

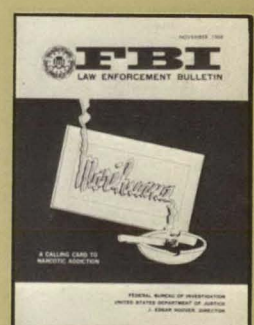
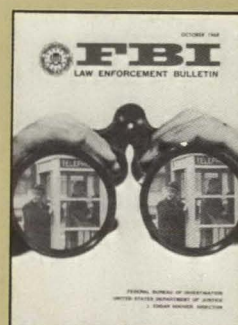
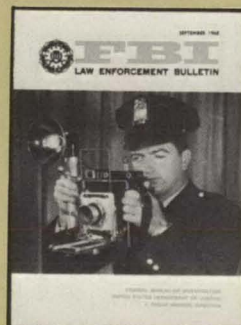
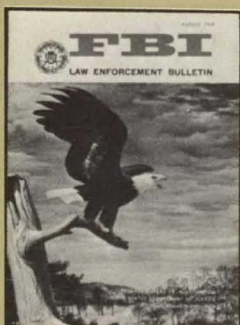
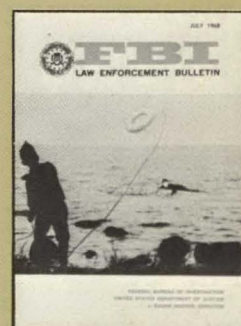
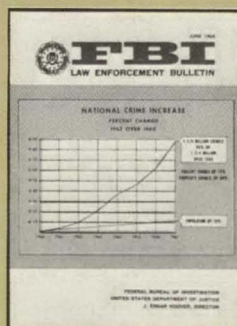
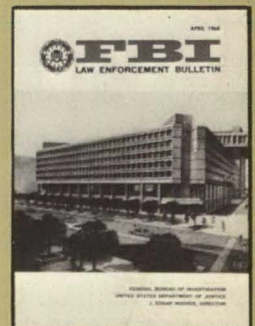
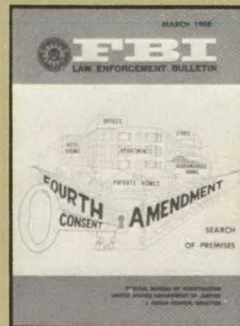
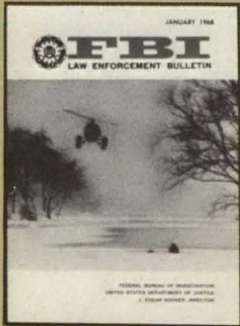
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DECEMBER 1968



# FBI

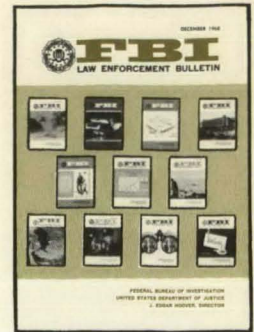
## LAW ENFORCEMENT BULLETIN



FEDERAL BUREAU OF INVESTIGATION  
UNITED STATES DEPARTMENT OF JUSTICE  
J. EDGAR HOOVER, DIRECTOR

DECEMBER 1968

VOL. 37, NO. 12



THE COVER—1968 in review. See Index beginning on page 22.

# FBI

LAW ENFORCEMENT BULLETIN

## CONTENTS

<i>Message From Director J. Edgar Hoover . . . . .</i>	<i>1</i>
<i>Industrial Security, by Charles F. Weimar, Chief of Plant Protection, Continental Can Co., Inc., Port Wentworth, Ga. . . . .</i>	<i>2</i>
<i>Seminars on Law Enforcement Photography, by Luther M. Dey, Consultant, Law Enforcement Photography, Eastman Kodak Co., Rochester, N.Y. . . . .</i>	<i>6</i>
<i>Don't Miss A Hair . . . . .</i>	<i>10</i>
<i>Drinking and Driving . . . . .</i>	<i>12</i>
<i>Auto Theft: The Problem and the Challenge, by Thomas A. Williams, Sr., President, National Automobile Dealers Association, Greensboro, N.C. . . . .</i>	<i>15</i>
<i>Index to Articles Published During 1968 . . . . .</i>	<i>22</i>
<i>Wanted by the FBI . . . . .</i>	<i>24</i>

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Washington, D.C. 20535



# MESSAGE FROM THE DIRECTOR

MOST AUTOMOBILE DRIVERS recognize the need for strict traffic laws, but many do not want the laws enforced strictly—except perhaps for other drivers.

Statistics compiled by the National Safety Council show that the chronic violation of traffic laws by the motoring public is a serious factor in the number of traffic fatalities each year. In 1967, some 53,100 persons died in traffic accidents.

One of the most flagrant violations is driving while under the influence of alcoholic beverages. Traffic authorities report that drinking is a factor in at least half of all fatal motor vehicle accidents each year. A study conducted in one State reveals that three-fourths of the drivers killed in single-vehicle accidents during a 5-year period had been drinking.

Excessive speed also takes its toll each year. Statistics show that about three out of 10 of the fatal accidents in 1967 involved vehicles exceeding the speed limit or going too fast for road conditions. The irony of excessive speed is that usually it accomplishes very little of what it is supposed to do—save time. A 1,000-mile test by officials in a foreign country demonstrated that a fast driver, speeding and taking certain risks, arrived at his destination only 31 minutes ahead of a driver who observed the speed limits, avoided all risks, and moved with the flow of traffic. Certainly, a mere half hour saved in a timespan exceeding 20 hours discredits any arguments for fast, reckless driving.

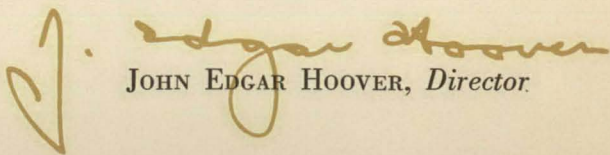
In addition to the alarming number of traffic fatalities in 1967, some 1,900,000 other persons were seriously injured, and motor vehicle accidents cost our Nation approximately \$10,700,000,000. Once again, December was the leading month with 5,160 fatalities, and Saturday was the most dangerous day with an average of 225 deaths.

A ray of hope does exist, however. Expanding interstate highway systems have been credited with saving about 4,700 lives last year, and safety belts may have saved as many as 2,500 lives. In 1967, there was a decrease in both the mileage death rate and the registration death rate. This was possible because the increase in traffic deaths was held to less than 1 percent while vehicle mileage and the number of cars on the road increased 4 percent each.

These are encouraging trends; however, super highways and safety devices cannot do the whole job. Much of the highway carnage which haunts every home, community, and State is the fault of irresponsible and careless drivers. Realistic enforcement of traffic regulations and proper punishment of guilty violators, particularly where drunk driving and excessive speed are concerned, would save thousands of lives in our country each year.

As we enter this crucial last month of 1968, each motorist should make certain that traffic accident statistics are not increased because of his driving derelictions.

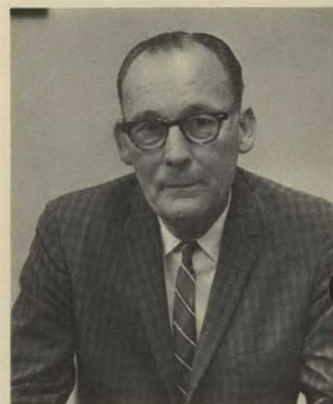
DECEMBER 1, 1968

  
JOHN EDGAR HOOVER, *Director*



# Industrial Security

By  
**CHARLES F. WEIMAR**  
Chief of Plant Protection,  
Continental Can Co., Inc.,  
Port Wentworth, Ga.



**T**he basic responsibilities of a plant protection department are protection of the company's property and its employees while on the property and enforcement of the company's many policies, rules, and regulations as they affect the company and employee safety and security.

## ***Personnel Qualifications***

Perhaps the most important facet of industrial security is the selection and training of the plant protection personnel. The nature of the responsibilities delegated to the department make certain educational and physical standards prerequisites for employment. A high school education, or its equivalent, is a basic qualification for the position. If the applicant is able to think quickly, use simple mathematics, write legibly, and express himself clearly and briefly, he will be able to perform the duties normally assigned by the department. All applicants are required to pass a physical examination. Since all personnel must be commissioned special

deputy sheriffs, each must be of unimpeachable character.

The necessity for proper training cannot be too forcefully emphasized. Unless all personnel have a thorough knowledge of their authority, responsibilities, and functions, they cannot uniformly interpret and perform their duties.

Each member of the plant protection department is furnished a written outline of his responsibilities. They are as follows:

1. Complete knowledge of the physical layout of the entire plant.
2. Familiarity with the location and understanding of the operation of emergency equipment and facilities.

This includes a working knowledge of:

- (a) Plant properties—all buildings, entrance doors, elevators, stairways, windows, firewalls, fire doors, access gates to yard, etc.
- (b) Piping systems—steam, water, gas, air, propane, sprinkler systems, etc., including supply control valves, section control valves, yard piping and valves, hydrants, indicator post valves, sprinkler system control drain valves, etc., together with the position of each valve

(open or shut) under normal conditions.

- (c) Fire alarm system—the location of the nearest public and/or private alarm boxes and method of operation.
- (d) Plant fire pumps—the location and recommended procedure for starting and operating.
- (e) Fire extinguisher equipment—the location of extinguishers, small hose, plant emergency vehicles, etc., and the use of same so that no time is lost in an emergency.
- (f) Electrical system—the location and operation of the principal switches controlling both power and lights, including the main plant disconnect switch.

Since the department is vested with police powers, each man must thoroughly understand the extent of his authority. The possibility of civil





A guard uses a watch clock to record his checks of buildings, grounds, docks, and fence lines.

suits directed against the company for improper acts of the security personnel requires that police powers be carefully exercised. In the event a member of the force severs his connections, immediate action is taken to cancel his deputy commission.

We make a special effort to impress upon our plant protection personnel the importance of personality and self-control. They must remember at all times that they are members of a service unit and the value of the services rendered must be sufficient to compensate for the fact that they do not mechanically participate in the production of the product from which

the income of the company is derived.

