Documented Copy

JUNE 1973

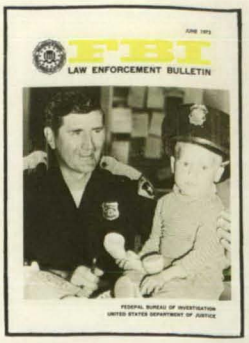
FBI

LAW ENFORCEMENT BULLETIN

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

JUNE 1973

VOL. 42 NO. 6



THE COVER — *The cover photograph, taken by Gerald W. Silver, Deseret News, Salt Lake City, Utah, shows a lost child being entertained by an officer of the Salt Lake City Police Department while the youngster's parents are located and notified.*

FBI

LAW ENFORCEMENT BULLETIN

Published by the
FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE
Washington, D.C. 20535

CONTENTS

To All Law Enforcement Officials . . .

President Richard M. Nixon announced on April 27, 1973, that William D. Ruckelshaus would succeed L. Patrick Gray, III, as Acting Director of the FBI.

Previously, Mr. Ruckelshaus had been in charge of the Environmental Protection Agency (EPA). As EPA Administrator, to which position he was appointed by the President on December 2, 1970, Mr. Ruckelshaus' principal duties concerned the enforcement of Federal laws regarding air and water pollution, pesticides, radiation, solid waste disposal, and the water supply.

Mr. Ruckelshaus, born on July 24, 1932, in Indianapolis, Ind., served in the U.S. Army from 1953 until his discharge as a sergeant in 1955. Thereafter, he resumed his education at Princeton University in New Jersey, where he received a B.A. degree in 1957. Later, he attended Harvard University School of Law, Cambridge, Mass., and was graduated with an LL.B. degree in 1960. He was admitted to the Indiana Bar in 1960 and is a member of the American, Indiana, Indianapolis, and Federal Bar Associations.

The new Acting Director of the FBI was Deputy Attorney General and Chief Counsel of the Indiana Attorney General's Office, 1960–65; served as Attorney to the Indiana State Senate, 1965–67; and was elected to the Indiana House of Representatives in 1967, where he was its Majority Leader. The following year, Mr. Ruckelshaus was an unsuccessful candidate from Indiana for the U.S. Senate.

Hon. William D. Ruckelshaus.

In 1969, Mr. Ruckelshaus came to the U.S. Department of Justice, Washington, D.C., as head of the Civil Division, where he supervised a staff of 200 lawyers and had responsibility for managing some 19,000 cases for every department and agency of the Federal Government.

Mr. Ruckelshaus is married to the former Jill Elizabeth Strickland, and they have five children: Catherine Kiley, Mary Hughes, Jennifer Lea, William Justice, and Robin Elizabeth. He holds membership in the Audubon Society and the American Political Science Association.

Indiana State Police Film Productions

By
ROBERT K. KONKLE
Superintendent,
Indiana State Police,
Indianapolis, Ind.

THAT UNIQUE CAPABILITY

The channels of communication between police and public might best be described as "lifelines" on the strength of which rests either the survival or loss of mutual understanding and support.

As a part of total law enforcement operations, special voluntary efforts to tell the public how it functions and what it is doing are relatively new police ventures.

Not so very long ago, police administrators gave scant attention to ideas that press and public should be provided with more information than was asked for or demanded. Although safety education efforts were, for the most part, given their early due, lawmen tended to regard expanded public information efforts and extension of services and courtesies to the press with some suspicion.

EDITOR'S NOTE: Material and articles published in the FBI Law Enforcement Bulletin are solely for the information and assistance of law enforcement members. While brand names and companies may be mentioned from time to time, this is done in a strictly objective manner to help present stories in their entirety from authoritative sources. In such instances, publication of the article in the Bulletin should not, under any circumstances, be construed as an endorsement or an approval of any particular product, service, or equipment by the FBI.

In recent years, however, as American law enforcement strives to attain professional status, police administrators are becoming keenly aware of the fact that an effective press and public information program has become an operational necessity.

Maintaining closer liaison with the public leads to the recognition that public information techniques developed in the private sector can be of equal value to law enforcement operations. In business, success or failure depends on public awareness and acceptance of the services or commodities being produced. Service and protection are the products of law enforcement. The better police are able to explain how these services are performed, the stronger the bond of understanding becomes between the police and the public.

Informational Programs

Since 1933, when it was created and empowered with statewide traffic and criminal jurisdiction, the Indiana State Police has given special attention to programs and efforts designed to keep Hoosier citizens aware of the department's enforcement efforts and to offer representative community groups safety education services and other kinds of informational programs.

The foundation of Indiana State Police community relations begins with an active and energetic press relations effort. In the department's administrative ranks, the staff of the public information section, in concert with the superintendent's office, maintains daily liaison with the news media in the Indianapolis area.

Telephone and personal contact with representatives of the news media are reinforced with periodic statewide distribution of news releases concerning department enforcement and service operations.

Supplementing press relations efforts emanating on the general headquarters level, line commanders throughout the department's 19 district field installations maintain daily contact with community news agencies whose primary interest lies in topics of local interest.

Full-time working members of the Hoosier news media, and out-of-State reporters whose "beat" may include parts of Indiana, are entitled to receive press credentials, renewable annually, issued by the Indiana State Police. Troopers are required, within the bounds of reason, to assist reporters at emergency scenes or under other similar circumstances when the credentials are presented.

Parallel to these efforts to maintain positive lines of communication between the department and the press, emphasis is also applied to establishing direct contact with the public.

In 11 of the largest State police districts there is a public information officer with the rank of sergeant whose primary responsibility is to meet with community groups to present a complete range of State police information and education programs.

In addition, in every district installation, there are troopers designated as assistant public information officers. Depending on the volume of community requests for programs, they may be assigned to these duties either part or full time.

Earlier in the department's history, these specialists were referred to as "safety education officers." Although much of their work in the local communities concerns traffic and pedestrian safety, they are also trained and prepared to meet the increasing public demand for information concerning the entire crime spectrum, particularly narcotic and drug abuse.

Their expertise and knowledge of the department's total enforcement operations is more than coincidental—it is both planned and vital. Their attention to public needs for information releases criminal investigators and other enforcement specialists to concentrate on their own particular efforts.

Indiana State Police public information officers provide an important and effective part of the department's total public service obligation. In a year's time they will meet with nearly a half-million Hoosier citizens to provide educational services and to explain department operations.

Equally important, their presence serves as a viable and direct public contact that enables individual citi-

"In a year's time . . . [Indiana State Police public information officers] will meet with nearly a half-million Hoosier citizens to provide educational services and to explain department operations."

zens to ask questions about their State police, to offer advice or suggestions pertaining to local problems, and to respond to complaints.

Films

In recent years, Indiana State Police public information efforts have been reinforced through a concept and a special capability that may be unique in the annals of American law enforcement.

Drawing on basic talent available within the ranks of the department, the Indiana State Police has, for more than a decade, been able to produce its own motion picture films.

Films, which have long been a major source of public entertainment, now play an increasingly important role in public education and information throughout the world. For countless millions of daily viewers in theaters, classrooms, community organizations, and via television, motion picture films provide "the next best thing to being there."

The Indiana State Police film experience originated in the early 1950's as the department's audio-visual aids technicians began to provide television station news departments with 16 mm. film clips shot at disaster scenes or other kinds of newsworthy events.

The next step was to begin providing all television stations with filmed public service announcements concerning traffic safety and film clips promoting trooper recruiting programs.

In 1958, based on their accumulated experience in producing these short film clips, department personnel produced the first information film expressly designed for showing to community groups.

"State Police Cadet" was a 29-minute film that explained the department's recruiting program and how young men are selected and trained to become troopers. It was written and directed by former Staff Captain Lloyd D. Hickerson, commander of the public relations division, now retired from the force. It was also the first department film shot in color.

In March 1960, following an airline crash in southern Indiana that claimed 63 lives, Captain Hickerson and his staff, shooting film at the scene to provide to television stations, decided to produce a film that would attempt to show how the crash occurred and to tell the indepth story of emergency efforts at the scene and the official investigation procedures.

"Operation Disaster," a 29-minute color production, became the first Indiana State Police film to gain national attention for the department. In subsequent Federal hearings at Los Angeles, the film provided a valuable narrative for investigators exploring the facts and evaluating testimony concerning the disaster.

"Operation Disaster" still serves today as an important training and information aid to official community agencies who may one day face the prospect of providing emergency services in case of similar calamities.

Following the retirement of Captain Hickerson in 1963, the department continued to concentrate on producing filmed public service announcements and providing television news media with film clips of newsworthy incidents.

Then, in 1965, following the Palm Sunday tornadoes that claimed nearly 300 lives and caused millions of dollars destruction throughout northern and central Indiana, State police film crews under the direction of Lt. David R. Levendoski filmed an account of how the many storms progressed, the paths each of the several twisters took, and how the survivors set out to rebuild their devastated homes and communities.

Lieutenant Levendoski.

"Death Out of Darkness" is a film that also continues to provide Hoosier citizens with valuable data describing how tornadoes are spawned and what kinds of protective measures should be taken. The film has recurring value each spring as the tornado season gets underway.

Lieutenant Levendoski, now commander of the department's public information section, credits his former mentor, Captain Hickerson, for teaching him the skills necessary to write and direct information and documentary films.

In 1966, the Indiana State Police introduced American law enforcement to a new concept in traffic speed timing with a device called "Vascar."

Paralleling efforts to show prosecutors, the courts, and news media that Vascar was a better and more efficient traffic enforcement tool, the department produced a film that demonstrated to viewers exactly how it worked and how it would be used by troopers patrolling Hoosier highways.

The device, now employed by police agencies throughout the world, gained much of its initial recognition and acceptance from showings of the film "Vascar." It was recently estimated that, since the film was released for public showing in 1966, it has been seen worldwide by upwards of 40 million people.

In 1968, the department produced a film entitled "Trooper" designed to support trooper recruitment efforts and also to help the public see and understand the many things that a trooper—or any police officer—might encounter on just one "routine" patrol. It also marked both the end and the beginning of a significant point in the production of Indiana State Police films.

The efforts of every law enforcement agency, either routine or in special categories, are affected by the balances between budget allowances and priorities.

In the Indiana State Police, as in all police agencies, the highest priorities are those of traffic and crime. Toward the efforts of both goes the bulk of budget expenditures. As these primary responsibilities grow larger, funds for support programs and projects dwindle.

In 1968, the cost of producing a film had reached nearly $5,000. Although that figure represented only a fraction of the cost to have a film made by commercial firms, it had become too expensive for our own budget.

Business Community Cooperation

In 1969, following my appointment to the post of superintendent, I wanted to retain, if possible, the department's capability to produce its own information films. Why not, I suggested, enlist the aid of legitimate business and industry?

