home from a hovering helicopter, such surveillance would clearly implicate fourth amendment privacy interests. The observations of curtilage in *Ciraolo* and *Riley* were justified, in part, because they were made with the naked eye. Additionally, the degree to which human vision was enhanced in *Dow* was not considered significant enough to convert the observation of a noncurtilage into a search. Similarly, when considering whether to use a sensory enhancing device during an aerial surveillance, law enforcement officers should consider the general availability of such device on

the open market, the degree to which its capabilities will be exploited, and the location of the aircraft.

Nature and Degree of the Intrusion

In both *Ciraolo* and *Dow Chemical*, the lack of a physical entry was emphasized by the

“**The fourth amendment does not prohibit officers from augmenting their sensory faculties with enhancement devices....**”

Court as an important factor. Likewise in *United States v. Dunn*,³⁹ the Supreme Court held that the fourth amendment did not forbid DEA Agents who had crossed several fences onto Dunn's 198-acre ranch from standing outside a barn in open fields and peering inside with the aid of a flashlight, since the Agents did not physically intrude into the barn. The intensity of an aerial surveillance is also a factor in evaluating whether a reasonable expectation of privacy is implicated. Courts consider the length of time over the property, the number of instances of surveillance, and the number of aircraft used. Any disruption or interference with the occupant's use or enjoyment of the property by noise, wind, dust, etc., is also evaluated.

Conclusion

In planning an aerial surveillance to obtain evidence, the investigator should consider all the factors discussed in this article. By learning the location and circumstances surrounding the property or activity of interest, the law enforcement aviator can choose those aerial surveillance techniques (in terms of altitude, enhancement devices, and degree of intrusion) that will reveal the best view without compromising privacy interests protected by the fourth amendment. **FBI**

Footnotes

¹Zeese, "Aerial Searches For Marijuana," 9 Search & Seizure L. Rep. 33 (1982).

²U.S. Const. Amend. IV provides: "The right of the people to be secure in their persons, houses, papers, and effects against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or Affirmation, and particularly describing the place to be searched, and the persons or things to be seized."

³476 U.S. 207 (1986).

⁴389 U.S. 347 (1967).

⁵This prong looks to the outward manifestations of a person's expectation of privacy and whether he seeks to preserve something as private.

⁶476 U.S. at 211.

⁷Curtilage is generally considered to be the area immediately adjacent to a residence to which the intimate activity related to the home and domestic life are associated.

⁸476 U.S. at 213.

⁹*Id.* at 215.

¹⁰*Id.* at 213.

¹¹*Id.* at 213-14.

¹²*Id.* at 214, n. 2.

¹³*Id.* at 215.

¹⁴109 S.Ct. 693 (1989).

¹⁵*Id.* at 697, n. 3.

¹⁶*Id.* at 697.

¹⁷In a concurring opinion, Justice O'Connor stressed that reasonable expectations of privacy do not simply mirror FAA's safety concerns. *Id.* at 698.

¹⁸*Id.* at 697.

¹⁹FAA regulations specify 1,000 feet over congested areas and 500 feet above the surface in other than congested areas. 14 C.F.R. §91.79 (1989).

Wanted by the FBI

²⁰A flight instructor may be able to testify concerning the location practice areas used for student training, the altitudes used for certain maneuvers and practice of off-airport emergency landing, etc. Five Justices in *Riley* agreed that the reasonableness of one's expectation of privacy depends in large measure on the frequency of nonpolice helicopter flights at 400 feet.

²¹109 S.Ct. at 697.

²²"Navigable airspace" means "airspace above the minimum altitudes of flight prescribed by regulations...." 49 U.S.C.A. App. §1301 (29) (1989).

²³476 U.S. 227 (1986).

²⁴*Id.* at 235-36.

²⁵*Id.* at 236-37.

²⁶*Id.* at 237.

²⁷*Id.* at 250, n. 12.

²⁸*Id.* at 238.

²⁹*Id.*

³⁰*Id.* at 239, n. 5.

³¹*Id.* at 238.

³²466 U.S. 170 (1984).

³³476 U.S. at 236.

³⁴*See United States v. Allen*, 675 F.2d 1373 (9th Cir. 1980) and *State v. Stachler*, 570 P.2d 1323 (1977).

³⁵The Court apparently accepted the State's argument in *Ciraolo* that the defendant failed to "plug the knothole" over his property.