Equally important is their responsibility for maintaining good employee-management relations. It is human nature for an employee to feel that the success of the company depends on him and that he is entitled to courteous treatment and proper consideration from all other employees, particularly from members of the plant protection department. Courtesy and consideration must be extended to all employees.

Courteous attention by guards to inquiries on personnel problems pays large dividends in information furnished to the department by employ-

ees and in their assistance in any investigation which must be made by the department.

Training is given in the enforcement of company rules and regulations; the identification, admittance, and supervision of visitors; inspection of trucks and other vehicles entering and leaving the premises; inspection and control of packages entering and leaving the property; and the inspection of fire extinguishers, sprinkler systems, and valves, together with the testing of fire pumps.

Low turnover of the plant protection personnel is a vital factor in an efficient security operation since considerable time is required for each guard to learn to recognize employees and their areas of work.

### ***Securing the Premises***

The first line of defense is the point at which control is to be maintained over all persons and things entering and leaving the premises. All plant employees must enter through a main gate. No employees, with the exception of departmental superintendents, are permitted to drive their vehicles onto the immediate plant area. A parking lot is provided outside the plant fence for all employees while at work. The mill parking lot is also fenced to provide better security for employees' vehicles.

Any employee entering other than on his regular work shift, must be cleared by his immediate supervisor before the gate guard will allow him to enter. Supervisors are also required to notify the guard office when any employee is leaving earlier than his regular quitting time.

### ***I.D. Cards and Badges***

Control over all persons entering the property is accomplished through identification cards and badges. Strict enforcement of identification require-



ments is the only insurance against unauthorized persons entering the property. All employees possess a wallet-size identification card issued by the industrial relations department. This card contains the name, position, department, and a physical description of the employee.

A person authorized to enter must sign a log maintained in the main gate guard office and show his name, whom he represents, whom he will visit, the reason for the visit, and the time he enters and leaves.

Four categories of badges are used and issued by the guard to individuals authorized to enter—a blue badge for off-duty employees, a green badge for visitors, a yellow badge for vendors, and a white badge for contractors working on the property. These badges must be worn on an outer garment in order to be visible and recognizable from a distance and to indicate to all that a “stranger” has been authorized to be on the premises. All vehicles entering for deliveries and for loading are inspected; each driver must sign in and receive a badge.

### ***Inspection of Packages***

The inspection of packages brought into the plant by employees and visitors presents a problem. Employees are not allowed to take in items other than lunches and work clothes, which includes toilet articles and items contributing to personal hygiene. Any other items must be checked at the guard office. No items other than those mentioned are allowed to be taken out without a pass issued by plant management.

All vehicles leaving the property are inspected at the gate and a dray ticket or bill of lading is required if the vehicle has company property aboard. All information on items or manufactured goods is logged in the guard office, showing date, time, items, reason for leaving, and destination, along



All vehicles leaving the property are inspected at the gate.

with the serial number on the instrument.

### ***Fire Protection***

The element most to be feared, both from the standpoint of normal operations and as an instrument of sabotage, is fire. If fire damage is to be kept at a minimum, it is essential that all fires be discovered and extinguished quickly. Therefore, the plant fire brigades must be trained and drilled at regular intervals. A plant fire brigade is maintained on each of our four shifts, and unannounced drills involving different shifts are held at least once a month. Each brigade is composed of 12 men, with the guard sergeant on each shift designated as the brigade captain. The alarm is sounded by the plant whistle, with a different code for 26 different locations within the property. Members of the plant protection department are required to make weekly inspections of all sprinkler systems, test the riser alarms and the regular and auxiliary fire pumps, check all post indicator valves to insure that none are closed, and inspect

all fire extinguishers to insure that none have been used and not reported. Those found to be out of date are refilled. I make a weekly inspection report, with copies to the plant manager, plant engineer, superintendent of maintenance, and superintendent of buildings and grounds.

### ***Regular Patrol***

The premises are patrolled and inspected at regular intervals and all buildings, grounds, docks, and fence lines are checked. In order that a record may be maintained of these patrols, and to insure that guards visit all required areas, a watch clock is used. The locations of the keys require the patrolman to visit the most vital areas on the premises and provide evidence should he fail to properly perform his duty.

### ***Sabotage by Telephone***

Sabotage may be accomplished through use of the telephone. This technique is so simple that it results in success before it is identified. The



usual method is to issue orders by telephone directing that something be done, or not done, which will materially affect operations. The order may be to stop work on a particular job; to change some work routine; or to institute some procedure requiring unnecessary man-hours or causing confusion in some other way. Personnel responsible for operations should not execute any orders received by phone unless they are absolutely sure of the identity of the person giving the order and of his authority to issue the order. In any case, the instructions should be verified before being acted upon.

Since we have here at our plant a dock for shipping, the protection department has another responsibility controlling movements of the ship's crew, stevedores, longshoremen, agents of the ship lines, and ship chandlers, as well as trucks and drivers of vendors servicing the vessel.

All persons having access to the area where a vessel is docked for loading are required to have proper identification. Since port regulations require these persons to have identification issued by the captain of the port, they are allowed to enter on this identification.

Members of the ship's crew on shore leave are required to sign out at the main gate and sign in again on returning, so that comparisons may be made of their signatures. They are also required to have in their possession the pass issued by the ship's captain. If a crewmember returns without his pass or in an intoxicated condition, the captain is called to identify him.

### **Medical Department**

The plant medical department is headed by a physician, who visits the plant three times each week. A regis-

tered nurse is on duty around the clock to administer to all employees, whether for sudden illness or accident. The plant has its own company ambulance to avoid delay in answering a call and to preclude the necessity of contacting a private ambulance service. Members of the protection department drive the ambulance and also assist the nurse on duty.

### **Security Committee**

Under a provision of general company instructions, we have a plant security committee. I serve as secretary of this committee, and other members are the assistant plant manager, who serves as chairman, and the plant accountant. It is our duty to be continually on the alert for any conditions which may tend to lessen the company's protection against theft and to report these conditions to the chairman.

We meet each calendar quarter and during the meeting make an inspection tour of the entire premises to determine if there are any conditions which need correction for maximum protection. We also review procedures and policies relating to plant security and recommend any needed changes to the plant manager.

The importance of good relations with all local law enforcement agencies must not be overlooked. Exchanges of information between a plant protection department and city, county, State, and Federal agencies can prove very valuable, particularly in the event of civil commotion and strikes, since a fence is all that separates our jurisdictions.

Thus, the functions of a plant protection department are similar to those of a police department, in that plant protection enforces company policies, which may be compared to laws and ordinances, to prevent the removal of company property and to secure the safety and welfare of company employees.

Plant fire brigade members drill at regular intervals.







Surveillance photography is becoming increasingly more important in law enforcement work.

# Seminars on Law Enforcement Photography

By  
**LUTHER M. DEY\***  
Consultant,  
Law Enforcement Photography,  
Eastman Kodak Co.,  
Rochester, N.Y.



**F**or many years photography has been recognized as a most important tool in crime detection. Several enforcement agencies, such as the FBI and some of the larger metropolitan police departments, were pioneers in the use of photographs and photographic techniques to aid investigators in the fight against crime. However, because of the cost, the lack of equipment, and the absence of qualified personnel, many enforcement agencies were not taking full advantage of photographs.

Through public service programs over the years, private enterprise, civic groups, and similar organizations have come to the aid of law

enforcement and other government agencies with support and assistance. It was in this spirit that the Eastman Kodak Co. in 1955 chose to lend a hand to law enforcement in the field of photography. The first Seminar on Law Enforcement Photography was held in Rochester, N.Y., in March of that year.

We felt that, with the frequent introduction of new sensitized materials, faster and better cameras, and new techniques in processing, there

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\*Mr. Dey has a B.S. degree from the University of Rochester. Engaged in law enforcement activities for many years, he is former chief of the Brighton, N.Y., Auxiliary Police and has also conducted police training in Topsfield, Mass., in the past. He is presently a special deputy sheriff in Monroe County, N.Y.



was a need for a center of information where police departments and other law enforcement groups could come to learn about the latest developments in this fast-growing profession.

In the early stages, the 5-day seminars were held regularly twice a year, in December and in April. They were designed for groups of no more than 38 men, and the demand to attend the meetings has always exceeded the capacity.

In 1967 we added another 5-day seminar to the schedule at our training center and continued with three again in 1968. In 1969 we expect to hold four of the 5-day seminars. We plan to continue the four seminars a year indefinitely, but do not plan to increase the size of the groups. We want to keep the maximum number to about 38 officers so that we can retain the personal touch so important to good communication.

From time to time throughout the year, when new products or new techniques materialize, they are relayed to law enforcement agencies through our "Bulletin." Now in its third year, the "Bulletin" is published quarterly and goes to 18,000 people in police departments, fire departments, industrial security, and government agencies.

### **Not for Beginners**

These Rochester seminars are not schools of photography for beginners. They are sessions designed to provide maximum help to men who have been making law enforcement pictures for a year or more and who have basic photographic experience in the techniques of exposing, developing, printing, and enlarging.

Altogether, the programs consist of approximately 30 lectures, demonstrations, and actual photographic working sessions. The schedule runs from 8 a.m. to 5 p.m. during the day and 6:30 to 8:30 evenings. Highlights of

a recent seminar, listed below, reveal the broad scope of photographic subjects covered. The topics are in the same order as they appear on the agenda.

#### *Monday*

General Evidence Photography.  
Black-and-White Films and Their Use.  
Tips on Processing.  
"The Silent Witness"—Movie.  
Quality Control in the Lab.  
Practical Photography.  
Mug Shots.  
Photographing and Lighting Groups.

#### *Tuesday*

Crime Scene Photography.  
Filters for Black-and-White Photography.  
Black-and-White Papers and Ektamatic Processing.  
Camera Handling (Night Conditions).  
Dangerous Detours and Perilous Pitfalls.  
Surveillance Photography.  
Accident Photography.

Surveillance Photography With Recording Film.