As a matter of background information, there has been long-standing resistance in most areas of law enforcement to accept little beyond tacit support from the private sector. These are policies founded on the premise that financial or other kinds of direct aid from business and industry to law enforcement also carries with it implications of police endorsement of products and profit-making organizations.

Although the policy has merit, I also felt that business and industry have a shared responsibility with law enforcement in matters of public health and safety.

There had been some precedent set in our department regarding aid from the business community. For many years, one of the State's largest insurance firms has annually donated their billboard space to eye-catching traffic safety messages alongside Indiana's major highways.

The problem came to a crux when Lieutenant Levendoski suggested that a need existed for a definitive public information film dealing with farm safety. He suggested that we attempt to find a reputable sponsor who would agree to underwrite the essential film processing costs. In return, the film would credit the sponsors for their cooperation.

I agreed and set out to find a sponsor. Within a few days we had reached agreement with representatives of Farm Bureau Insurance. They were pleased to have the opportunity to be able to offer us assistance, and we were anxious to produce a quality film that would justify their cooperation.

Early in 1971, we released for public showing the film, "Seeds of Safety." It graphically demonstrates the everyday hazards that farmers and farm families must face.

Since release of the film, copies have been purchased by farm organizations, business firms, governmental agencies, and universities throughout the Midwest and as far west as Colorado and Utah. Agricultural authorities in New Zealand have recently ordered copies of the film.

In 1972, the National Safety Council presented the Indiana State Police and Farm Bureau Insurance with its highest award, "The Award of Honor," designating the "Seeds of Safety" film as one of the Nation's most outstanding public safety efforts.

Most significantly, the film represented a common denominator linking the efforts of law enforcement through the support of business and industry.

Based on success of the farm safety film and by careful study of other public safety needs, the department produced a bicycle safety film in 1972. "On a Bicycle Built for You" is, however, far from a routine cycling safety film. It is aimed primarily at the adult cyclist and stems from the fact that adult bicycle sales in the United States have surpassed the number of new automobiles sold.

The film tells the story of a middle-aged couple who take up cycling for

"Actors" receive instructions prior to "shooting" a scene from the safety film, "On a Bicycle Built for You."

"The efforts of every law enforcement agency . . . are affected by the balances between budget allowances and priorities."

". . . a common denominator [has been established in film making] linking the efforts of law enforcement through the support of business and industry."

the first time since their childhood. It demonstrates the exercise benefits available and, at the same time, reminds both adult and juvenile riders of the traffic laws and commonsense riding practices that apply to all cyclists. It also stresses the advantages of planned community bikeways.

The film was sponsored by the Huffman Manufacturing Co., Dayton, Ohio, one of the Nation's largest bicycle manufacturers. Since its release, the film has gained the endorsement of the National Safety Council and the Bicycle Institute of America.

"One Week Last Summer," a film concerning the joint Indiana State Police-Kiwanis International Career Camp, was released late in 1972. Sponsored by the Indiana District of Kiwanis International, the film tells the story of a summer camping program for Hoosier high school youngsters who are given the opportunity to learn about the career opportunities that will one day be available to them in all the jurisdictions of law enforcement.

"The Busters," a film completed this year and now available for showing, is about narcotic and drug abuse. But, as the film explains, it makes no attempt to study the problems of cause and rehabilitation. Instead, it presents the story of how trained and dedicated police officers, at the risk of their own lives, seek to identify and apprehend the drug peddlers whose victims are the drug user. The film was sponsored by Hook Drugs, Inc., a Hoosier drugstore chain.

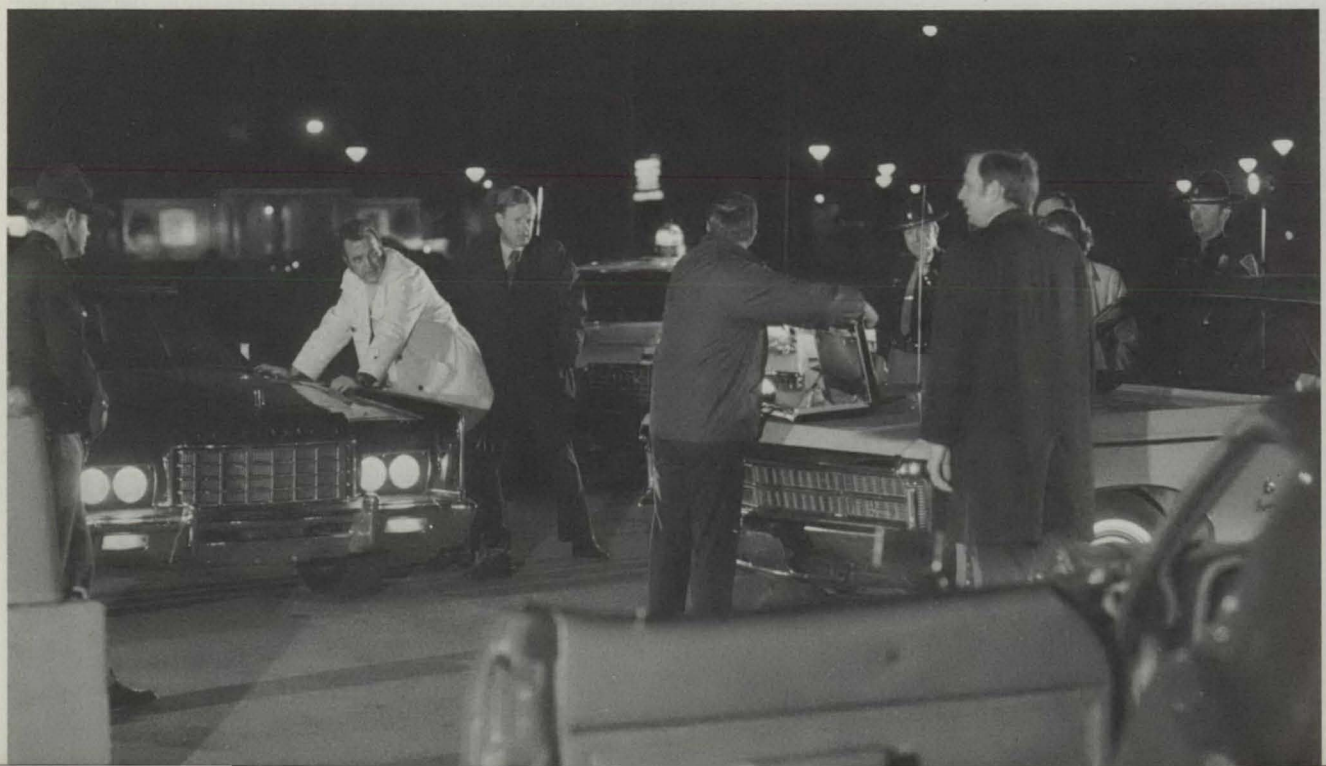
Currently in production is a film, to be entitled "RV," aimed directly at the nationwide boom in sales of recreational vehicles (RV's). The film stresses the importance of trading with reputable dealers, installing proper hitch connections, over-the-road safe towing practices, and the laws that apply to owning and operating travel trailers, truck campers, motor homes, and boat trailers. Back for a repeat appearance as sponsor will be Farm Bureau Insurance.

In the planning stages for this summer is a film dealing with the operation of motorcycles. The motorcycle scene is still a controversial one. But, in light of the fact that cycle sales are increasing at a tremendous rate, it is an area that law enforcement and the public—regardless of personal viewpoints—must examine for the safety and well being of all riders and motorists.

The terms of film sponsorship are simple and direct. The sponsor underwrites basic technical costs. In addition, we ask that the sponsor also purchase 12 copies of the film for distribution to our public information officers in the field. In return, the department provides the sponsor with a copy of the script for approval and suggestions. In the film titles, a panel appears listing the name of the sponsor and crediting the firm for making the production possible.

Lieutenant Levendoski writes and directs each production and calls on

Officers of the Indiana State Police rehearse an apprehension scene during the filming of "The Busters."



Indiana State Police film director checks planned scene as cameraman awaits approval.

his fellow officers in the department, personal acquaintances, and the many friends of the Indiana State Police to play certain roles or provide services that may be required in each film.

In the recently completed drug film, for example, casting required the help of 38 people. The list of "actors" who gladly donated their time included: department police and civilian employees; professional business people; college and high school students; and the friends and family members of our public information staff.

In addition, a local automobile dealer loaned the film crew a car that appears in the film, a motel owner allowed his parking lot to be used in another scene, a local fire department provided an aerial-ladder truck to use as an elevated camera platform, and local police officers appeared in several film sequences.

Each film production requires a great deal of planning and even more work; but, the results are proving the worth of our efforts.

Running time of Indiana State Police films is usually about 15 minutes. This length is best suited for officers presenting ½- or 1-hour community programs.

Purchase of Indiana State Police films is on a nonprofit basis. Generally, the films can be purchased for less than $100, and any extra charges are for handling purposes only. Inquiries concerning film purchases may be directed to the Indiana State Police, Attention: Lieutenant Levendoski.

"Each film production requires a great deal of planning and even more work; but, the results are proving the worth of our efforts."

There are many professionally produced films available which are quite good and, when our budget permits, we are able to purchase one or more copies. Too often, however, we cannot afford the costs involved.

Production of our own films, with the support of business and industry, enables us to show Hoosier citizens the efforts being made by their own State and local police. We can provide information to people who have a right to be informed. We can provide instruction that may save lives and property, as well as provide solutions to serious problems.

It is, indeed, a unique capability.

The FINDER prototype fingerprint reader system.

". . . 'Can a machine duplicate . . . [the] remarkable faculties of the human eye and brain?' "

The State of Development of the FBI's Automatic Fingerprint Identification System

The following is a paper by Special Agent Conrad S. Banner, Chief, Automation and Research Section, Identification Division, Federal Bureau of Investigation, Washington, D.C. It was prepared for the Project SEARCH International Symposium on Criminal Justice Information and Statistics Systems held at New Orleans, La., in October 1972, and is reprinted from the proceedings of the symposium with the permission of the SEARCH Project Coordinator. In the interest of currency, certain information has been updated.

PART I

Introduction—The Challenge

We have long taken for granted the ability of a fingerprint technician to classify fingerprints by their general ridge contours and identify them by their distinctive ridge detail. This feat is made all the more remarkable by the fact that in doing this he must make allowances for inconsistencies in the inked fingerprint impressions caused by such things as over- and

". . . the late John Edgar Hoover . . . assessed the value of a fully automated fingerprint identification system in these words, 'Eventual success in this project will constitute the most significant advance in law enforcement since the adoption of fingerprints as a means of identification.' "

under-inking, smudging, differences of positioning, mutilation by cuts and scars, and distortion caused by the pressures used in recording the prints.