³⁶In that regard, one court stated that the Constitution does not require one to build an opaque bubble over himself to claim a reasonable expectation of privacy. *See United States v. Allen*, 675 F.2d 1373 at 1380 (9th Cir. 1980), *cert. denied*, 454 U.S. 833 (1981).

³⁷*United States v. Knotts*, 460 U.S. 276 (1983).

³⁸In *Riley* the Supreme Court suggested that the result might have been different if "intimate details" had been observed. 109 S.Ct. at 697.

³⁹107 S.Ct. 1134 (1987).

Law enforcement officers of other than Federal jurisdiction who are interested in this article should consult their legal adviser. Some police procedures ruled permissible under Federal constitutional law are of questionable legality under State law or are not permitted at all.



Photographs taken 1985

Donna Jean Willmott,

also known as J. Billings, Marcie Garber, Marcia Gardner, Jean Gill, Dona J. Krupnick, Donna J. Willmott, Donna Jean Willmott, Donna Wilmet, Donna Jean Willmott, Terry Young, and others. W; born 6-30-50 (true date of birth); 12-15-56; Akron, OH; 5'; 105 lbs; small bld; brn hair (dyed blonde); brn eyes; ruddy comp; occ-hospital technician, nurse, lab technician, acupuncturist, housekeeper; remarks: Willmott is known to use false identification and change appearance using wigs and/or dyed hair. Wears corrective lenses. Willmott has reportedly taken martial arts courses. Willmott may be accompanied by Claude Daniel Marks, FBI Identification Order 5034, WHO IS ALSO WANTED BY LAW ENFORCEMENT AUTHORITIES.

Wanted by FBI for CONSPIRACY TO VIOLATE PRISON ESCAPE, DAMAGE AND DESTRUCTION OF GOVERNMENT PROPERTY, RECEIPT AND TRANSPORTATION OF EXPLOSIVES, INTERSTATE TRAVEL TO PROMOTE CRIMINAL ACTIVITY, POSSESSION OF UNREGISTERED FIREARMS

NCIC Classification:

121109PM12AA1009CI10

Fingerprint Classification:

12 9 U OIM 12
2aU OII

I.O. 5035

Social Security Numbers Used:
270-50-0840; 360-42-8763; 360-42-8736;
567-67-9133; 390-18-4818

FBI No. 867 585 EA5

Caution

Willmott has reportedly taken martial arts lessons and has been known to possess explosives and a wide array of weapons and should be considered armed and dangerous. FBI TOP TEN FUGITIVE.



Right index fingerprint



Photograph taken 1985

Claude Daniel Marks,

also known as Claudio Daniel Makowski (True Name), John Chester Clark, Edward Cole, Charles Everett, Michael Hamlin, C. Henley, Dale Allen Martin, Tony McCormick, Michael Prentiss, Brian Wilcox, and others.

W; born 12-31-49 (true date of birth); 2-11-44; 11-1-45; 6-8-50; 2-6-51; 6-26-51; 3-26-55; Buenos Aires, Argentina; 6'; 190 lbs; hvy bld; brn hair; brn eyes; med comp; occ-fast food cook, radio announcer, auto mechanic, printer; scars and marks: mole on neck; remarks: Marks is a martial arts enthusiast and allegedly is knowledgeable of electronics and automobile maintenance, weapons, explosives, and reloading procedures. Reportedly speaks fluent Spanish. Wears contact lenses or glasses. Marks may be accompanied by Donna Jean Willmott, FBI Identification Order 5035, WHO IS ALSO WANTED BY LAW ENFORCEMENT AUTHORITIES.

Wanted by FBI for CONSPIRACY TO VIOLATE PRISON ESCAPE, DAMAGE AND DESTRUCTION OF GOVERNMENT PROPERTY, RECEIPT AND TRANSPORTATION OF EXPLOSIVES, INTERSTATE TRAVEL TO PROMOTE CRIMINAL ACTIVITY, POSSESSION OF UNREGISTERED FIREARMS

I.O. 5034

Social Security Numbers Used:
551-80-8393; 129-62-4064; 287-03-2916;
299-05-3771; 520-82-1220; 568-75-8212;
601-34-2858; 120-68-4648; 547-67-2897;
608-98-2730; 561-67-2823; 692-42-9631;
556-31-3362; 015-65-0510; 525-36-4427

FBI No. 83 249 FA4

Caution

Marks has been trained in the martial arts and has been known to be in possession of explosives. He should be considered armed and dangerous. FBI TOP TEN FUGITIVE.