#### *Wednesday*

"Air Disaster"—Movie.  
Small Cameras.  
Comparison of Color Films.  
Use of X-Rays.  
Group A—Color Film Uses and Lab.  
Group B—Color Printing Lab.

#### *Thursday*

Ultraviolet and Infrared Copying.  
Techniques and Document Photography.  
Metropolitan Investment in Security and Law Enforcement Photography.  
Copy Work and Photography of Small Objects.  
Perspective.  
Motion Picture Equipment.  
Fire and Arson Photography.  
How Film Is Made.  
Question-and-Answer Period.

#### *Friday*

Use of Microfilm.  
Driving While Intoxicated Movies.  
Effective Use of Color Slides.

**Accident photography is one of the many subjects covered at the seminar. Here a chilly group practices at night under adverse conditions.**







Classroom lectures account for a majority of the time spent at the seminar.

Services to Law Enforcement Agencies.  
Fingerprint Photography.  
Discussion of Accident and Surveillance Photography.  
Summary of Week's Program.  
Hospitality Hour at University Club of Rochester.  
Dinner—Presentation of Certificates.

These seminars are not intended to make the participants photographic experts in all the various fields of police photography. However, after a week's instruction on these topics and the actual working experience, the attending officer is able to return to his department with a basic understanding of the potential value of photography in all its many variations.

Only full-time officers of a law enforcement agency are eligible to apply, and they must have the approval of their chief or superintendent. There is no cost for these seminars, except the hotel, meal, and traveling expenses of the attending officer.

### **Workshop Technique**

The type of instruction varies according to the subject covered. Some

topics, such as proper perspective in picture taking and viewing, are shown in illustrated slides. Specific techniques, such as making color prints, are taught by actual operation in the darkroom. Night accident scenes and surveillance photography are learned by actual practice sessions under natural conditions. The use of infrared and ultraviolet materials is shown by demonstrations and examples. These combinations of practical use and discussion of theory have proved to be the most satisfactory method of instruction.

### **Problems Discussed**

Many officers bring in examples of photographic problems they have encountered on the job. Our people who are specialists in the particular field discuss the problems and suggest solutions.

Since an informal atmosphere is maintained throughout the seminar, the most retiring officer soon finds himself taking part in informal discussions, and he finds ample oppor-

tunity for the exchange of ideas. Police from departments widely separated geographically find solutions for many mutual problems during the sessions with other officers.

Color photography and color processing techniques, along with motion picture procedure, practical use of small cameras, and flash applications, are practiced. Night accident scenes are created and photographed. The officers actually take surveillance photographs which are processed and reviewed during the week. They use infrared and ultraviolet materials for examining questioned documents and discuss them along with fingerprint photography techniques. The use of hard and soft X-rays and methods of properly presenting photographic evidence in court are also covered.

At the opening session, every officer attending the seminar receives a kit of literature on subjects relating to photography in police work. The kits are for the men to refer to during the week and then to take back with them for future reference. This material includes the following:



Basic Developing, Printing, Enlarging.  
 Basic Police Photography.  
 Black-and-White Films in Rolls.  
 Camera Technique for Professional Photographers.  
 Color Films.  
 Color Photography Outdoors.  
 Enlarging in Black-and-White and Color.  
 Flash Pictures.  
 Gravure Copy Film.  
 Hc-110 Developer and Replenisher.  
 Infrared and Ultraviolet Photography.  
 Modern Trial Evidence Color Photography.  
 Negative-Making with Black-and-White Sheet Films.  
 Photolab Design for Black-and-White and Color Photography.  
 Precise 35-mm. Technique.  
 Printing Color Negatives.  
 Producing Slides and Filmstrips.  
 Rapid Color Processor.

Since 1961 the demand for these seminars has made it necessary to conduct 1- or 2-day seminars on an annual basis in other cities around the country, usually where we have facilities in regional and branch offices. For instance, as of the time this article is being prepared, we have visited San Diego, Calif.; Whittier, Calif.; Toronto, Canada; New York, N.Y.; Dallas, Tex.; Chicago, Ill.; Tulsa, Okla.; and

Baton Rouge, La. We also expect to have conducted seminars in Seattle, Wash.; Portland, Oreg.; San Francisco, Calif.; and Atlanta, Ga., by the end of the year.

These out-of-town seminars reach approximately 1,500 officers each year in addition to the 152 men who attend the Rochester seminars annually. Over 7,000 law enforcement officers have attended our Law Enforcement Photography Seminars up to the present time.

### **Officers From Worldwide Locations**

Practically every State, as well as Puerto Rico, has sent officers to the seminars. So have all the branches of the Armed Forces and many Federal agencies, such as the FBI, Post Office Department, and the Secret Service. Foreign countries and territories which have been represented include:

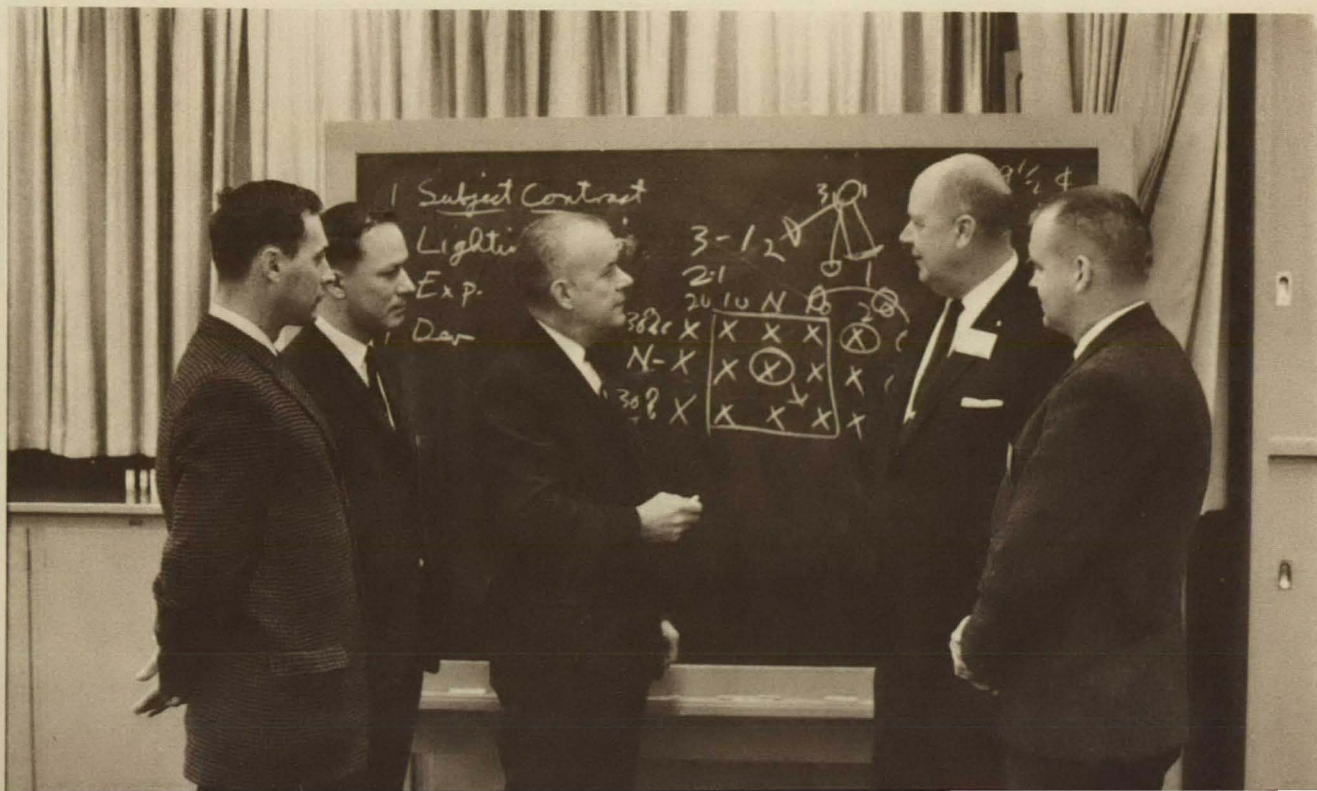
Bermuda  
 Brazil  
 Canada  
 East Pakistan

Ecuador  
 Indonesia  
 Korea  
 Lebanon  
 Philippines  
 Republic of China  
 Taiwan  
 Tunisia  
 Turkey  
 West Pakistan

There is no question as to the ever-growing need for this type of photographic training and information. Applications for our Rochester seminars far outstrip our physical capabilities. Usually, the waiting list of applicants exceeds the number which can be accommodated in 1 year. Officers interested in attending the seminar should request application forms and return them promptly in order to get on the list for the earliest date possible.