The question arises: *"Can a machine duplicate these remarkable faculties of the human eye and brain?"* Over the past several years the FBI has pursued a program of research and development in an effort to find the answer to this question. The purpose of this paper is to report the progress we have made in resolving the question.

The FBI's decision to undertake a program of research and development was prompted by the ever-increasing demands being placed upon the FBI Identification Division for fingerprint processing services. Since its establishment in 1924 as the Nation's clearinghouse for fingerprint records, the volume of fingerprint card submissions has grown until now the Division receives between 20,000 and 30,000 fingerprint inquiries each day which must be searched against a file of arrest fingerprint cards representing over 20 million persons. This enormous task is presently accomplished manually by a staff of fingerprint technicians and clerks numbering approximately 3,300.

In order to meet its growing responsibilities and at the same time increase operating efficiency, thereby saving the Government money, the FBI in 1965 decided to embark on a program of research and development to find a way to automate its operations. Early, and wisely, the FBI sought and received the technical collaboration of the National Bureau of Standards. Since that time the National Bureau of Standards has not only participated in planning and monitoring the research program, but has made major technological contributions to the project as well.

Steps Taken To Meet the Challenge

The first task undertaken under the program was to examine the problem of automatic fingerprint identification and survey the available technology to establish a logical plan of attack. It was determined that this difficult and complex problem could be broken down into four more manageable components: (1) *reading*, the entry of fingerprint data into a computer; (2) *registration*, the normalization of the fingerprint data to a standard reference position; (3) *classification*, the assignment of the fingerprint data to a class or category for filing and retrieval purposes; and (4) *matching*, the comparison of the distinctive minute characteristics of one fingerprint with those of previously computerized fingerprints for the purpose of identification. Further, it was determined that in view of the technology then available, the two most critical areas to be addressed were reading and matching.

Therefore, in June, 1967, contracts were awarded to Cornell Aeronautical Laboratory, Inc. (now Calspan Corp.), Buffalo, N.Y., and the Autonetics Division of North American Aviation, Inc. (now Rockwell International), Anaheim, Calif., to demonstate the feasibility of automatically reading and recording the identifying characteristics of fingerprints appearing on inked fingerprint cards. The National Bureau of Standards had earlier begun work on devising computer logic and programs that would take the data generated by an automatic fingerprint reader and match it with previously computerized fingerprint data.

By 1969 both Cornell Aeronautical Laboratory and Autonetics had demonstrated the capability of reading fingerprint cards of good quality through the use of optical flying-spot scanner and computer equipment. In 1970, Cornell Aeronautical Laboratory performed additional work to demonstrate that such equipment could read fingerprints of poorer quality, e.g., those with smudged or broken ridge structure. By 1970, the National Bureau of Standards had developed and successfully demonstrated computerized procedures for matching fingerprint data read by the Cornell Aeronautical Laboratory and Autonetics experimental model equipment,[1] and had already launched into experiments to devise automatic procedures to register and classify fingerprints.

Based upon these successes, in September, 1970, the FBI contracted with Cornell Aeronautical Laboratory to design and construct prototype automatic fingerprint reader equipment incorporating the theories and procedures developed during the research program.[2] The prototype equipment was completed in August, 1972, and is presently undergoing extensive testing and evaluation at the FBI Identification Division in Washington, D.C.

The FINDER System

The prototype automatic fingerprint reader is called "FINDER," a contraction of *fin*gerprint rea*der*. Figure 1 is a drawing of the system with each major unit labeled. A functional block diagram of the equipment is shown in figure 2.

In figure 1, an operator is shown sitting at the *card-moving mechanism* loading standard fingerprint cards into card-holding trays. The operator places the trays onto a motor-driven belt which transports them to the scanner reading station. Figure 3 illustrates further details of the card-moving and scanner mechanisms. Each rolled fingerprint is scanned as the card-moving mechanism positions it under the scanner reading head. Once the card is completely scanned, the card tray is returned to the operator for unloading of the scanned card and reloading of a new card.

The *scanner* is a precision flying-spot scanner. This unit utilizes a moving ("flying") small spot of light (approximately .001 inch in diameter) which makes consecutive horizontal sweeps across the fingerprint working its way, line by line, from the top to the bottom of the print. As this tiny beam of light sweeps across the fingerprint, it encounters white (uninked), black (inked), and gray (partially inked) areas. The light beam is reflected when it passes over white areas, it is not reflected by black areas, and it is partially reflected by gray areas. Detectors that are sensitive to light record the variations of reflection encountered and pass this informtion on to the preprocessor.

The *preprocessor* contains special high-speed computer logic which takes the data generated by the scanner and produces an enhanced representation of the fingerprint. It does this by applying continuity logic to locate fingerprint ridges and then reinforcing their structure by eliminating small

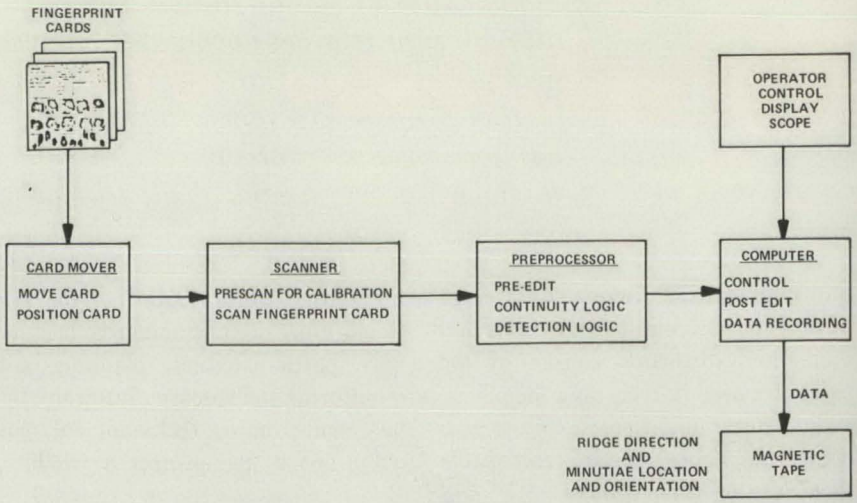
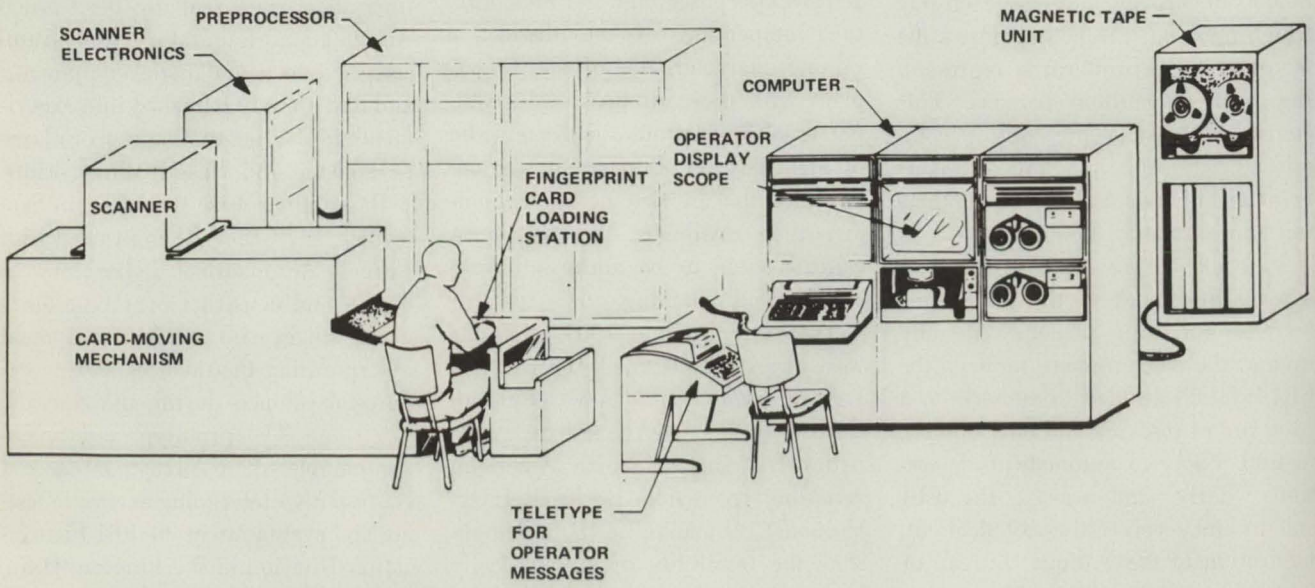


Figure 2.—A functional block diagram of the system's major units.

Figure 1.—A drawing of the system with each major unit labeled.



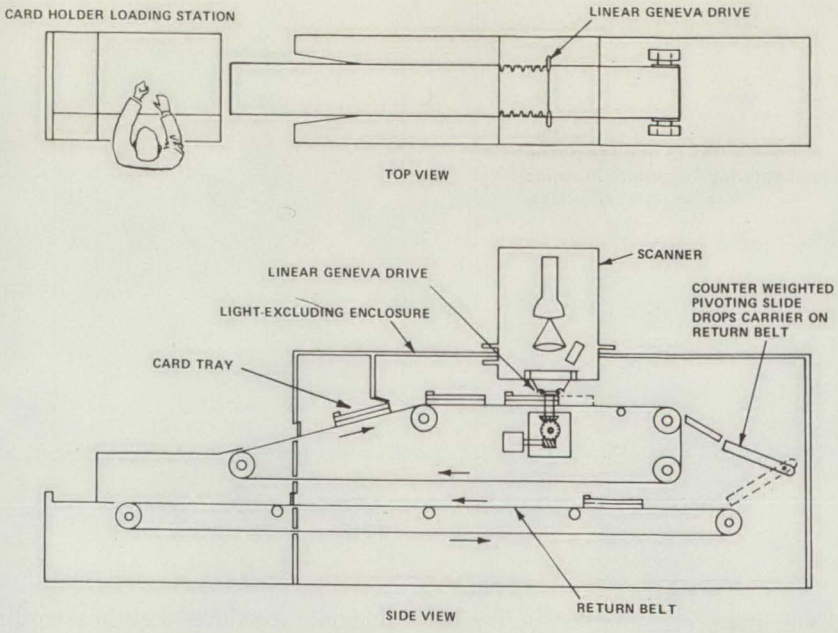


Figure 3.—Further details of the card-moving mechanism and scanner.

A. INKED FINGERPRINT **B. ENHANCED FINGERPRINT**

Figure 4.—Comparison of inked print and enhanced print showing enhancement of ridge structure by preprocessor.

Figure 5.—An enhanced fingerprint representation with ridge direction data superimposed.