Right thumbprint

The FBI Laboratory's DRUGFIRE Program

The FBI's DRUGFIRE program is a regional firearms evidence clearinghouse being developed to link drug-related shooting incidents in the Washington, DC, metropolitan area. DRUGFIRE is an example of existing technology being employed to help solve a current problem in a practical way. As host agency, the FBI will provide an electronic data base and a computer network for firearms examiners in participating laboratories for use in interrelating these crimes on the basis of physical evidence and investigative data.

Information on seized firearms, bullets retrieved from the bodies of victims, expended cartridge cases, and even unfired ammunition will be entered into the data base, along with basic investigative data, such as date and location of a crime, identity of suspects, type of drugs involved, and vehicles observed by witnesses. This information will be correlated in many combinations of variables so that it can be arranged into a format reflecting crimes or incidents with a high probability of being linked.

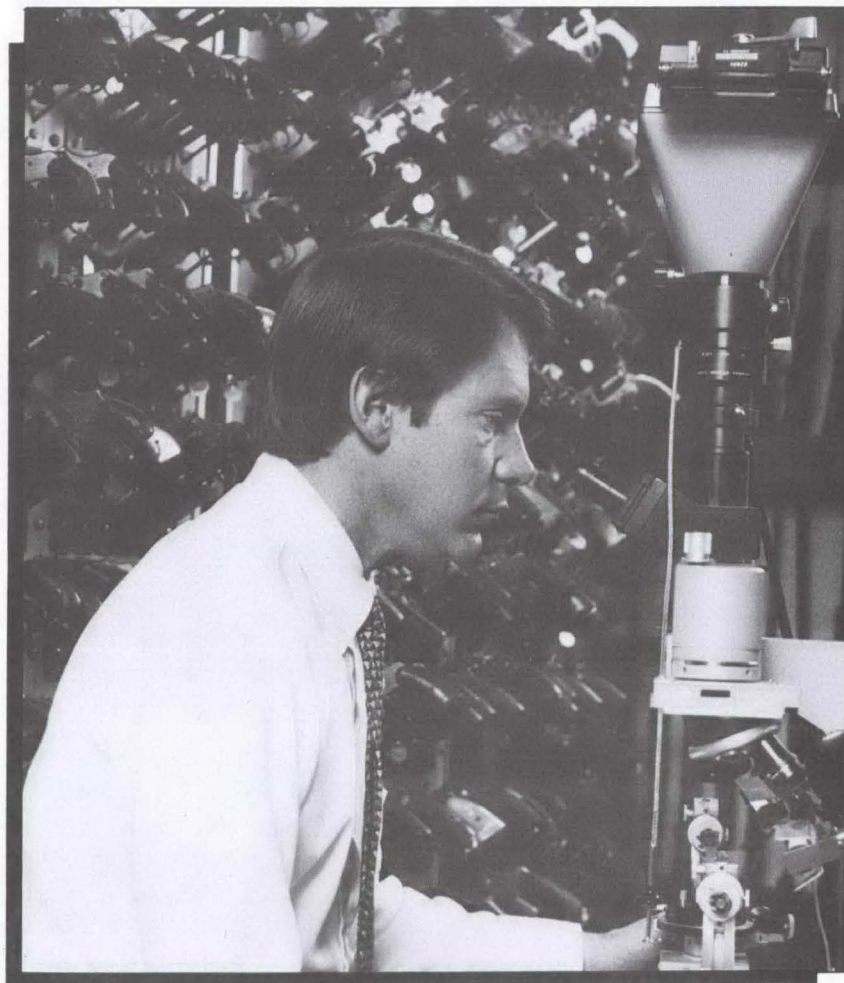
This innovative approach will make it possible for participating forensic laboratories to provide unprecedented services to their client investigative agencies. When a shooting investigation is launched, for example, it will be possible to provide immediate lead information regarding other open cases or suspects that have a significant likelihood of being

related to the new case based on similar physical evidence. As the investigation develops, physical evidence from other apparently related cases can be forwarded for comparison and possible identification.

DRUGFIRE is a novel approach that could logically be implemented in other metropolitan areas and modified to include any type of firearms-related viola-

tions. It is anticipated that the system will be operational by mid-1990.

FBI



For more information on the DRUGFIRE Program, contact John H. Dillon, Jr., or Robert W. Sibert of the Firearms-Toolmarks Unit, Scientific Analysis Section, Federal Bureau of Investigation, Washington, DC 20535, 1-202-324-4378.