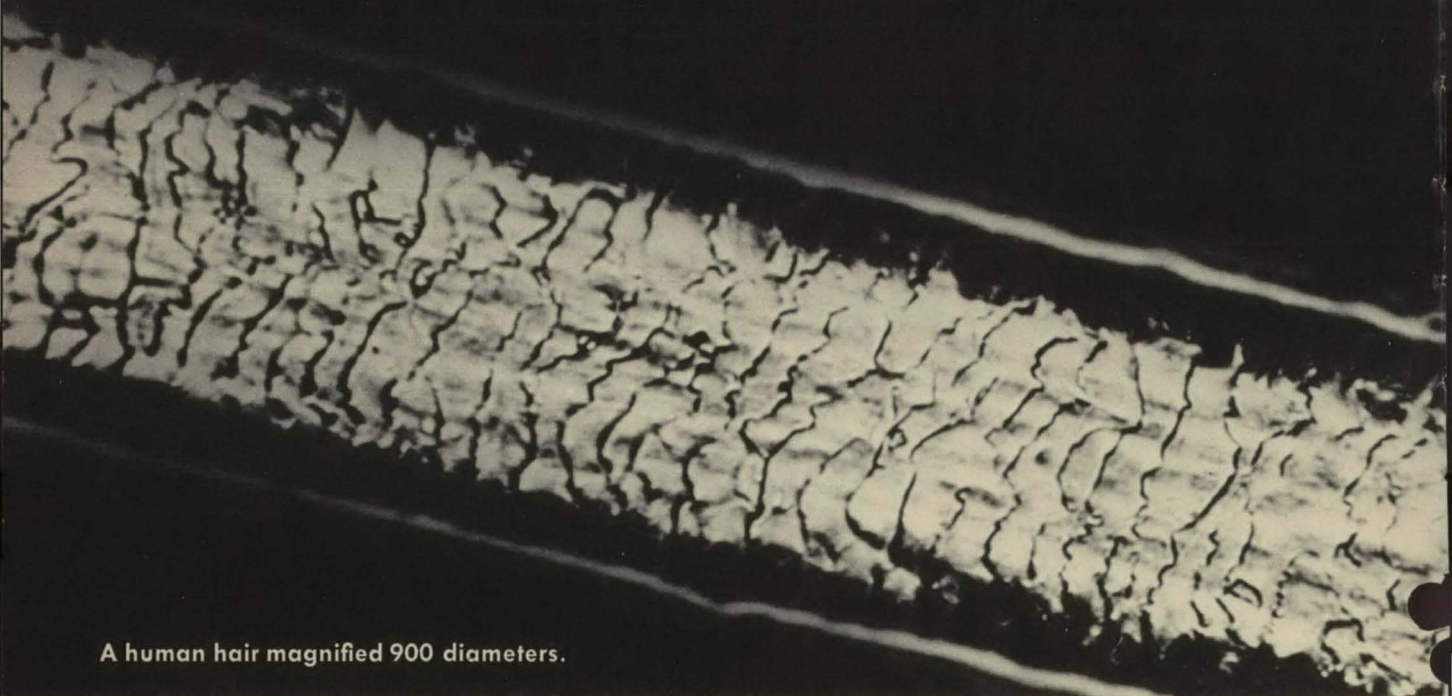
EDITOR'S NOTE: Material and articles published in the FBI Law Enforcement Bulletin are solely for the information and assistance of law enforcement members. While brand names and companies may be mentioned from time to time, this is done in a strictly objective manner to help present the story in its entirety. 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, course, or equipment by the FBI.

Special attention for individual problems is one of the features that makes these seminars so popular. Here a group discusses more thoroughly some points that had been covered in a lecture just completed.





# Don't Miss a Hair



A human hair magnified 900 diameters.

**H**air evidence is present in a large percentage of criminal cases which come to the attention of the FBI Laboratory. The successful investigation and prosecution of crimes of violence, such as rape, murder, hit and run, assault, etc., can frequently be materially assisted by the results of the examination of hairs. Hairs are very likely to become detached from the scalp, other portions of the body, or the clothing and transferred from one person to another in any violent encounter.

Vicious assaults and murders are

This article, first printed in the August 1952 issue of the Bulletin, has been revised and brought up to date. Because of its basic value in scientific crime detection, it is being reprinted for Bulletin readers.

often accomplished by blows to the head area. Hairs readily become attached to the instrument used, especially where there are bloodstains on the weapon to which the hairs will adhere. An examination of such hairs will aid in establishing whether or not the instrument was used to perpetrate the crime. (See fig. 1.)

Hair evidence has been used to advantage in the solution of other crimes, such as breaking and entering, burglary, robbery, kidnaping, etc., where the subject or victim has brushed against objects or has come in contact with animal furs.

The examination of hairs may prove of value in identifying both the living

and the dead. It tends to identify the perpetrator of a crime by placing him at the scene of a crime or with the victim. (See fig. 2.) Hairs are very resistant to decomposition and putrefaction. They often remain as evidence of identification long after other means, such as facial features and fingerprints, have been destroyed.

## *Old Superstition*

There is an old superstition that hair grows after the death of an individual. This is not true, but the hair, especially the beard, may appear longer due to the shrinkage of the skin.



Hair evidence can be difficult to locate, and a search for it can hardly be too meticulous. For example, in a hit-and-run case it is suggested that if the investigation reveals a car was possibly involved in the case, the car be placed on a lift or over a grease pit and searched thoroughly with an oblique light from the underneath side to the top. (See fig. 3.)

If a hair examination is requested, all foreign fibrous debris is removed from the submitted specimens in the laboratory. The hairs are separated from the other debris and are prepared for examination.

If hairs are not fully developed or are too fragmentary, they are not suitable for an adequate hair examination.

Except in rare instances, there are not enough individual characteristics in hair from which to determine positively that a hair of unknown source came from a particular person to the exclusion of all other persons.

### Examination of Hair Evidence

A hair is an appendage of the skin and consists of a bulb or root end, the shaft, and a tip end. The shaft grows outward from the root end and is com-

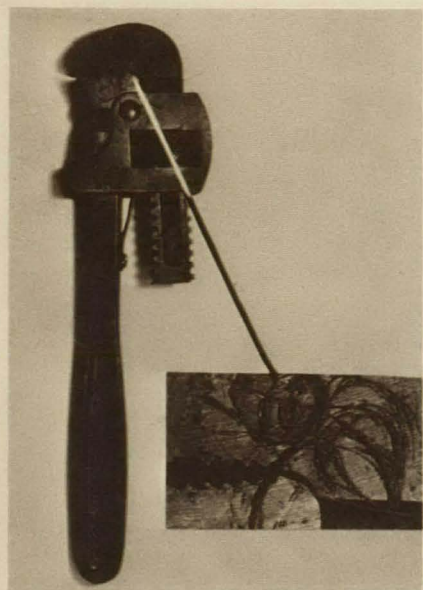


Figure 1.—Hairs and bloodstains were found on death weapon in car of suspect.

Figure 2.—Caucasian-type hairs from a murdered police officer were found around the button of a suspect's shirt. These hairs were placed in the left field of a comparison microscope. Known specimens taken from the head of the deceased were placed in the right field. Note how the variations in the questioned specimens match those of the known specimens.



posed of the cuticle or outside covering, the cortex or the walls, and the medulla or core. The cuticle is formed by overlapping scales which always point toward the tip end of the hair. The cortex consists of flat, elongated cells which give pliability to the hair. The medulla or core is composed of various shaped cells. The pigment, when present, may be found in varying amounts distributed throughout the hair and is responsible for the shade or color tone of the hair.

### Human or Animal

It can be determined whether hair is human or animal in origin. Human hair has finer and more numerous cross striations, the medulla is usually narrower in breadth, when present, and the location and distribution of the pigment are different. Animal hairs usually consist of both heavy guard hair and finer fur hair, whereas

human hair does not vary in type.

Hairs of many different types of animals vary in structure to such an extent that the kind of animal can usually be determined. Different breeds of the same animal family, such as the dog family, cannot be differentiated by an examination of a limited number of hairs. Animal hairs from an unknown source can be compared with a hair sample from a particular animal to determine if possibly the two samples could have come from the same animal, but animal hair comparisons are not as conclusive as human hair comparisons because of the many variations found in the hair from the same animal.

In most instances it can be determined whether a human hair came from a member of the Negroid, Mongoloid, or Caucasian race or from a person of mixed racial origin.

(Continued on page 18)



# Drinking and Driving



**I**t is an established fact that alcohol in the bloodstream affects an individual's reflexes and impairs his judgment. Consequently, traffic experts and medical authorities agree that a person *under the influence* of alcohol becomes a serious threat to his own safety and the safety of other persons when he takes the wheel of an automobile.

Drinking is a factor in at least half of the fatal motor vehicle accidents, according to studies which have been especially designed and conducted to measure the blood-alcohol level of drivers and adult pedestrians who are

involved in fatal accidents.

Since most States and municipalities have laws which prohibit operating a motor vehicle while under the influence of alcohol, this means that a large percentage of the 53,100 traffic accident victims in 1967 were killed by drivers who knowingly violated the law. Routine accidents do not show the same frequency of drinking, according to accident reports.

Many authorities are convinced that better highway construction and improved safety features in motor vehicles are not the whole answer. Some feel that more stringent measures

must be taken against the drinking driver.

In England, where statistics prove that drinking by drivers plays a part in nearly 10,000 fatal and serious accidents each year, the Parliament enacted the Road Safety Act in an effort to stop those who drink too much from driving.

Since the provisions of the act may be of interest to officers and other authorities in the United States who are concerned with traffic fatalities, a statement issued by the British Government explaining the legislation, its purpose, and how its strict enforce-





ment will affect the driving public is set forth below:

## STATEMENT BY BRITISH GOVERNMENT

### *Why a New Law?*

"To drive under the influence of drink has been an offence in this country since 1925. Why do we need this new law and the new tests for detecting drivers who have drunk more than they should?

"The simple answer is that we need to be much more precise and accurate about measuring the effects of drink-

ing on driving. It's a fact, well established by medical authorities, that alcohol in the bloodstream affects the reflexes and impairs judgment. It's another fact, well established from accident statistics gathered over the years, that drinking by drivers plays a part in nearly 10,000 fatal and serious accidents every year.

"A driver may actually feel more confident after a few drinks. He may not feel, look or act drunk. But his judgment may be so impaired by drink that he is a danger at the wheel.

"The old law often misses drivers in this condition. It really only works in the case of drivers who are pretty obviously *drunk*—the really bad cases. We need a much more scientific and precise test to pinpoint drivers who have had more than they should. The new law makes it an offence to be in charge of a vehicle if you have more than 80 milligrammes of alcohol in every 100 millilitres of blood.

"The aim of the new law is not to stop people drinking. The aim is to stop the minority who drink too much for safety, and then drive.

### *How Does the New Test Work?*

"Anybody can be asked to take the first stage of the test. Any driver stopped by the police for a normal caution arising out of some quite minor traffic infringement (such as crossing a white line), any driver involved in an accident (whether it's his fault or not), or any driver whom the police suspect has been drinking can be asked to take the test.

"Stage 1. At the roadside the driver will be asked to blow through a small glass tube into a plastic bag. Inside the tube are chemically treated crystals which change colour if the driver has alcohol on his breath. If the colour change goes beyond a certain line marked on the tube, this indicates that the driver is probably over the specified limit. If the colour change does

not reach the line, the driver is in the clear under the new law. But if the colour change does reach the line, then the test has proved positive and the driver will be asked to go to the police station for . . .