"The prototype automatic fingerprint reader is called 'FINDER,' a contraction of *fin*gerprint reader."

breaks resulting from improper inking, pore holes, and other imperfections in the inked fingerprint impression which was scanned; by separating ridges that are blurred; and by eliminating blank and smudged areas. Figure 4A shows a fingerprint as it appears on an inked fingerprint card, and figure 4B shows the same fingerprint as it appeared on the operator display scope after being enhanced by the preprocessor.

The preprocessor uses the enhanced fingerprint representation to derive two types of information: (1) *ridge direction data,* which are later used for registration and classification purposes; and (2) *minutiae data,* which are subsequently used for matching purposes. The preprocessor collects ridge direction data by sampling the average direction of ridge flow at selected intervals across the print. Figure 5 shows the enhanced fingerprint representation with ridge direction data superimposed, as seen on the operator display scope.

The preprocessor also uses special detection logic to collect information regarding the distinctive minute details of the fingerprint, which are called "minutiae." Information on two types of minutiae is collected by

"The preprocessor uses the enhanced fingerprint representation to derive two types of information: (1) *ridge direction data* . . . and (2) *minutiae data*. . . ."

the preprocessor—ridge endings and bifurcations (forks) in the ridges. The locations of these minutiae in an X–Y coordinate system and the angles (θ) they make in relation to the X axis are determined and recorded. This coordinate system is illustrated in figure 6 using a ridge ending; however, since if one examines the negative of a photograph of a fingerprint, a bifurcation appears as a ridge ending, the same coordinate system can be and is used for bifurcations. Figure 7 shows a graphic plot of minutiae detected by the FINDER system. Figure 8 shows an enhanced fingerprint as seen on the operator display scope of the system with each recorded minutia indicated by a small white circle.

The preprocessor passes the detected ridge direction and minutiae information data (X, Y, and θ measurements) on to the computer. The preprocessor accomplishes all its functions in an average one-half second per fingerprint.

The *computer* performs certain post-edit functions on the data it receives and records them onto magnetic tape for subsequent processing. The computer also performs the task of controlling the system's processes from the time a card is loaded into the card-moving mechanism until the fingerprint data read from the cards are finally recorded onto a magnetic tape.

Computerized Fingerprint Registration, Classification, and Matching

The magnetic tape containing the data collected and recorded by the FINDER system is next taken to a general purpose computer where the tape is processed by programs that register, classify, and match the data. The logic and procedures used in these programs were developed by the National Bureau of Standards.

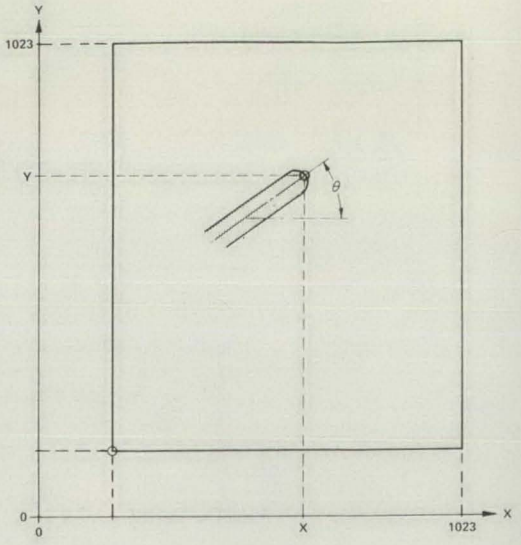


Figure 6.—The coordinate system for measuring fingerprint minutiae locations and directions.

The first processing task performed is that of *registering* [3] the fingerprint data to a standard reference position. This step is required before any meaningful classification or matching can be accomplished. This is because the manual procedures used in recording inked fingerprints result in variances in the location and angle orientation of the prints in the fingerprint blocks on the cards. The registration program uses the ridge direction data output of

Figure 7.—A graphic plot of fingerprint minutiae detected by the FINDER system.

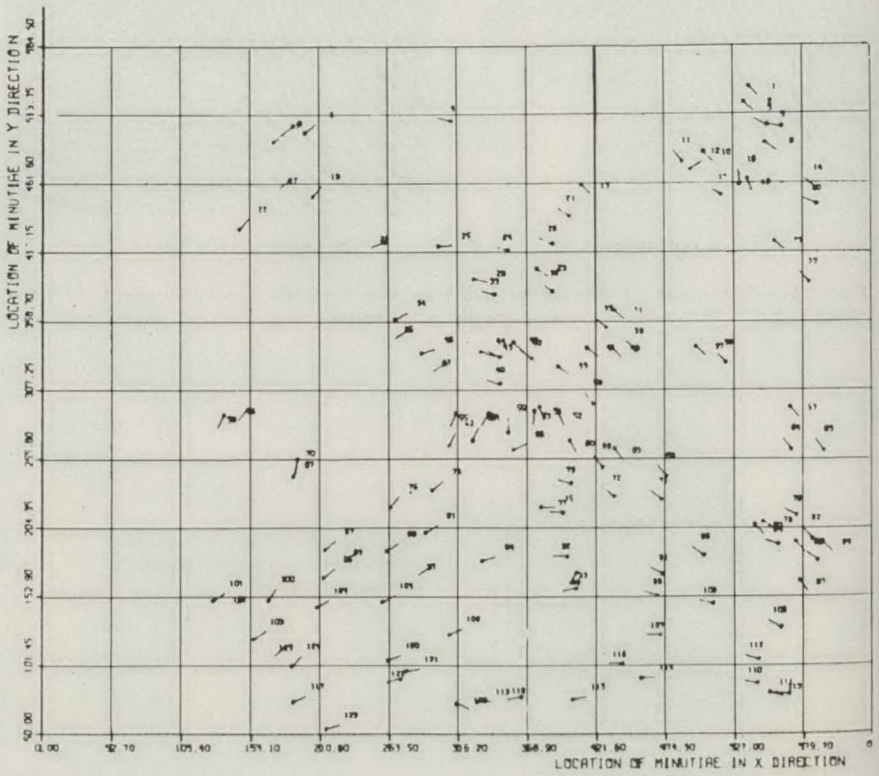


Figure 8.—An enhanced fingerprint as seen on the operator display scope of the system with each recorded minutia indicated by a small white circle.

the FINDER system to compute a center point for each print and the angle through which the print must be rotated. These registration values are then used to translate and rotate both the ridge direction and minutiae data to a standard position.

The next step in the processing is *classification*. In this process the computerized fingerprints are assigned to preestablished classes or categories by which they can be addressed for filing and retrieval purposes. The use of a classification system precludes the necessity of searching the entire file each time a search is conducted, since through its use only that part of the file with the same classification needs to be searched.

The classification system presently under development uses the ridge direction data output of the FINDER system. Since the ridge direction data describe the contour of the ridge flow of a fingerprint, the data can be compared with a selection of basic fingerprint patterns to determine the pattern type of a questioned fingerprint. This procedure has been successfully used to identify fingerprints as whorls, arches, and ulnar and radial loops. From such a procedure it is apparent that the manual Henry classification system could be duplicated in several aspects. However, the wealth of information available in the ridge direction data holds promise of a great range of classification systems, ranging from a 10-finger scheme like the Henry system to entirely new systems using less than 10 fingers.

After the registration and classification processes are performed, the ridge direction data are no longer needed. Therefore, they are discarded and only the classification codes and the minutiae data are retained for filing and matching purposes.

The final processing step is to *match* (i.e., compare) the retained data with computerized fingerprint data already on file. The classification codes previously derived from the search card ridge direction data are used to retrieve candidate file data with the same class codes. The specific data used for the matching process are the minutiae location (X, Y) and angle (θ) outputs of the FINDER system, as modified by the registration program. The matching program uses a statistical scoring procedure to determine the degree of correlation between the X, Y, and θ measurements for minutiae appearing in a candidate file fingerprint and those of a search fingerprint.

First, the X, Y, and θ measurements of all minutiae in a candidate file fingerprint are subtracted from the corresponding measurements of the search fingerprint, giving the differences ΔX, ΔY, and $\Delta\theta$. Only those pairs of minutiae which produce differences that satisfy previously set parameters for ΔX, ΔY, and $\Delta\theta$ are given further consideration in the matching procedure. Those ΔX, ΔY, and $\Delta\theta$ values that qualify are next examined in regard to how they would plot in relation to each other in space. Such values resulting from subtractions of minutiae involving nonmatching file and search fingerprints tend to plot as random points in space, while those from matching fingerprints tend to plot in one area as a cluster of points. The matching program is written to determine the presence of a cluster and to assign a score based on the density of the cluster. The higher the cluster score, the greater the probability of having achieved a match.

The described matching procedure has been used successfully with both manually recorded and machine read minutiae data from both rolled and plain fingerprints. Further, it has been demonstrated to be relatively unaffected by normal distortion of the fingerprints and by the presence of some uncorrelated minutiae caused by false detections or undetected true minutiae.

In running the matching program on a general purpose computer, it has taken on the average a little less than one-tenth of a second to compare a pair of fingerprints. As this processing speed is too slow for searching any appreciable number of fingerprints, plans call for the development of a specially built processor which will perform the comparisons at a much higher speed. Preliminary designs have been drawn up for possible processors which would have the capability to perform fingerprint comparisons at speeds ranging from one comparison in one-thousandth of a second to a device which, if required, would perform a comparison in a few millionths of a second.

(Continued Next Month)

REFERENCES

[1] Wegstein, J. H., "Automated Fingerprint Identification," *National Bureau of Standards Technical Note 538*, U.S. Government Printing Office, Washington, D.C., Aug. 1970.

[2] Stock, R. M., "Automatic Fingerprint Reading," *Proceedings of 1972 Carnahan Conference on Electronic Crime Countermeasures*, University of Kentucky, Lexington, Ky., Apr. 1972.

[3] Wegstein, J. H., "Manual and Automated Fingerprint Registration," *National Bureau of Standards Technical Note 730*, U.S. Government Printing Office, Washington, D.C., June 1972.

501-044 O - 73 - 2

The Urban Sprawl Brings—

CRIME SHADOWS in the FOREST

"Serious violations of existing State and Federal laws, involving life and property, are occurring more and more frequently on, or adjacent to, national forest lands."

The National Forest System comprises 154 national forests, containing 187,101,120 acres of land. Of this, some 630,000 acres of land, located in 21 counties in eastern Kentucky, make up the Daniel Boone National Forest. This forest stretches some 125 miles across Kentucky from Morehead on the north to Whitley City on the south.

The Daniel Boone National Forest lies at the crossroads of mid-America. In years past, this area was remote and inaccessible. However, with the completion of the Nation's interstate road system, cities have been brought closer to the national forest; and, therefore, many of the problems associated with urban centers have come to the forest.