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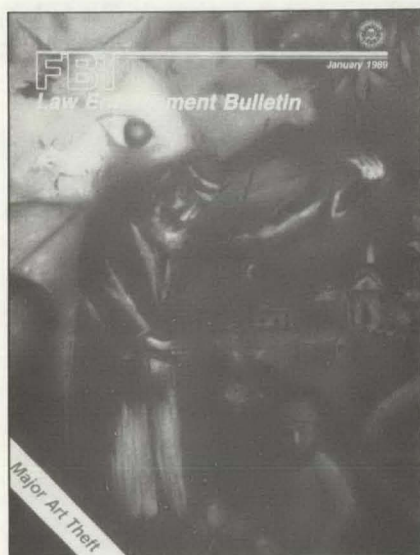
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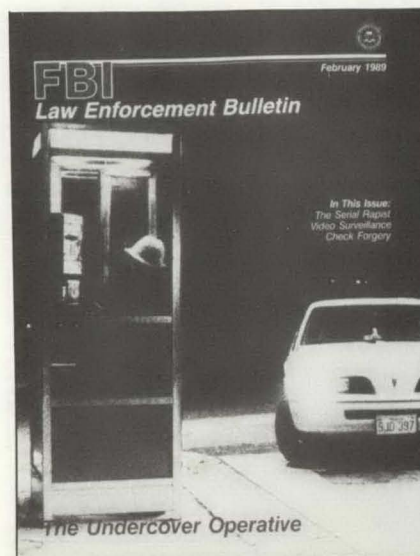
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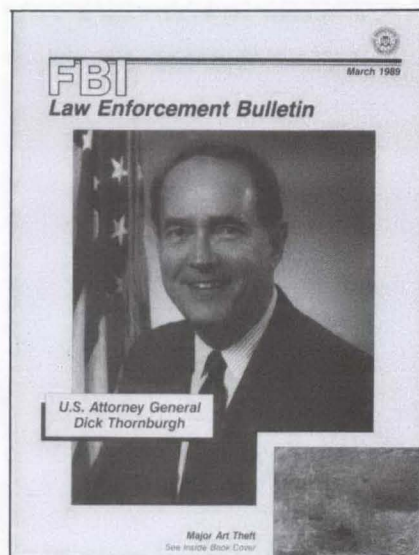
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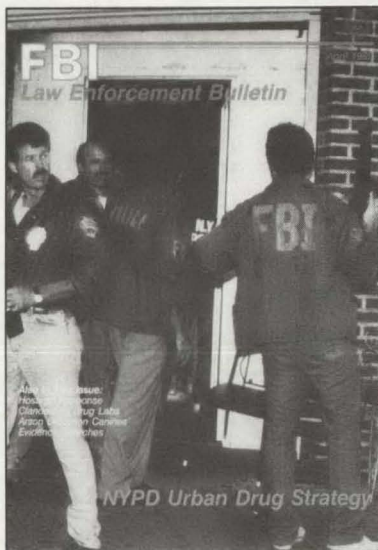
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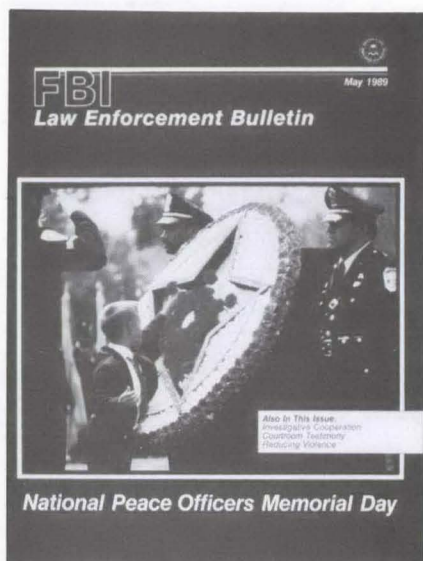
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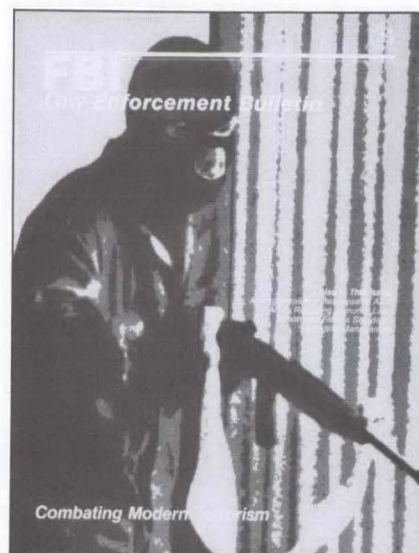
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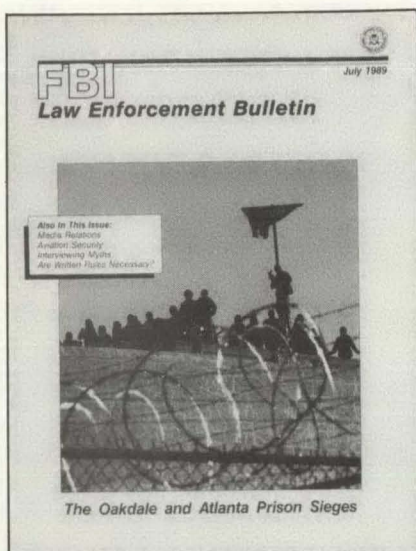