"Stage 2. At the police station the driver can repeat the first test—the one he has already taken at the roadside—if he wants to. This check is for his protection. But if he does not take a second breath test, or if the second test also proves positive, he goes on to . . .

"Stage 3. Still at the police station, the driver is required to give a sample of blood. This is provided quite painlessly by pricking a finger or the lobe of an ear. If the driver refuses a blood sample, he is required to give two samples of urine within one hour. After this, the driver can leave immediately provided he is not going to drive. If he is going to drive, he will be detained in the station until the police are satisfied he is below the limit.

"Stage 4. The driver's blood or urine samples are sent to the forensic laboratories where they are analysed by the latest scientific equipment. If the analysis shows that the driver has more than 80 milligrammes of alcohol in every 100 millilitres of his blood, then the driver has broken the law and will be prosecuted.

"It is the evidence of this analysis which the police will use in court; and once the blood alcohol level has been established, there is no room for argument.

"But the driver does have this reassurance: At Stage 3 (see above) he can ask for an extra sample of his blood or urine, taken at the same time. He can send this sample to a doctor of his own choice for independent analysis. In this, as in the opportunity to take a second breath test, the driver's rights are protected twice over and every care is taken to eliminate the chance of error.



### ***What Are the Penalties?***

"A driver convicted as a result of the test will be disqualified from driving for one year. The fact that he needs his licence to make his living— as a lorry-driver, salesman or doctor for example—will make no difference. But a doctor who is called out to an emergency on a night when he is not 'on call' could plead that there was a special and inescapable reason why he had to drive when over the limit. Under the new law the courts can take a very few such 'special reasons' into account.

"As well as disqualification, a convicted driver may also be fined up to 100 pounds or he may be sent to prison for up to four months—or both.

### ***What If a Driver Refuses To Take the Test?***

"If a driver refuses to take the roadside breath test and the court decides that he had no good reason for doing so, then he will be fined up to 50 pounds.

"If he refuses to take the roadside test—and has been drinking—he will still be asked to come to the police station. There, if he refuses to provide blood or urine samples, he will be treated as if he had taken the test and these had proved positive. This means that he will face exactly the same penalties—including disqualification—as if he had been proved scientifically to have more than the alcohol limit in his blood.

### ***How Can a Driver Avoid These Penalties?***

"The short answer is: play it safe. There are plenty of saloon bar lawyers who will tell you how many drinks you can have before failing the test. Don't listen to them. The scientific fact is that nobody can ever really know how many drinks he can take before failing. The amount not only varies from one driver to another; it also varies from day to day and hour by hour for any one driver.

"Only one thing is sure. If you fail the test, you are in trouble.

"Nobody is asking you to stop drinking. If you get in a situation where you can't avoid drinking, get someone who isn't drinking to drive you home—or call a taxi. If you are going to a party, decide beforehand who is going to do the drinking and who is going to do the driving.

"If you start driving and then feel that you have had more than you should, you can still put yourself in the clear. If you park the car and can show the police that you have made other arrangements for the rest of your journey, then you will not be prosecuted under the new law.

### ***Remember:***

"The test aims at prosecuting thoughtless drivers, not at persecuting the sensible ones.

"The test aims at reducing the number of accidents caused by drinking—and making the roads safer for us all.

"The test is no threat to those who don't mix drinking with driving."

*Laboratory Division - 12-6-68*  
**Scientific Aid**

## **BAR BURGLARS BEHIND BARS**

On July 19, 1967, a bar in St. Petersburg, Fla., was burglarized and 76 bottles of liquor were stolen. In the early morning hours of that same day, two men were observed running through an alley south of the bar. One carried a case of liquor. Police promptly surrounded the area and arrested the two men about three blocks from the break-in. Officers found the stolen liquor 500 yards south of the building.

An investigation of the crime scene revealed a broken casement window with bloodlike smears on pieces of the broken glass. Experts from the FBI Laboratory determined that human bloodstains were on the broken glass and on the shirt and gloves worn by one of the suspects. Laboratory examiners also concluded that paint particles on the suspects' clothing could have come from the same source as paint specimens taken from inside

the point of entry. In addition, heel-prints found at the crime scene were the same size and design as one of the suspect's shoes.

On October 31, 1967, four FBI experts appeared at the trial of the two suspects to testify concerning their findings. The two men were found guilty and each was sentenced to 6 months to 10 years in the State penitentiary.



# Auto Theft

## The Problem and the Challenge



By  
**THOMAS A. WILLIAMS, Sr.**  
President,  
National Automobile Dealers  
Association,  
Greensboro, N.C.

Every 48 seconds, 24 hours of every day, somebody's car is stolen. That adds up to more than 600,000 auto thefts a year—and according to preliminary reports, we can expect this figure to climb even higher in 1968. Already the dimensions of the problem are appalling, both in terms of the social as well as the economic consequences.

Auto theft currently ranks third in frequency among all felonies committed in the United States—and second in direct financial loss. Although some 85 percent of all stolen cars are eventually recovered—many partially stripped or wrecked beyond repair—the average loss per vehicle is over \$200. This represents a total loss of more than \$140 million a year—and when we tack on the dollar loss for stolen parts and accessories, our figure jumps to \$250 million annually.

What's more, the additional expense of police, courts, and correctional agencies involved in auto theft cases pushes the cost per year to more than \$500 million, a substantial portion of which is borne by you and me through higher taxes and increased insurance rates.

Even more alarming, however, is the fact that nearly two-thirds of those arrested for auto theft are under 18 years of age—and almost nine out of 10 are under 25. In all too many cases, police statistics indicate that auto theft becomes the first step on the road to a criminal career for these youths.

The growing number of auto thefts also poses a serious threat to highway safety. Approximately 100,000 accidents in 1967 involved stolen cars. More than 18 percent of all stolen vehicles were involved in accidents,

of which one in five resulted in personal injuries. This accident rate is *200 times greater than that for normal vehicles.*

It would appear that part of the answer to the problem lies neither in stiffening nor tempering our present penalties for the young offender—but in preventing the theft in the first place. Following is a rundown of what is being done to attack the problem at its roots.

### ***Theft Prevention and the Government***

Recognizing the relationship between auto theft and highway safety, the Department of Transportation recently announced a Federal vehicle safety standard designed to help deter auto thefts by requiring every new passenger car to have an identification number permanently affixed to its



structure. This number, the standard dictates, will be located near the left windshield so that it can be read from outside the car. It is hoped that this identification number will assist law enforcement agencies in finding stolen cars and apprehending the thieves much faster. The standard is slated to become effective January 1, 1969. Additional Federal standards, scheduled to take effect in 1970, will also require either a transmission or steering lock geared to the key-locking system of the car; a warning device which is activated when the ignition key is left in the ignition and the door is opened; and a greater number of lock patterns.

On Capitol Hill, several bills aimed at eliminating the source of master keys made to fit all cars were introduced in the 90th Congress. Studies show that master keys are used in approximately 5 percent of all auto thefts.

### **"Master Key" Bill**

A "master key" bill passed by Congress and signed by President Johnson on October 12, 1968, was sponsored by Representative Robert N. C. Nix (Democrat of Pennsylvania). This bill, H.R. 14935, prohibits the use of the mails for the advertising of or the distribution of master keys or other manipulation devices designed to unlock the ignition switches or locks of more than one automobile. The bill, known as the Auto Theft Prevention Act, provides a fine of not more than \$1,000 or imprisonment of not more than 1 year, or both. It becomes effective 60 days after its enactment.

According to the FBI Uniform Crime Reports for 1967, auto thefts increased 18 percent in volume above the 1966 totals. Since 1960, auto theft has risen 101 percent, which is more than double the percentage of increase of automobile registrations

during the same 8-year period. Nationally, one of every 123 cars registered last year was stolen or a rate of 8.1 per 1,000 registered automobiles. More persons in cities with 500,000 to 1,000,000 population were unlawfully deprived of their automobiles than in any other population group—901 per 100,000 population.

Studies under the Uniform Crime Reporting program have shown that auto theft is primarily a crime of opportunity. The youthful offender, who is most often involved, finds the vehicle either unlocked and/or with the keys in the ignition switch.

The National Automobile Dealers Association, together with 18 other business and civic associations, formed the National Auto Theft Prevention Campaign more than a year ago. Thus far through this campaign more than 17,000 kits have been distributed. These kits contain publicity materials and suggestions for focusing public attention on the auto theft problem simply by urging owners to lock their cars and remove the keys.

On the State level, approximately 25 States have adopted key-in-car ordinances which make it unlawful for motorists to leave their cars unattended with the keys in the ignition. In addition, the sale and/or possession of master keys has been outlawed in about 10 States to date—and more are being urged to follow suit.

### **Business and Industry Pitch In**

The major automobile manufacturers and many smaller independent firms, realizing that no car can ever be made completely theftproof, have put a great deal of time and money into researching and developing systems which will delay and discourage the amateur thief—and aid in the apprehension of the professional.

All major automobile manufacturers, for instance, beat the Department of Transportation to the punch by in-

troducing a system of placing vehicle identification numbers in positions where they could easily be seen from the outside of their 1968 models. This system was further expanded on the 1969 models.

### **More Key Combinations**

The number of key combinations was also increased for 1968 cars; and, again, even more combinations—well over the anticipated minimum of 1,000—are included in 1969 models. Also, many new models carry warning buzzers which sound an alarm to remind motorists to remove their keys before leaving their cars.

General Motors introduced a new multilocking system on all 1969 models, with the exception of the Corvair. This new system combines a steering wheel lock and transmission linkage lock with the ignition lock and will be mounted on the steering column. All three locks will be operated simultaneously by the ignition key.

The system provides three barriers against theft: The steering wheel can be locked in one of 12 positions; the gearshift lever can be locked in park on models equipped with automatic transmission and in reverse on models with standard transmission; and greater security for the ignition switch makes manipulation much more difficult. If any one of the three locks is overcome, however, the other two can still thwart an attempted theft.