New Challenges

Serious violations of existing State and Federal laws, involving life and property, are occurring more and more frequently on, or adjacent to, national forest lands. The forests have suffered their share of the growth of crime that has generally taken place throughout the country. More and more, gangs of toughs, vandals, the careless, and the indifferent are destroying property, harassing forest visitors, and generally disregarding the laws and regulations provided for ensuring the best use of the forests by the people. Such activities indicate the increasing need for a strong law enforcement program within the Forest Service organization.

By

LIONEL R. JOHNSON
Fire Staff Officer

and

WILLIAM G. DIXON
Special Agent

Forest Service,
U.S. Department of Agriculture,
Daniel Boone National Forest,
Winchester, Ky.

The enforcement of applicable laws and regulations for protecting natural resources and public improvements has always been part of managing the national forests. During recent years, however, the protection of people and their property has also become a major concern for national park management. The Forest Service is responding to these new challenges to its control of the national forest by moving to strengthen its peacemaking and general law enforcement capabilities.

From the early days of the Forest Service, law enforcement has been a major function of the district ranger. As the Forest Service mission evolved from custodianship into scientific land management, the organization gradually staffed itself with specialists in many disciplines. Since the trend in emphasis was away from custodianship, very little of the staffing and organizational buildup involved law enforcement. Over the years, however, experienced enforcement officers have occasionally been employed by certain individual national forests and ranger districts for police-type work on special problems, principally incendiary fires. The main law enforcement body of the overall service continues to be the district ranger and district personnel spread over some 770 ranger districts in the National Forest System.

Various Federal statutes, administration acts, and Secretary of Agriculture Regulations provide authority for forest officers to enforce laws and to cooperate with State and local officials in the enforcement of laws with respect to certain activities within national forests. The Secretary of Agriculture is authorized to prescribe regulations, consistent with laws, for the government of the department, the conduct of its officers and clerks, the distribution and performance of its business, and the custody, use, and preservation of the records, papers, and property pertaining to it (Rev.

"The main law enforcement body of the overall [Forest] service continues to be the district ranger and district personnel spread over some 770 ranger districts in the National Forest System."

Stat. 161, 5 U.S.C. 301). The act of June 4, 1897 (30 Stat. 35) as amended (16 U.S.C. 551), authorizes the Secretary to make rules and regulations needed to regulate the occupancy and use, and to preserve the national forests. The rules and regulations applicable to the national forests are set forth in Title 36, Code of Federal Regulations. Certain Secretary's regulations not listed above provide other authority to protect national forest lands from trespass. Under these various authorities, every forest officer has the responsibility to be observant for violations affecting lands administered by the Forest Service, and to take necessary and appropriate action within his authority.

Changed Conditions

The forest officer today is confronted with defiance of his authority, violations of the various laws, and regulations which he is charged to enforce, and threats to his personal safety, integrity, and self-respect. In addition to his many tasks of national forest management, he finds himself increasingly confronted with problems that relate to human conduct; problems concerned with the direction and control of people and situations complicated by abnormal patterns of social, antisocial, or criminal behavior.

This is relatively new to the Forest Service. Only in recent years have these confrontations come to the forefront. The Forest Service administrative structure has difficulty, at times, in changing rapidly enough to meet the challenges thrown by those persons who illegally attempt to convert the use of the forest resources to their exclusive pleasure, or by those persons who legitimately expect protection of their right to enjoy and use the public forest facilities.

Recreation use of the national forests totalled 162,838,100 visitor days* in 1969. To effectively control such heavy use, it was mandatory to develop and publicize regulations governing the use of national forest recreation sites and areas. Regulations so published must be enforced. Forest officers responded to the emphasis placed upon these regulations by confronting violators and making them responsible for their actions. However, it immediately became apparent that, to provide responsible and effective enforcement action, additional training would be needed for those engaged in law enforcement work. Without proper training and equipment, personnel could not be expected to handle violator confrontations with positive results.

Many field units have now taken hold of enforcement through training their men and putting them into action. These same units and others have employed additional personnel specifically trained and equipped as full-time criminal investigators, with full police powers to provide the nucleus for an effective and efficient force.

Cooperative Effort

The total job of law enforcement on lands administered by the Forest Service is a cooperative effort by Federal, State, and local law enforcement agencies. The Forest Service is responsible for protecting the national forest; the States have legal responsibility to enforce State laws. The Forest Service has always looked to local and State law enforcement agencies to enforce State laws on national forest land. The cooperation of sheriffs' departments, State police, and others has proven invaluable, particularly in situations where these officers are needed to build the manpower superiority basic to handling confrontations involving numbers of individuals.

The Forest Service has encouraged its officers to use State courts, where possible, for expeditious handling of those less serious Federal offenses which are also violations of State law. It has also encouraged them to obtain the cooperation of State and local officers, particularly for police-type actions, in keeping the peace. This is not a matter of the States doing Forest Service work. State enforcement officials, by law, have a legal responsibility within national forests to enforce State laws.

It is clear, however, that local law enforcement capabilities must be strengthened if they are to provide assistance, when needed, to the increasing numbers of requests from the Forest Service. The financial burdens entailed in cooperative programs have been eased by Federal support to local agencies extending assistance. Agreements between the Forest Service and local agencies, which provide Federal reimbursement to local agencies for enforcement services and financial assistance for necessary equipment, are now possible.

The latest in a series of developments to ultimately provide maximum protection to life and property within national forest lands is a cooperative agreement between the Daniel Boone National Forest and the McCreary County, Ky., Police Department.

*Represents recreational use of national forest land and water which aggregates 12 person hours; may entail one person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

John E. Alcock, Forest Supervisor, Daniel Boone National Forest.

Funds provided under Federal auspices have resulted in the Forest Service being able to obtain the services of local, well-trained, and highly capable enforcement officers to supplement agency efforts. The co-op agreement will assist the McCreary County Police in acquiring equipment and manpower to supply services to the Daniel Boone National Forest in critical areas which presently lack sufficient protection. This is the first step in what is hoped to be an expanding field of cooperation and assistance between Federal, State, and local agencies for mutual enforcement benefits.

The Forest Service recognizes that it cannot take the above action in every case, and it cannot simply "farm out" unpleasant jobs. Reliance on local and State agencies will not relieve the Forest Service of its responsibilities. It must also strengthen its own capabilities. Joint cooperation with other local agencies is one of the best methods of accomplishing this task. But, essentially, the Forest Service must strengthen its own efforts to combat violations of laws and regulations in the forest.

"The total job of law enforcement on lands administered by the Forest Service is a cooperative effort by Federal, State, and local law enforcement agencies."

Law Enforcement Problem

The National Forest System is roughly the combined size of the States of California, New York, and Nebraska. The number of visitors and users of such a vast expanse of land are substantial and include a significant core of individuals who, through disregard or intent, violate many of the laws, rules, or regulations which govern the national forests.

A compilation of violations which occurred on lands administered by the Forest Service reveals the seriousness of the law enforcement problem. A study was made of calendar year 1969 records at nine regional offices, 32 forest headquarters, 130 ranger district headquarters, and 15 experimental forests. From these samples, servicewide totals involving 48 separate violation categories were compiled. These were summarized into the following five broad areas of concern: a total of 673,519 violations of Secretary of Agriculture Regulations within developed recreation sites and areas of concentrated public use was recorded; a total of 177,991 violations of Federal fire laws and regulations occurred; violations of Federal laws and regulations pertaining to protection of the timber resource totalled 37,742; and there was a total of 42,406 violations of property protection regulations. Violations, in addition to the above, for occupancy and use, unauthorized livestock and use, hunting and fishing, and stealing of public property, exceeded a combined total of 325,000 separate incidents.

Violations of laws and regulations caused total damages of $6,670,000 in 1969, servicewide.

"The National Forest System is roughly the combined size of the States of California, New York, and Nebraska."

Seriousness of the law enforcement problem is especially critical when it involves intimidation of forest officers, increasing incidents of confrontation of forest officers by groups of juveniles, and problems associated with drug addiction.

Training

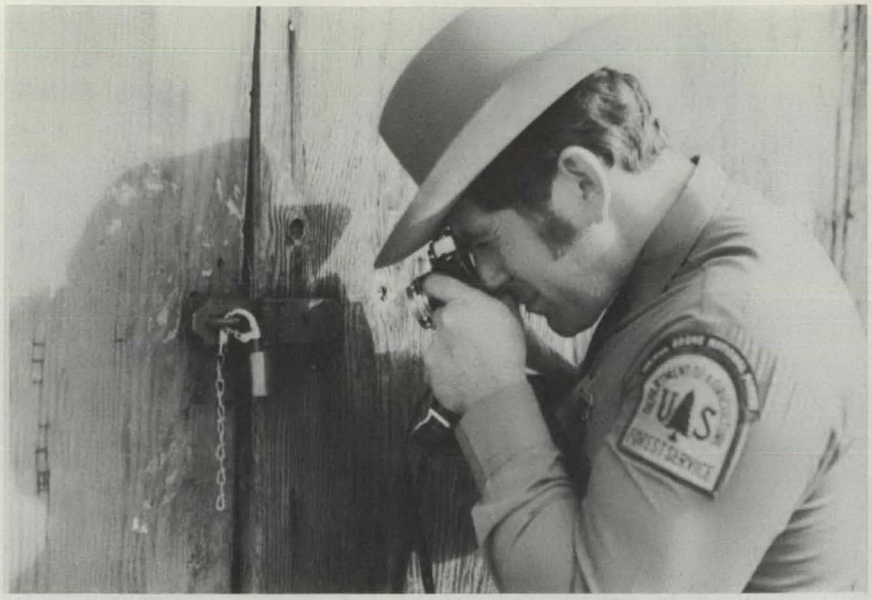
Increasing complexities of law enforcement activities necessitate a brandnew look at the requirements of the overall problem. Persons assigned to enforce the laws, rules, and regulations on national forest lands must be carefully selected for the job, specially trained to fulfill State requirements for law enforcement officials, and provided with necessary tools and equipment to accomplish a most criti-

Forest Service officers give information to a forest visitor.

". . . the Forest Service has embarked upon a rather bold program to upgrade its law enforcement capabilities."

cal and delicate task. Anything less than this is to endanger the well-being of persons on both sides of a controversy, and to seriously weaken the law enforcement efforts. It would be inexcusable to want less than the best in serious and critical enforcement situations.

In recognition of the need to provide sufficient and proper protection to persons and property, the Forest Service has embarked upon a rather bold program to upgrade its law enforcement capabilities. Individuals are being carefully selected, trained, and equipped for the job, and in sufficient numbers to provide adequately for the needs of the law enforcement program. Employees need a basic, but sufficient, knowledge in handling people, psychologically, physically, and legally. In daily contacts with the public, they need to know what to do, how to do it, and when to do it. Such expertise can only come from specialized training for a specific need.



A photograph for use as evidence is made of latch marked by forced entry.