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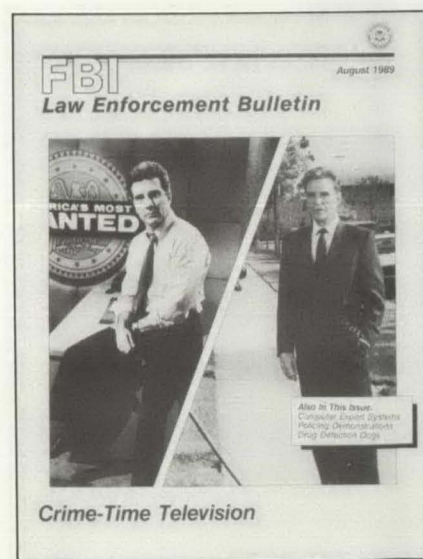
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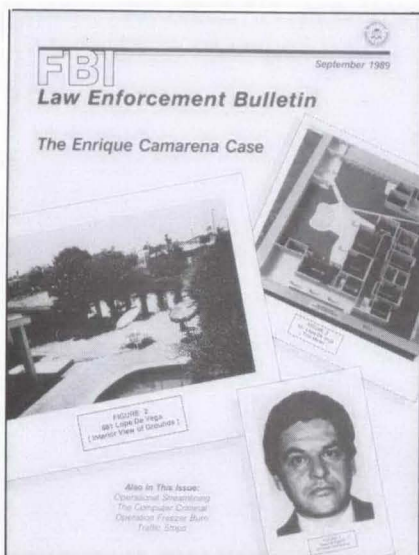
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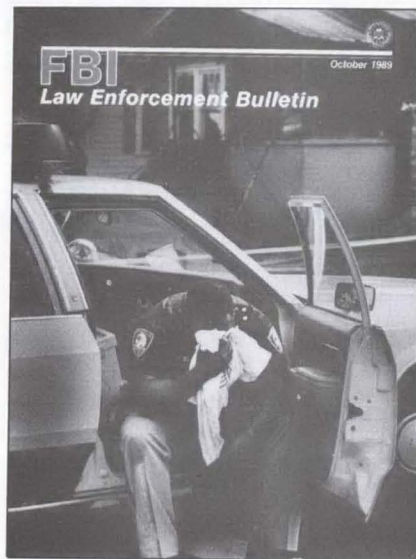
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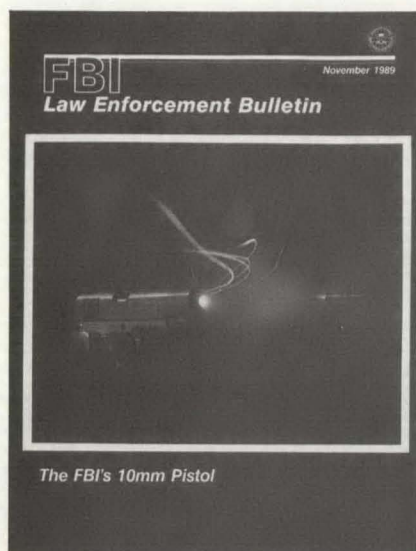
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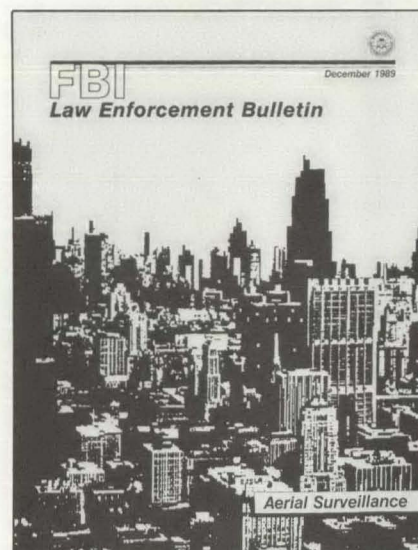
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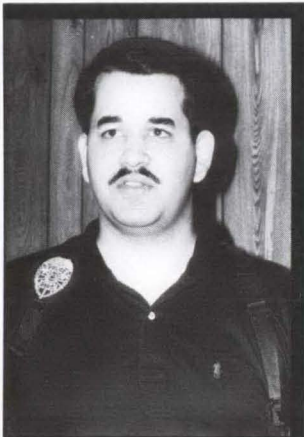
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The Bulletin Notes