Another antitheft device, developed by a division of General Motors, features a small trumpet horn with a piercing high-pitched tone that "sounds off" when illegal entry is attempted. The new "alarm tone" is designed to protect the hood and two front doors, but may also be applied to the trunk, back doors, and hand-brake simply by adding additional switches.



Once the alarm system is activated by forcible entry, the horn can be turned off only by the use of a special key that unlocks an arming switch. One of the advantages of the system is that the arming switch can be hidden in different locations on the vehicle, so that no two systems are necessarily alike. The system is being offered as a factory option.

Chrysler Corp. is currently working on a key ejection device which automatically ejects the key in the engine ignition off position. This device could help reduce the theft of cars with keys left in the ignition. The device will force the key out of the lock and at the same time increase the resistance of the lock to manipulation.

Another engineering project at Chrysler is directed toward the possible relocation of door-locking buttons to make them more inaccessible to manipulation with devices such as coathangers.

Also along this line, American Motors introduced a unique door-locking system on its 1968 models. The door lock was removed from the door sill and relocated in a safety-styled armrest. The lock lever was thus made more difficult to reach by would-be thieves using common jimmying devices. The lock lever, because of its recessed location, is also difficult to see from the outside of the car, and a thief considering stealing a car cannot determine if it is locked or not without actually trying the door. In addition, the interior door handle is less susceptible to opening from the outside since it is pulled laterally instead of vertically and, moreover, cannot be opened when the lock is set.

The Ford Motor Co., too, introduced in 1968 a new type of door handle which resists manipulation. A squeeze-type inside handle is used in combination with a push-down lock button that cannot be gripped readily by a wire loop.

Ford is also working on a steering

column locking system and is investigating electronic devices which would somehow be triggered to radio signals stating, in effect, "Attention police. This is a stolen car."

Another electronic antitheft device has been developed by a firm in an eastern State. The device discourages car theft by preventing the engine from being started and by sounding the horn continuously following any attempt to start the car or open the doors. The unit turns itself on 20 seconds after the driver opens his door and may be shut off only by a key-operated switch located inside the car.

A midwest company has come up with a novel device that permits the thief to start a car and drive away, but stalls it seconds later. The car cannot be restarted by anyone who does not know how to operate the device. To activate it, the driver simply pulls a knob out as he leaves his car and pushes it in again to operate it in a normal manner. The device is based on a time-delay element which operates on any car with battery ignition.

These are only a few of the new systems and devices being developed by business and industry. No matter how many such devices are developed, however, we must remember that the real key to theft prevention is the individual motorist.

### *We the People*

Despite the efforts of business and industry, National, State, and local agencies and associations, auto theft increased 18 percent on a national scale last year, according to the FBI's Uniform Crime Reports. Although we have no way of knowing how many more cars might have been stolen were it not for these efforts—neither do we know how many less there might have been had more people taken more precautions with their own property. We do know, however, that in 17 cities across the Nation

which conducted auto theft prevention campaigns, the theft rate was reduced from 11 to 51 percent.

My association and its members have recognized the problem and are attempting to do something about it. After all, it's our product that's involved. But in the final analysis, the success or failure of our efforts depends on each individual car owner. As our concern about the rising theft rate grows—and with it, an awareness of our responsibilities—I feel certain that together we can greatly reduce the serious social and economic costs of automobile theft.



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### **PUBLIC SERVICE WITH A CAPITAL P AND S**

Recently an officer of the Vienna, Va., Police Department rushed to the scene of a traffic accident. As one of the drivers, a housewife, was being placed in an ambulance to be taken to the hospital for a checkup for possible injuries, she told the officer that she had left a cake in the oven at home. The policeman advised her not to worry and that he would take care of it. He hurried to her home, and after a perturbed moment, he remembered that his wife tested a cake by piercing it with a toothpick. Lacking a toothpick, he quickly whittled down a wooden matchstick and found that the cake was not quite done.

Before going next door to alert a neighbor and ask her to attend to the cake, the officer saw that the lady driver had left a piece of meat out to thaw for dinner. Since he was not sure how long she would be detained at the hospital, he carefully put it back in the refrigerator, contacted the neighbor, and then returned to his policing duties.



## HAIR EXAMINATIONS

(Continued from page 11)

Hair from members of the Negroid race contains heavy pigment distributed unevenly. A thin cross section of a hair from a member of the Negroid race is flat to oval in shape (fig. 4). Negroid hair is usually tightly curled with marked variations in the diameter along the shaft.

Members of the Mongoloid race, which includes the American Indian, the Eskimo, and the Oriental, have hair containing dense pigment distributed more evenly than in Negroid hair. Cross sections made of Mongoloid hair are round to oval in shape. (See fig. 4.) Mongoloid hair is coarse and straight with very little variation in diameter along the shaft of the hair. It usually contains a heavy black medulla or core.

Hair from members of the Caucasian race contains very fine to coarse pigment. The pigment is more evenly distributed than in hair from

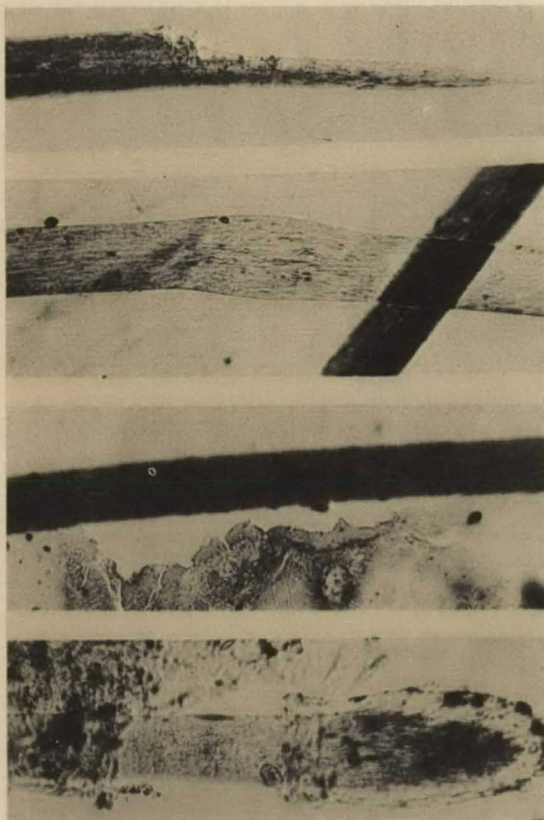


Figure 3.—Caucasian-type scalp hairs were found on the undercarriage of an automobile involved in a "hit and run" accident. Hair No. 1 (reading from top to bottom) was forcibly shattered. Hair No. 2 was crushed at the widened area. Hair No. 3 shows a stain of human blood. Hair No. 4 was forcibly removed from the scalp. The microscopic variations in the structure of these hairs were also present in the known samples obtained from the victim. The subject in this case was found guilty of manslaughter.

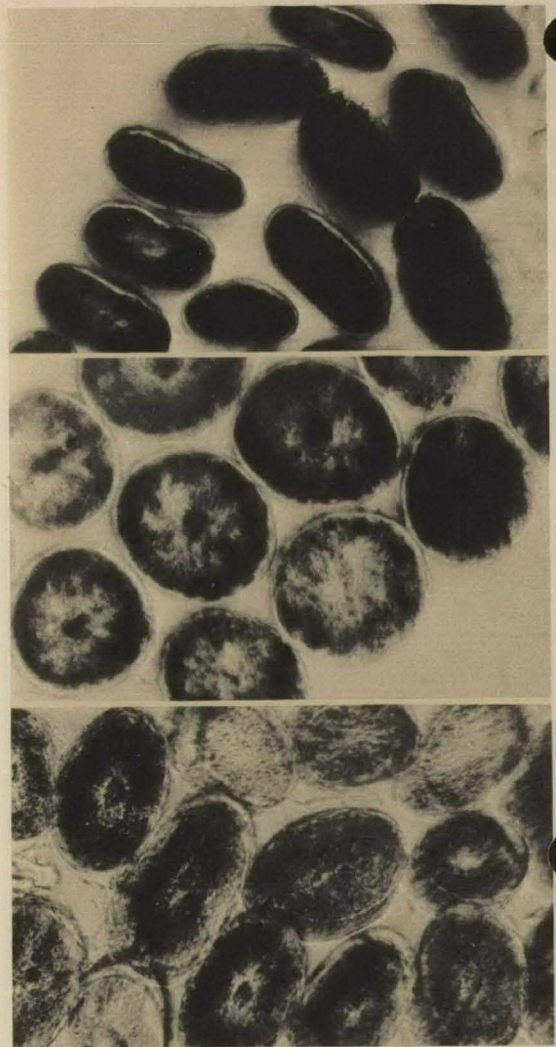


Figure 4.—Cross sections of scalp hair—Negroid, Mongoloid, and Caucasian, reading from top to bottom.

members of the Negroid and Mongoloid races. Cross sections of hairs from Caucasians are oval to round in shape. (See fig. 4.) Caucasian hair is usually straight or wavy and not tightly curled. It can vary in diameter along the shaft very little or to a moderate amount.

Hair from a person of mixed races contains characteristics of the race that is prominent in the person's physical appearance.

The age of an individual cannot be determined from a hair examination with any degree of certainty except with infant hair. Infant hairs are fine, short in length, have fine pigment, and are rudimentary in character.



Children's hair through adolescence is generally finer and more immature than adult hair but cannot be definitely differentiated with certainty. If it is noted that the pigment is missing or starting to disappear in the hair, it is likely that the hair is from an adult. However, it is not uncommon for a relatively young person to have prematurely gray or white head hair but not body hair.

### Characteristics by Sex

Sex cannot be definitely determined from a hair examination. Male hair is generally larger in diameter, shorter in length, more wiry in texture than that of a female, but numerous exceptions preclude conclusions of certainty. Male hair and female hair average approximately 1/350 and 1/450 of an inch in diameter, respectively. If a hair is as much as 6 inches in length and has a split tip end, these are indications that the hair is from a female, though not positive proof. Pinning, curling, brushing, and combing the hair will cause the tip ends to split as illustrated in figure 5. Most males have their hair cut often enough to prevent having head hair with split tip ends.