Officers check for tire-tread evidence at the scene of a breaking and entering.

Law enforcement in the Forest Service today becomes more complex as the need for control of depreciating behavior in our national forest areas becomes greater. There is an urgent need for better public education in the administrative policies and regulatory aspects of national forest management. There is a similar need for personnel selection and training to carry out effectively these measures to protect the environment for the benefit of the public.

In January 1970, the Daniel Boone National Forest hired a full-time, well-trained, and experienced criminal investigator, co-author William G. Dixon. Investigator Dixon was a trooper with the Kentucky State Police for 7 years and an agent with the Bureau of Alcohol, Tobacco and Firearms, U.S. Department of the Treasury, for 4 years prior to joining the Forest Service. His excellent qualifications and services have been extremely beneficial to the law enforcement program.

In addition to providing the agency with professional investigative assistance, the incumbent has trained additional personnel to better fulfill law enforcement responsibilities. The benefits which have resulted from the employment of a full-time, police-trained individual have been extremely rewarding.

The Daniel Boone National Forest has held a number of intensive training sessions, providing field personnel with additional skills in enforcement work, and in the management and administration of the law enforcement program. The forest criminal investigator has been instrumental in not

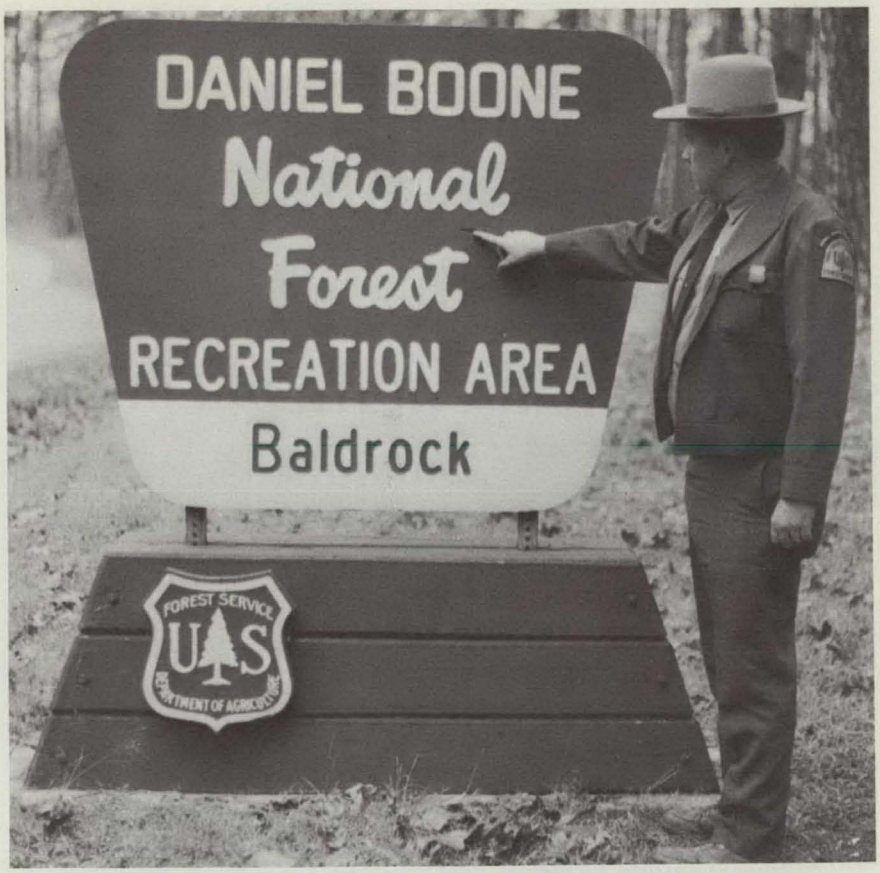
"The forest criminal investigator has been instrumental in not only personally providing training, but also in acquiring the services of trainers from other enforcement agencies."

only personally providing training, but also in acquiring the services of trainers from other enforcement agencies. Training has been coordinated with other Federal, State, and local agencies and groups in order to provide and promote coordination in this activity. Coordinating agencies taking part in various training sessions have included: the Federal Bureau of Investigation; National Park Service, U.S. Department of the Interior; U.S. Army Corps of Engineers; Kentucky Division of Forestry; Kentucky Department of Parks; Kentucky State Police; Kentucky Department of Fish & Wildlife; and local law enforcement agencies.

To further strengthen law enforcement capabilities in the field, three Forest Service employees were recently graduated from Eastern Kentucky University after attending an intensive 240-hour course at the Kentucky Law Enforcement Council's Law Enforcement School. Completion of this course by these individuals has qualified them to be authorized with full police powers. Subsequent written authority from the Regional Forester of the Southern Forest Region permits equipping these men with necessary tools to accomplish the required enforcement tasks.

Public Support

There is no simple, easy way to provide complete law enforcement and protection of people and property within the vast expanses of national forest lands. The millions of acres of land which make up the entire National Forest System are, for the most part, relatively unpopulated and difficult to police. There are various methods available whereby the Forest Service, in cooperation with local, State, and other Federal agencies, can accomplish a successful program of law enforcement. These efforts must have the support of the general public.



An officer points to the gunshot holes made by vandals in a Forest Service sign.

Effective enforcement cannot wholly succeed without public concern and involvement.

Administrators are realizing more and more that educating the public and managing the use to which people put the public lands is a challenge of the first magnitude. Public use of public lands has become a social experience. Basic training on this fact is as necessary as the training provided personnel in the management and administration of the environmental resources.

Educational programing, to make the public aware of enforcement problems, is as necessary as the Smokey Bear Program has been to reduce forest fires. Public news media, including radio, television, newspapers, and magazines, can be used effectively to reach and direct public users of the national forests.

The Forest Service, in many areas, is dramatically improving its law enforcement capabilities. It cannot relax its efforts to provide full protection to those who use the national forests. The service must continue to protect not only the resources of wood, water, forage, wildlife, and outdoor recreation, but also, most importantly, the people who desire to share and enjoy these resources.

"The [Forest] service must . . . protect not only the resources of wood, water, forage, wildlife, and outdoor recreation, but also, most importantly, the people who desire to share and enjoy these resources."

Search Incident to Arrest —Two Views

"Officers should be aware of developments in the criminal law and be alert to issues facing the Supreme Court."

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

A longstanding and familiar rule of law relied on by law enforcement officers is the authority to search a person incident to a lawful arrest. Such searches have been held to be reasonable under the fourth amendment on the grounds they are necessary to seize weapons which might be used to take the life of arresting officers or to effect an escape and to prevent the destruction of evidence of the crime. However, the recent decision of the U.S. Court of Appeals for the District of Columbia Circuit in *United States* v. *Robinson* [1] has brought into question the scope of the search authorized by the fourth amendment when the arrest is based on a "minor" traffic violation. While other courts have considered the question, *Robinson* promises to lead the way to a definitive answer by the U.S. Supreme Court as certiorari was granted on March 20, 1973.[2]

In view of the potential significance to law enforcement officers of a Supreme Court decision interpreting the fourth amendment as it applies to searches of persons taken into custody, it is appropriate to examine the facts and decision of the appellate court in this case. Officers should be aware of developments in the criminal law and be alert to issues facing the Supreme Court. The *Robinson* case presents an opportunity to follow the development of the law on an issue of immediate importance to all officers. Understanding this case, officers will be better prepared to apply the principles announced as controlling by the Supreme Court when the case is decided.

The facts related by the court of appeals were simple and familiar. On April 19, 1968, an officer stopped an automobile on a city street for a "routine spot check." He examined not only the driver's temporary operator's permit and automobile registration card, but also his Selective Service classification card. The driver was permitted to go on his way, but the officer noted a discrepancy in the birth date

"The outcome [of the Supreme Court's review of the two cases cited here] is of importance to the entire law enforcement community."

listed on the temporary operator's permit and the draft card. Police traffic records revealed that the driver's permit had been revoked and that a temporary permit had been issued in a similar name but with a different birth date. The photographs on the two applications were of the same person who had been in the routine check.

Four days later, the officer saw this person operating the same vehicle and stopped him and was shown the same permit exhibited earlier. The officer placed the driver under arrest for operating a motor vehicle after revocation of his operator's permit and for obtaining a temporary permit by misrepresentation. The officer, pursuant to departmental instructions on searches incident to an arrest, proceeded to search him.

He testified that in the search he placed his hand on the arrestee's chest and felt an object. The object was removed and turned out to be a wadded up cigarette package. Inside he found 14 gelatin capsules containing heroin. The officer said: "I just searched him. I didn't think about what I was looking for. I just searched him." [3]

The question presented on these facts to the court of appeals was ". . . whether, and under what circumstances, an arresting officer may conduct a *full* search of the person incident to a lawful arrest for violation of a mere motor vehicle regulation." [4]

It was recognized by the court that searches incident to lawful arrest have been regarded as exceptions to the general requirement that a warrant must be obtained prior to search, but declared the absence of a warrant requires the constitutionality of such searches be reviewed with special care.

The court started with the principle that a search will comply with the requirements of the fourth amendment only if its scope is no broader than necessary to accomplish legitimate governmental objectives. The lawful objectives of the search of the person incident to arrest were identified as the seizure of fruits, instrumentalities, and other evidence of the crime for which the arrest is made in order to prevent its destruction or concealment and removal of any weapons that might be used to resist arrest or permit escape. Therefore, the legal issue framed by the court of appeals was whether the search of a person arrested for violation of a motor vehicle regulation can be justified by either of these two objectives.

The difficulty in supporting the search to prevent concealment or destruction of evidence in the *Robinson* case is obvious; the officer had the only evidence of the crime when he was presented with the fraudulently obtained temporary operator's permit. There was nothing else of an evidentiary nature the officer could practically have described as the objective of his search.

Protection of the officer as a legitimate basis for a search incident to arrest is not discounted by the court, but it considers the key factor to be the danger actually presented. Under this view, it makes no difference whether the protective search is made following an "arrest" or merely a "stop." For example, the court concluded that an arrest for a minor traffic offense followed only by the issuance of a notice of violation would not justify a frisk of the person for weapons, unless there exist special facts or circumstances which give the officer reasonable grounds to believe that the person is armed and presently dangerous. Such circumstances would equally justify the frisk following an investigatory stop.[5]

". . . a search will comply with the requirements of the fourth amendment only if its scope is no broader than necessary to accomplish legitimate governmental objectives."

The heightened danger presented by taking a person into custody led the court to conclude that in all such instances the officer would be justified in conducting a limited frisk of the individual's outer clothing to locate weapons. It was admitted that there are circumstances in which even greater danger might be reasonably feared and would justify a more intrusive search, but such facts would have to be presented to the reviewing court.