Law enforcement officers are challenged daily in the performance of their duties; they face each challenge freely and unselfishly while answering the call to duty. In certain instances, their actions warrant special attention from their respective departments. The *Bulletin* also wants to recognize their exemplary service to the law enforcement profession.



Officer Bagley

Off-duty Reserve Officer Stephen S. Bagley of the Parkville, MO, Police Department was alerted to a vehicle that had stalled at a nearby railroad crossing. Officer Bagley rushed to the crossing and found a woman frantically attempting to maneuver her car off the tracks as a train quickly approached. While another officer alerted the train to slow down, Officer Bagley removed the driver from the car and pulled her to safety. Seconds later, the train struck the car, carrying it several hundred feet down the track.



Officer Yarbrough

Officer Dewey Yarbrough of the Zebulon, GA, Police Department was dispatched to an auto accident involving multiple injuries. When he arrived at the scene, he discovered a vehicle that had veered off the road and struck a tree. Inside the burning vehicle, he found three occupants who had sustained severe injuries. He removed two young men from the car and took them to safety. Then, with the help of a bystander, Officer Yarbrough removed the vehicle's front seats to reach a third youth trapped on the rear floor board.

After arriving at the scene of one in a series of random shooting incidents, Capt. Edward J. Smith of the Oakland, CA, Police Department observed the driver of a vehicle stopped nearby watching rescue workers clear the area. Captain Smith cautiously approached the car and ordered the driver to exit. At this point, the man attempted to escape on foot. Captain Smith followed in pursuit, overpowered the man, and after a brief struggle during which a handgun fell from the suspect's clothing, took him into custody. The suspect, whose identity was unknown prior to arrest, has been charged with multiple homicides.



Captain Smith

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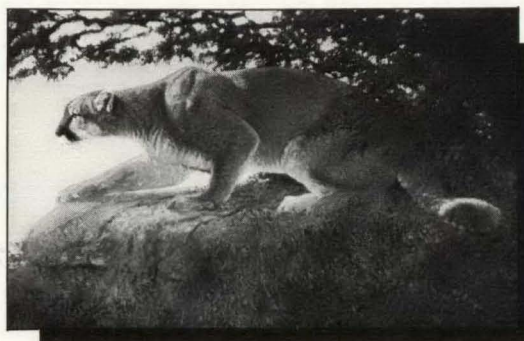
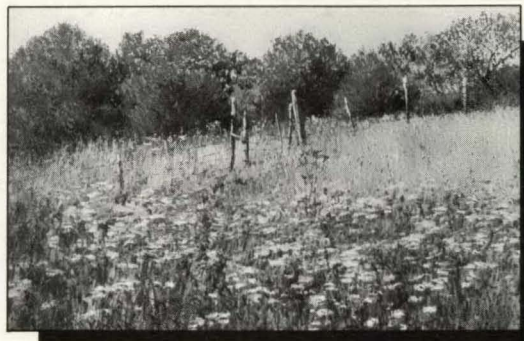
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Address Correction Requested

Major Art Theft

Between May 8, 1989, and May 9, 1989, 41 paintings by Charles Beckendorf, valued at approximately \$150,000, were stolen from an art gallery in Fredricksburg, TX. Pictured are three of those paintings.

Any information concerning this theft should be directed to the FBI, San Antonio, TX, (512) 225-6741. Refer to file number 87A-SA-32990. You may also contact the Fredricksburg Police Department, (512) 997-7585; the Texas Rangers, Kerrville, TX, (512) 257-7876; or the National Stolen Art File, FBI Laboratory, Washington, DC (202) 324-4434.



Top: Texas Milkweed, acrylic on canvas, 24" x 30".

Middle: Prowling Cougar, acrylic on masonite, 24" x 30".

Bottom: Lake Steinhagen, acrylic on watercolor board, 15" x 24".