The region of the body from which the human hair has been removed can be determined with considerable accuracy from the length, size, color, stiffness, curliness, general gross appearance, and microscopic appearance.

Scalp hairs generally show less diameter variation and a more constant pigment distribution than hairs from other body areas.

Beard hair is coarse, curved, and often triangular in cross section.

Hairs from the eyebrow, eyelid, nose, or ear are short, stubby, and have wide medullas. They taper rapidly to a fine point and can be distinguished by their general overall appearance. (See fig. 5.)

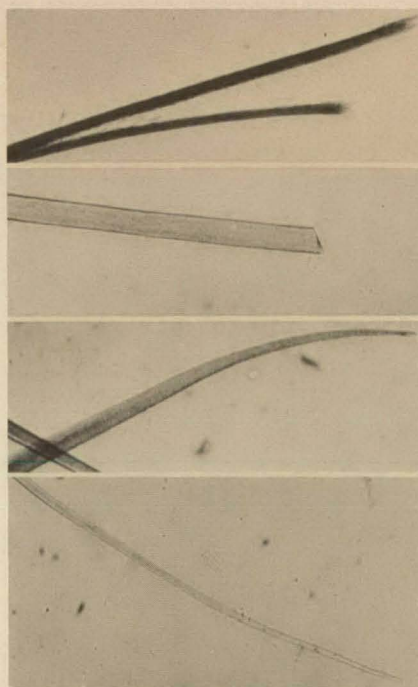


Figure 5.—Hair No. 1 (reading from top to bottom) is a scalp hair with a split tip end. Hair No. 2 has been cut with a sharp instrument. Hair No. 3 is from the nostril. The tip end has not been cut. Hair No. 4 is from the scalp and the tip end has not been cut.

Trunk hairs vary in thickness along the shaft and are immature but are somewhat similar to head hairs. They have fine, long tip ends.

Limb hairs are similar to trunk hairs but usually are not so long or so coarse and usually contain less pigment.

Axillary hairs are fairly long with unevenly distributed pigment. They vary considerably in diameter along the shaft and have frequently a bleached appearance. Axillary hairs have an irregular shape and structure.

Pubic hairs are similar to axillary hairs but are coarser and do not appear bleached. They also are more wiry, have more constrictions and twists, and usually have continuous broad medullas.

It is not difficult to establish whether hair has fallen out or has been pulled out forcibly, if the root end is present. Hairs which have

fallen out from natural causes or diseases will have a bulb formation at the root end. This bulb will have a clean appearance with nothing adhering to it and will often have a concavity at the root end of the bulb. (See fig. 6.) Hairs that have been pulled forcibly will usually have a portion of the sheath clinging to the bulb, the bulb might not be fully developed, and the bulb will have a mutilated appearance (fig. 6).

An examination of the shafts of hairs often reveals that the hairs have been forcibly crushed or shattered with a blunt object or cut with a sharp instrument. Under high magnification crushed or shattered areas of the hair shaft are readily observable. A sharp cutting instrument leaves the cortical cells of the shaft severed with a clean and smooth cut (fig. 5). A blunt instrument will leave the ends of the severed cortical cells of the hair shaft with a jagged or rough appearance (fig. 6).

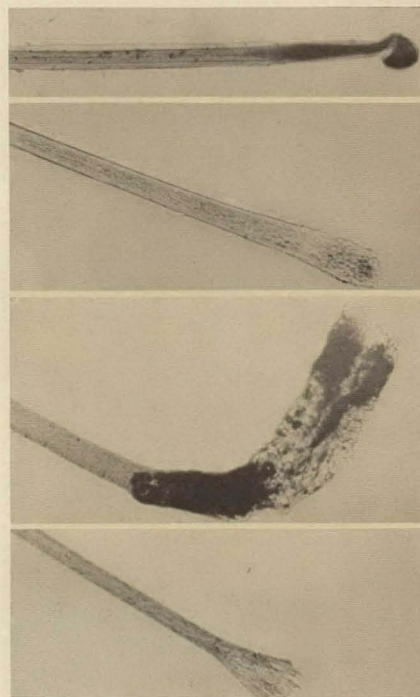


Figure 6.—Hair No. 1 (reading from top to bottom) has been forcibly removed. Hair No. 2 fell from the scalp from natural causes. Hair No. 3 shows a burned end. Hair No. 4 was severed by crushing.



Dyed or bleached hair can be distinguished from natural hair. Dyed hairs, when observed microscopically, have a dull appearance, the inner margin of the cuticle is obscured, and the pigment granules are less prominent than in natural hairs (fig. 7). Bleached hairs have a rough appearance and contain less pigment than natural hairs, varying with the degree of bleaching (fig. 7). If there has been a subsequent growth of hair since dyeing or bleaching, the natural end portion will stand out markedly. Human hair grows approximately  $\frac{1}{2}$  inch per month, and thus by mathematical computation it is possible to estimate the amount of time that has passed since dyeing or bleaching.

### ***Origin of the Specimen***

The prime purpose of human hair examinations in the FBI Laboratory is to determine whether a human hair sample of unknown source, hereafter referred to as a questioned specimen, could have originated from the same source as a known hair sample representing a particular person (fig. 2). As pointed out previously, it is not

possible except in very unusual cases to determine definitely by microscopic examination that a questioned hair sample came from a particular person. It can be determined, however, that the hair of unknown source matches a known hair sample from a certain individual in all microscopic characteristics and, accordingly, could have originated from the same source or that it is sufficiently dissimilar to the known hair sample and therefore is not from the same person.

In making hair comparisons, a comparison microscope is most essential so that the questioned hairs and the known hairs can be viewed at the same time. Any variations in the microscopic characteristics can thus be readily seen. Hair from any given area of the body, such as the scalp, will exhibit a range of characteristics. Therefore, it is very important to have several hairs in the known specimen in order to determine if all the variations in the questioned sample are also present in the known sample.

The hairs should first be observed microscopically in the condition that they were obtained. In this examination particular attention should be

given to any foreign material, such as blood or dye, that might be on the hair. Any foreign material on the hair should be identified, if present in sufficient quantity for testing. The hairs should be examined for evidence of natural or artificial curl and to determine how the hair was severed.

The hairs should then be cleaned with a mixture of equal portions of alcohol and ether.

### ***Examination of Scales***

The scales forming the cuticle of the hairs should be examined. The scales can be observed by making a cast of the scales on the hairs by covering the hairs with a liquid substance such as collodion which solidifies rapidly when exposed to the air. When the substance has dried thoroughly, the hair is removed from it and there should remain a cast of the scales. Another method to observe the scales on the hair is to partly cover the hairs with a mixture of water and glycerine while they are stretched out straight on a glass microscope slide. The size (relation

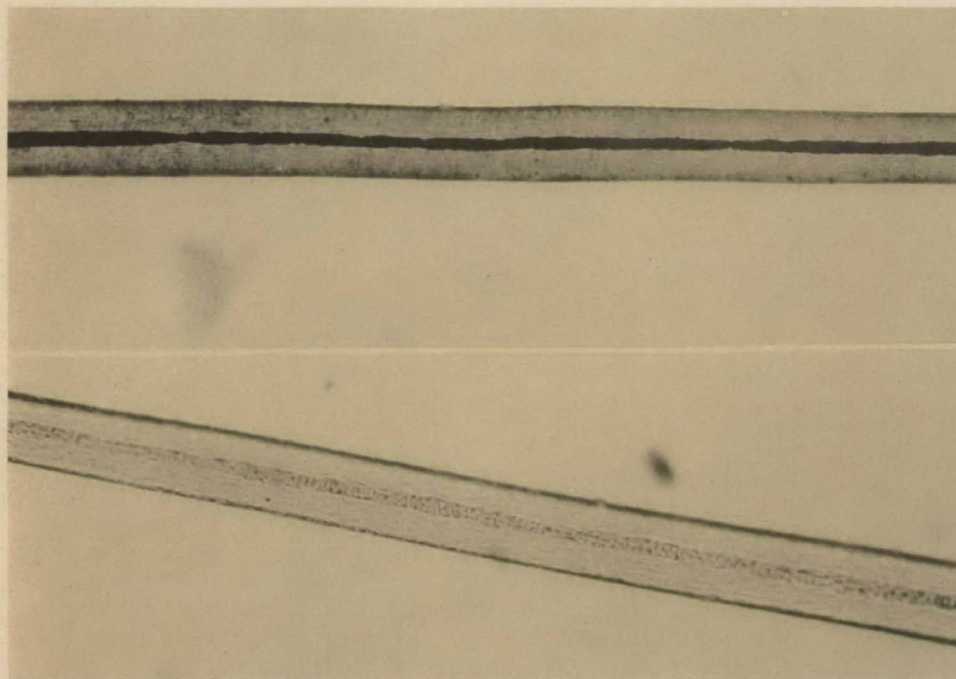


Figure 7.—The top hair is dyed and the bottom hair is bleached.



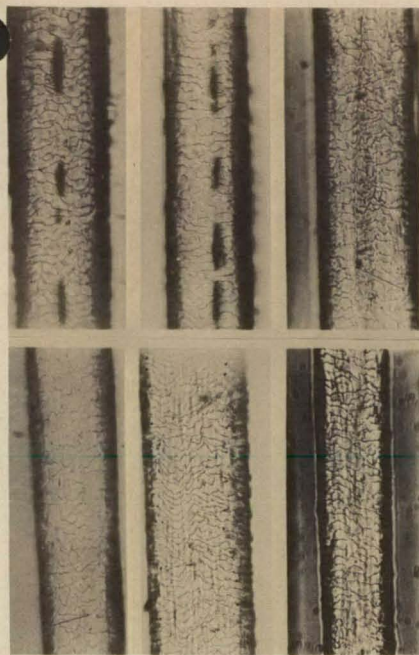


Figure 8.—Note similarity of scale patterns on hair No. 1 (read from top left to right, and bottom left to right) and hair No. 2, which are from the same person. Each of the other hairs is from a different person. Note that they are dissimilar.

of the width to the length), the general shape, and the irregularity of the scales should be compared (fig. 8).