The effect of *Robinson* is to prohibit routine warrantless "full" searches of the person incident to a lawful arrest and to permit only such searches as may be supported by demonstrated need to secure evidence or to protect against an actual danger which the officer reasonably believes to exist.

On the same day the U.S. Supreme Court granted certiorari in *Robinson*, the Court agreed to review the decision of the Florida Supreme Court in *State* v. *Gustafson*.[6] This case involved a traffic arrest which resulted in the seizure of marihuana cigarettes from the driver's pocket. Other than the purposes for which the vehicles were stopped, *Robinson* and *Gustafson* are alike factually. It is recalled that in

"The effect of **Robinson** *is to prohibit routine warrantless 'full' searches of the person incident to a lawful arrest and to permit only such searches as may be supported by demonstrated need to secure evidence or to protect against an actual danger which the officer reasonably believes to exist."*

Robinson the stop was based on the officer's knowledge that Robinson did not have a valid operator's permit while in *Gustafson*, the officer, during the early morning hours, observed a vehicle weaving from one lane to another and stopped it to determine if the driver ". . . had been drinking or something." [7] Following the stop, the driver was arrested for failing to have his driver's license as required by Florida statute. The subsequent search of his person uncovered marihuana which was the basis for conviction.

The Fourth District Court reversed the conviction holding the seizure was illegal. As reported by the Florida Supreme Court, the district court came to the same conclusion as did the court in *Robinson*. This court would restrict a search of a person incident to his arrest to only that evidence relating to the particular crime for which the arrest was actually made. The search for weapons would be limited normally to a "patting down" of the person. The Florida Supreme Court found this to be a ". . . radical departure from established reasonable standards" and expressly reversed the district court's limitation on the authority of the officer to search an individual incident to a lawful arrest stating:

> "It has been the holding of the authorities through the years that once a proper arrest is made and the defendant is in custody that a reasonable search may then proceed if evidence be then discovered reflecting that a crime has been committed, or is being committed, the evidence is proper and admissible." [9]

It may seem anomalous that the Supreme Court would consider these two cases for review since they both involve misdemeanor arrests. However, the collision between the rights of the individual and legitimate governmental interests is most pronounced in minor situations such as these. *Terry* v. *Ohio* [10] did not involve an arrest. *Camara* v. *Municipal Court* [11] and *See* v. *City of Seattle* [12] were concerned with housing inspections and not the criminal law.

As recently as 1969, the Supreme Court stated in *Chimel* v. *California:* [13]

> "When an arrest is made, it is reasonable for the arresting officer to search the person arrested in order to remove any weapons that the latter might seek to use in order to resist arrest or effect his escape. Otherwise, the officer's safety might well be endangered, and the arrest itself frustrated. In addition, it is entirely reasonable for the arresting officer to search for and seize any evidence on the arrestee's person in order to prevent its concealment or destruction." [14]

Chimel, of course, involved an arrest for burglary. The Court, in *Robinson* and *Gustafson*, must squarely face the issue of the extent of a permissible search following arrest for a relatively minor offense. This is a question not resolved since the Court commented in *Preston* v. *United States*,[15] which involved the search of a vehicle occurring some time after an arrest for vagrancy that:

> "Unquestionably, when a person is lawfully arrested, the police have the right, without a search warrant, to make a contemporaneous search of the person of the accused for weapons or for the fruits of, or implements, used to commit the crime." [16]

The outcome is of importance to the entire law enforcement community.

The Florida Supreme Court recently held that limiting a law enforcement officer's search for weapons to simply "patting down" a suspect was a ". . . radical departure from established reasonable standards."

FOOTNOTES

[1] 471 F. 2d 1082 (D.C. Cir. 1972).
[2] 41 L.W. 3493 (1973).
[3] *Robinson, supra* at 1089.
[4] Id. at 1090.
[5] *Terry* v. *Ohio*, 392 U.S. 1 (1968).
[6] 258 So. 2d 1, cert. granted, 41 L.W. 3493 (1973).
[7] *Gustafson, supra* at 2.
[8] Id. at 4.
[9] Id. at 3.
[10] *Supra* footnote 5.
[11] 387 U.S. 523 (1967).
[12] 387 U.S. 541 (1967).
[13] 395 U.S. 752 (1969).
[14] Id. at 762-63.
[15] 376 U.S. 364 (1964).
[16] Id. at 367.

FBI FILM ON PHYSICAL EVIDENCE

The FBI has available, for use before law enforcement groups only, a 16 mm. color sound film entitled "Physical Evidence." The film shows the proper method of identification, preservation, and submission of evidence. Those agencies and departments which would like to use the film in connection with their training programs should contact the local FBI office for assistance in this regard.

NCIC News Letter
5-73

A "Prime Ingredient"—

NATIONAL ACADEMY OFFICERS GRADUATE

". . . we . . . have increased our awareness and sensitivity to the ever-increasing list of potential threats to law enforcement officers."

Graduation ceremonies for 299 proud law enforcement officers were held at the FBI Academy at Quantico, Va., on March 30, 1973. The graduates, who represented the 92d Session of the FBI National Academy, came from every State in the Union as well as the Panama Canal Zone, Iran, Lebanon, Malaysia, the Philippines, Singapore, and Taiwan. They were entertained by the U.S. Marine Band before Assistant Director Thomas J. Jenkins of the Federal Bureau of Investigation called the graduation exercises to order. The invocation and benediction were delivered by Lt. Cmdr. Albert W. Stott of the Chaplain Corps, U.S. Navy.

Mr. Harry J. Gaab, Chief of Police from Lansdowne, Pa., and spokesman for the graduates of the 92d Session, expressed "deep appreciation for the many people who have invested in our interests during the past 12 weeks." He declared that one of the great benefits derived from the National Academy experience was having "the opportunity to be closely associated with officers from all levels of law enforcement. . . . We leave this Academy with a new appreciation that the prime ingredient of law enforcement is its people. Close bonds of understanding are vital within our profession at all levels."

". . . the prime ingredient of law enforcement is its people."

Mr. Gaab succinctly defined the National Academy's pioneering purpose when he stated, "the fact that we have discussed, better yet, dissected and put back together the many ideas our classmates and instructors have shared with us will ultimately have an effect on law enforcement all over the world." He reminded his fellow graduates, however, that to succeed in attaining this goal they must remember that "knowledge, courage, integrity, the motto of the National Academy, is really much more than just a motto. It is a challenge to dedicate ourselves to the preservation of those values cherished by freedom loving people everywhere."

The next speaker, Mr. L. Patrick Gray, III, then Acting Director of the Federal Bureau of Investigation, agreed that the goal of the National Academy is to positively affect worldwide law enforcement by strengthening professional pride in its tasks. Building upon this truth, Mr. Gray emphasized that the "bonds that unify every element of the law enforcement profession are . . . universal bonds of dedication and of professional excellence."

Another contribution that professionalism in law enforcement creates is improved police-community relations. "Public confidence and public support," according to Mr. Gray, "are essential elements in effective law enforcement. . . . It is up to us to *deserve* public support and to strengthen it, by doing our job with uniform fairness, impartiality, and decency . . . by doing our job with complete *professionalism*."

"Ours . . . is an exacting profession . . . a demanding profession . . . a dangerous profession. It is a profession in which, for the sake of our public trust, the only 'routine' that is tolerable is sustained excellence at the highest level of professional competence," stressed Mr. Gray.

The guest speaker, Maj. Gen. Lloyd B. Ramsey, The Provost Marshal General, Department of the Army, praised

Shown are members of the platform party of the 92d Session. From left to right are: Lt. Comdr. Albert W. Stott, Chaplain Corps, U.S. Navy; Maj. Gen. Lloyd B. Ramsey, The Provost Marshal General, Department of the Army; former Acting FBI Director L. Patrick Gray, III; Hon. James J. Rowley, Director, U.S. Secret Service; Lt. Gen. Robert P. Keller, Commanding General, Marine Corps Development and Education Command, Quantico, Va.; and Chief of Police Harry J. Gaab, Lansdowne, Pa.

the teaching concepts of the FBI National Academy, emphasizing that "nothing can replace the cross-fertilization of ideas, opinions, and experiences shared during your daily interactions here."

General Ramsey related that two major problems facing law enforcement today relate to structural and programmatical difficulties. "Today," he asserted, "we have a huge conglomerate of agencies involved in some . . . aspect of protective or law enforcement services. The problems with such an array of agencies is that of direction and balance. Direction as related to the thrust of their major efforts and balance as determined by the distribution of their existing and programmed resources. . . . Fragmentation of effort further weakens an already difficult task against the criminal and organized crime."

The weakening of the social fabric has exacerbated these problems, says General Ramsey: "Many . . . institutions . . . have been ineffective in the continuing struggle for order within our society or in some cases they have even gone beyond their traditional boundaries and have assisted in social unrest.

"The vacuum created by the institutional ineffectiveness has caused the law enforcement officer to step in, and there is no limit as to what he is asked to do or what he does."

General Ramsey asserted that the law enforcement institution has already taken a first step in solving these problems. He emphasized that "we . . . have increased our awareness and sensitivity to the ever-increasing list of potential threats to law enforcement officers."

Maj. Gen. Lloyd B. Ramsey, The Provost Marshal General, Department of the Army.

However, much more needs to be accomplished. He said, "If the momentum of war on crime is to continue, not only in our major metropolitan areas but also in our smallest townships and rural communities . . . then a greater sharing of expertise and resources must be effected."

According to General Ramsey, the future of law enforcement is bright in spite of the continuing problems. He stressed that "the tide of crime will be turned because men like you, who are the bulwark of our Nation's internal security, are willing to fight and die for freedom so that your fellow man may live in peace and security."

Following General Ramsey's address, Mr. Gray introduced several distinguished guests, including Lt. Gen. Robert P. Keller, Commanding General, Marine Corps Development and Education Command, and Deputy Chief Charles D. Grant of the Norfolk, Va., Police Division and President of the FBI National Academy Associates.

Hon. James J. Rowley, Director, U.S. Secret Service then presented to a representative of each of the six training sections of the 92d Session a diploma as a symbolic award for the other members of his section. The six worthy graduates who were chosen for this honor were: Chief of Police Harry J. Gaab, Police Department, Lansdowne, Pa.; Chief of Police Michael J. Solimando, Police Department, Emerson, N.J.; Chief Investigator Robert D. Hickok, Humboldt County District Attorney's Office, Eureka, Calif.; Lt. Bradley G. Moerlins, Police Department, Anchorage, Alaska; Supt. Laurence J. Carpenter, Metropolitan District Police, Boston, Mass.; and Undersheriff Donald R. Oliver, San Diego County Sheriff's Department, San Diego, Calif. Individual diplomas were awarded to each graduate as he left the auditorium.

The graduation of the 92d Session brought the number of alumni of the FBI National Academy to 6,929, since its inception in 1935. When the last class graduated on December 15, 1972, there were 3,650 graduates still active in the law enforcement profession. Of these, 703 were chiefs of police, 131 were sheriffs, and 9 were heads of State police organizations.

After the presentation of diplomas, the benediction was delivered by Lt. Comdr. Stott, and the National Anthem was played by the U.S. Marine Band conducted by Maj. Jack T. Kline.

The graduation exercises did not truly terminate the training experience of the 92d Session of the FBI National Academy. The graduates returned to their homes scattered throughout the United States and the world where they can further share with their fellow law enforcement officers the lessons and modern techniques they learned. The experiences at Quantico will benefit many more defenders of law and order the world over.

"The vacuum created by . . . institutional ineffectiveness has caused the law enforcement officer to step in, and there is no limit as to what he is asked to do or what he does."

"Hands-On" Police Training

In Kansas City, Mo., the police department has adopted a program of "Hands-On" instruction. It incorporates the instructional technique of role playing. Situations are created "on the street" to best simulate the actual conditions with which an officer will be confronted in performing his assignments.

Law enforcement administrators have long recognized that classroom training has had to increase in order to more adequately prepare young recruits for the myriad duties they are called upon to perform as policemen. Equally obvious, however, is the fact that policemen have had to be better prepared to cope with real-life situations—not after they occurred, but, if possible, before they were encountered.

"Hands-On" training has greatly enhanced the outlook for developing better prepared policemen. The State of Missouri requires 600 hours of training for all police officers in certain counties. At this time, entrant officers at the Regional Center for Criminal Justice, a police academy in Independence, Mo., operated by the Northwest Missouri Law Enforcement Assistance Council and the Kansas City Police Department, undergo 20 weeks of training, with Kansas City, Mo., officers given an additional 160 hours of instruction on topics germane to their jurisdiction and department. College credit is given for completion of the training program, which has a total of nearly 110 courses.

The 84-acre campus of the Regional Academy offers facilities which have been designed to resemble a community where many traffic problems, domestic disturbances, felony car stops, and other police activities, for example, may be simulated. Familiarity with the academy's grounds has interfered to some degree, however, with attempts to simulate community conditions. So, arrangements have been made to conduct many of the problems on the streets of Independence.

Off-duty policemen and women from several area agencies, as well as citizens of Independence, assume such roles as shoplifters in grocery stores, bartenders and disorderly patrons of a tavern, and a store owner complaining of illegally parked cars on his private parking lot. Housewives have allowed the center to use their homes as the scenes of burglary and prowler calls, a father and daughter staged a situation dealing with a runaway juvenile, and an Independence cab company permitted the use of one of their taxis for a holdup problem. Traffic accidents are simulated at intersections in Independence, with the entrants required to handle the situations, including the task of directing traffic. Vehicle and pedestrian stops, the issuance of citations, arrest and booking of drunk drivers, and the writing of reports appropriate to the problem are also part of the project. Each team of entrants is accompanied by an officer instructor, who serves as an evaluator, as well as standing ready to handle any actual police tasks which might arise.

At the end of each training session, a critique is held, with both the center staff and the "actors" who participated in the situations offering constructive criticism. During these sessions, the correct answers are provided to questions regarding procedures raised by the entrants. Extensive use is made of video tape equipment to record the trainees' actions in handling the problems. In police training, a picture is worth a thousand words when a recruit is able to see for himself what he did wrong.

Currently, plans are underway for increasing the amount of "Hands-On" training. Law enforcement in the region is enthusiastic about the new dimension it brings to police instruction. Clarence M. Kelley, Kansas City, Mo., Chief of Police, feels that with this addition, his entrant officers, and those throughout the region who complete the course of instruction in Independence, will be as well trained as any police officers in the Nation.

". . . policemen have . . . to be better prepared to cope with real-life situations . . . ."

Entrant officers are shown maneuvering an "intoxicated" individual played by an instructor at the Regional Center.

A volunteer holdup suspect is taken into custody by an entrant officer while, at the right, an instructor and another trainee critique his performance.

An instructor at the academy posing as a suspicious man in a parked car is checked by two entrant officers whose actions are recorded on video tape for later evaluation.

WANTED BY THE FBI

MARY KATHLEEN BROOKS, also known as Mrs. Don Luis Church, Mary Kathleen Church, Marjorie Cummings, Mrs. Gloria Stewart.

Interstate Flight—Possession and Detonation of Destructive Devices

Background

Mary Kathleen Brooks is being sought by the FBI for unlawful interstate flight to avoid prosecution for possession and detonation of destructive devices with intent to terrify and intimidate. A Federal warrant for her arrest was issued on July 7, 1971, at San Francisco, Calif.

On May 28, 1971, local warrants were issued at Berkeley, Calif., charging Brooks and an alleged male accomplice in connection with the bombing of the Berkeley Center Building on February 27, 1971, and the Bank of America, South Berkeley Branch, on March 3, 1971. Her alleged accomplice was subsequently apprehended, but Brooks remains at large.

Caution

Brooks reportedly has carried a knife and should be considered dangerous.

Description

Age	22, born June 7, 1950, Baltimore, Md.
Height	5 feet 9 inches.
Weight	140 to 150 pounds.
Build	Medium.
Hair	Brown.
Eyes	Brown.
Complexion	Light.
Race	White.
Nationality	American.
Occupation	Clerk.
Remarks	May be accompanied by infant son.
FBI No.	956, 352 H.
Fingerprint classification	23 O 28 W 000 L 32 W III

Right index fingerprint.

Notify the FBI

Any person having information which might assist in locating this fugitive is requested to notify immediately the Acting Director of the Federal Bureau of Investigation, U. S. Department of Justice, Washington, D.C. 20535, or the Special Agent in Charge of the nearest FBI field office, the telephone number of which appears on the first page of most local directories.

U.S. GOVERNMENT PRINTING OFFICE : 1973—O-501-044

FOR CHANGE OF ADDRESS ONLY

(Not an order form)

Complete this form and return to:

ACTING DIRECTOR
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D.C. 20535

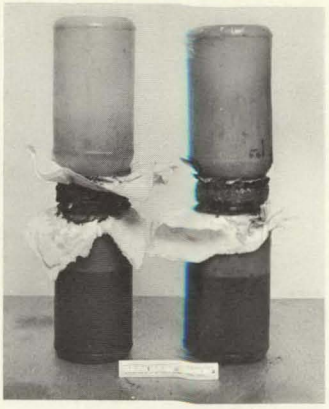
(Name) (Title)

(Address)

(City) (State) (Zip Code)

SAC, WFO (44-631)
3-26-73

THE ACID TEST



When their arrest is imminent or when duly authorized searches are being conducted, the main objective of most lawbreakers is to destroy incriminating evidence. One unusual method of disposing of narcotic drugs was recently discovered by police officers in Washington, D.C., while they were executing a U.S. Magistrate's narcotic search warrant on a private residence.

The "destruction kit" was made up of plastic bottles with the centers of their lids cut out, large roller bearings, paper towels, and acid. Acid and a bearing were placed in a bottle, and paper towels were used to cover the top. A second plastic bottle containing nonliquid narcotics was then placed upside down over the first one, and they were joined at the neck by using two of the cut-out lids which had been inverted and soldered together.

To quickly destroy the narcotics, the position of the bottles was simply reversed. The acid would then wet the paper towels and permit the bearing to break through into the bottom container, followed by the acid. The narcotic drugs would then dissolve immediately in the acid, destroying all traces of evidence.

Warning: ***The reaction between the acid and the metal bearing can produce gas which, in any experiment with similar containers, could cause them to rupture or explode.***

UNITED STATES DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D.C. 20535

OFFICIAL BUSINESS

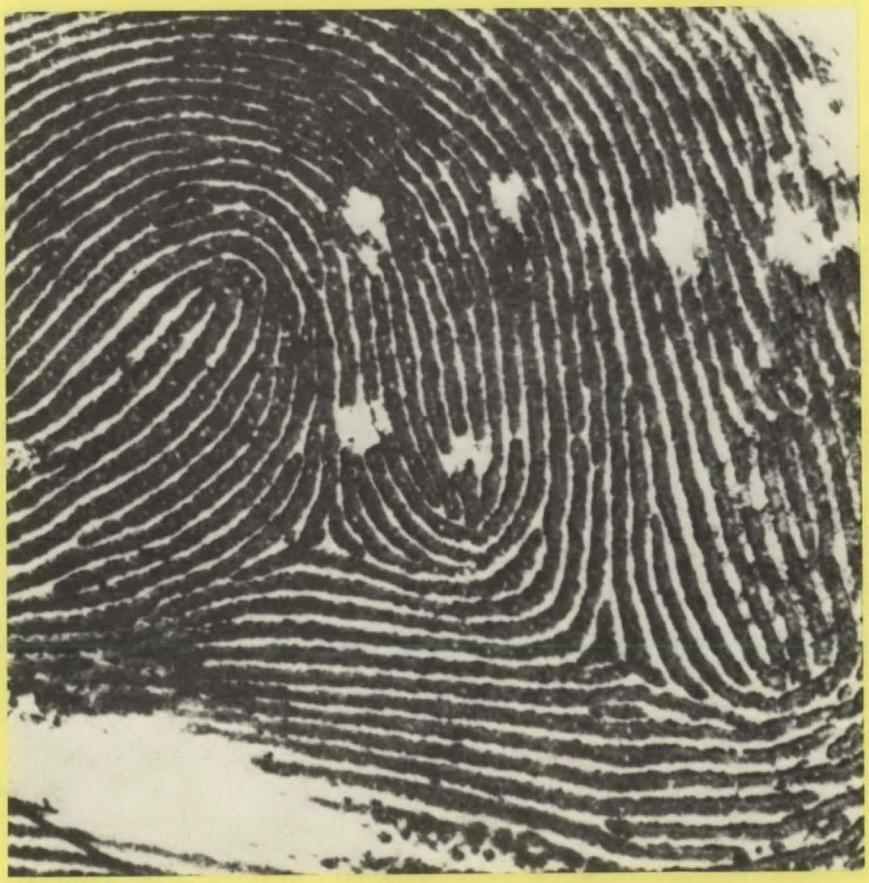
ADDRESS CORRECTION REQUESTED

U.S.MAIL

POSTAGE AND FEES PAID
FEDERAL BUREAU OF INVESTIGATION
JUS-432

THIRD CLASS

QUESTIONABLE PATTERN



This questionable pattern at first appears to be an accidental whorl; however, the impression is more widely rolled than normal. If rolled only to a normal degree, the loop formation on the extreme right would not appear. Therefore, it is classified as a double loop-type whorl with an inner tracing and referenced to an accidental whorl.