Longitudinal hair mountings in a permanent mounting medium should be prepared. The over-all appearances of the hairs should be observed, with particular attention paid to the color variations; the size, shape, shade, and distribution of the pigment; the general coarseness of the hair; the size, shape, and type of medullary formation, if present; the characteristics of the root and tip ends; the character of the cortical cells; whether fusi (air pockets) are present; and whether all the variations in the hairs of a questioned source are present in the hair from a particular person (fig. 2).

It may be desirable to make cross sections of hairs in both the questioned and known samples with a microtome and to compare them, noting the general shape; the size, the appear-

ance, and the distribution of the pigment; and the proportions of the parts of the hairs.

The examiner of hairs should have a ready reference file containing hair samples of human and animal hairs which can be used for comparison purposes to verify the identification of questioned hairs (fig. 9).

No opinion should be expressed as to the results of the examination of hairs unless the examiner has had wide experience in examining and identifying hairs.

### ***Collecting and Submitting Evidence***

A complete search of the crime scene must be made at once. All of the hairs in the questioned specimens should be submitted, but do not mix hairs found at different places.

In assault and murder cases, obtain the clothing of the victim from the hospital or morgue to avoid the loss of evidence by careless handling and to prevent the clothing from being destroyed.

Avoid placing the victim's clothing and the subject's clothing in the same part of an automobile; on the same objects, such as a table; or in the same container or package before each piece has been separately wrapped and sealed to insure against transfer of hairs or other evidence from one garment to another.

### ***Representative Samples***

Representative samples of hair from the victim as well as the suspect should be obtained if available. To be representative, at least a dozen hairs should be taken from different areas of the scalp, pubic region, or other body areas being sampled. Full length hairs are preferable, but they may be cut close to the skin surface rather than pulled. If there has been an injury, the hair sample should be taken from

the injured area. Do not mix known samples of hair from different parts of the body, such as, for example, scalp and pubic hairs.

The hairs should be placed in a powder paper (folded paper) or in a pill box, and the containers should be securely sealed with tape.

Hairs should never be secured to a piece of paper or cardboard with tape. The hairs will be damaged and any debris clinging to them may be lost.

Do not put hairs loosely in an envelope. The corners of envelopes are not securely sealed and hairs will be lost.

Areas on an object containing hairs should be protected with cellophane or paper taped over the areas before wrapping the object for transmittal to the laboratory. Hairs should be removed from objects too large to transmit; however, it is suggested that photographs of the hairs on the object be made before removing the hairs.



Figure 9.—Known samples of different kinds of hairs and fibers are mounted on glass microscope slides in a hair and fiber reference file.



# INDEX

## Articles Published in the FBI Law Enforcement Bulletin January Through December 1968

### ADDRESSES

- Religion and Law: The Universal Twins, by Dr. George R. Davis, Minister, National City Christian Church, Washington, D.C., September 1968, vol. 37, No. 9, p. 5.
- A Time of Tribute, by Director J. Edgar Hoover, July 1968, vol. 37, No. 7, p. 20.
- What Are Policemen Made Of? by Paul Harvey, January 1968, vol. 37, No. 1, p. 8.

### COMMUNICATIONS AND RECORDS

- Computer Applications in Law Enforcement, by Lt. Jack W. Baker, Commanding Officer, Records Division, Police Department, San Diego, Calif., June 1968, vol. 37, No. 6, p. 2.
- Success of NCIC Systems, October 1968, vol. 37, No. 10, p. 7.

### COOPERATION

- Cooperation on the Border, by Lt. Gerald O. Williams, Training Officer, Alaska State Troopers, Juneau, Alaska, October 1968, vol. 37, No. 10, p. 12.
- Explosives Disposal Assistance From the U.S. Army, by Capt. Ralph W. Talmadge, Jr., Commanding Officer, 61st Ordnance Detachment (Explosive Disposal), Fort Sill, Okla., January 1968, vol. 37, No. 1, p. 9.
- Industrial Security, by Charles F. Weimar, Chief of Plant Protection, Continental Can Co., Inc., Port Wentworth, Ga., December 1968, vol. 37, No. 12, p. 2.

### CRIME PREVENTION

- Chests Out for Law Enforcement! by Robert J. Cotron, Chief of Police, Eau Gallie, Fla., July 1968, vol. 37, No. 7, p. 2.
- Let's Help Women Defend Themselves, by Capt. Courtney A. Roberts, Police Department, Gainesville, Fla., September 1968, vol. 37, No. 9, p. 2.

### CRIME PROBLEMS

- Abusive Telephone Calls, by James A. Handloser, Security Manager, Southwestern Bell Telephone Co., Little Rock, Ark., November 1968, vol. 37, No. 11, p. 6.
- Auto Theft: The Problem and the Challenge, by Thomas A. Williams, Sr., Presi-

dent, National Automobile Dealers Association, Greensboro, N.C., December 1968, vol. 27, No. 12, p. 17.

Bank Robbery Violations, April 1968, vol. 37, No. 4, p. 12.

Big Business for Burglars, by James P. Hendrick, Jr., General Security Manager, South Central Bell Telephone Co., Birmingham, Ala., October 1968, vol. 37, No. 10, p. 2.

Let's Have FAITH in America! by Hon. William E. Galbraith, National Commander, The American Legion, Indianapolis, Ind., April 1968, vol. 37, No. 4, p. 7.

Marihuana—A Calling Card to Narcotic Addiction, by Henry L. Giordano, Associate Director, Bureau of Narcotics and Dangerous Drugs, Washington, D.C., November 1968, vol. 37, No. 11, p. 2.

The Mystery of "The Wednesday Grenade Man," by Johan Gjerde, Commissioner of Police, Oslo, Norway, January 1968, vol. 37, No. 1, p. 17.

The Thermal Burning Bar, February 1968, vol. 37, No. 2, p. 10.

### FACILITIES

Police Training Center, by William D. Rayfield, Chief of Police, Jackson, Miss., May 1968, vol. 37, No. 5, p. 14.

### FBI NATIONAL ACADEMY

The Hallmark of Police Work—Dedication to Public Service, August 1968, vol. 37, No. 8, p. 5.

Law Enforcement Faces Grave Challenges, January 1968, vol. 37, No. 1, p. 12.

### INVESTIGATORS' AIDS

Exterior Mounted Microphone, February 1968, vol. 37, No. 2, p. 22.

Investigative Photography, by Lt. Glen S. Cahoon, Homicide Division, Police Department, Salt Lake City, Utah, September 1968, vol. 37, No. 9, p. 12.

Seminars on Law Enforcement Photography, by Luther M. Dey, Consultant, Law Enforcement Photography, Eastman Kodak Co., Rochester, N.Y., December 1968, vol. 37, No. 12, p. 6.

### LEGAL PROBLEMS

1983 Today, Part I, August 1968, vol. 37, No. 8, p. 2; Part II, September 1968, vol.

37, No. 9, p. 7; Conclusion, October 1968, vol. 37, No. 10, p. 19.

### POLICE EQUIPMENT

- Cardiograms Sent by Radio Device, June 1968, vol. 37, No. 6, p. 22.
- The Snowmobile: A Tool of Modern Law Enforcement, by Maurice F. Dean, Sheriff of Schuyler County, Watkins Glen, N.Y., and M. A. Euston, Deputy Sheriff of Onondaga County, Syracuse, N.Y., April 1968, vol. 37, No. 4, p. 2.

### POLICE MANAGEMENT

- Are Our Large City Police Departments Being "Neutralized"? by R. E. Anderson, Assistant Professor of Police Science, Sam Houston State College, Huntsville, Tex., August 1968, vol. 37, No. 8, p. 9.
- Processing of Law Enforcement Applicants, March 1968, vol. 37, No. 3, p. 17.

### POLICE ORGANIZATION

- The Garda Siochána: The Irish Police Force, by Commissioner Patrick Carroll, The Garda Siochána, Dublin, Ireland, March 1968, vol. 37, No. 3, p. 12.
- Reorganization of Swedish Police, by Carl G. Persson, National Police Commissioner, Stockholm, Sweden, November 1968, vol. 37, No. 11, p. 17.
- Role of a State Investigative Agency, by Robert D. Blair, Director, Bureau of Criminal Investigation, Iowa Department of Public Safety, Des Moines, Iowa, June 1968, vol. 37, No. 6, p. 6.

### POLICE TRAINING

- FBI Training Programs, Part I, May 1968, vol. 37, No. 5, p. 6; Conclusion, June 1968, vol. 37, No. 6, p. 9.
- Search of Premises by Consent, Part I, February 1968, vol. 37, No. 2, p. 12; Part II, March 1968, vol. 37, No. 3, p. 6; Part III, April 1968, vol. 37, No. 4, p. 15; Part IV, May 1968, vol. 37, No. 5, p. 17.

### POLICE UNITS

- Operation of a Bicycle Patrol, by William J. Mooney, Chief of Police, Long Beach,



Calif., November 1968, vol. 37, No. 11, p. 12.

## PUBLIC RELATIONS

Focus: Center Power, by Luther P. Gerlach, Ph.D., Associate Professor of Anthropology, University of Minnesota, Minneapolis, Minn., May 1968, vol. 37, No. 5, p. 12.

Human Relations Program for Youth, by Dallas W. Bias, Chief of Police, Charleston, W. Va., June 1968, vol. 37, No. 6, p. 19.

The Police and the Community: A Lawyer's View, by Hon. Earl F. Morris, President, American Bar Association, Chicago, Ill., May 1968, vol. 37, No. 5, p. 3.

Police-Community Relations, by Col. Curtis Brostron, Chief of Police, St. Louis, Mo., March 1968, vol. 37, No. 3, p. 2.

A Police-Community Relations Program, by Lloyd G. Sealy, Assistant Chief Inspector, Police Department, New York, N.Y., July 1968, vol. 37, No. 7, p. 7.

## SCIENTIFIC AIDS

Don't Miss a Hair, December 1968, vol. 37, No. 12, p. 20.

The Forensic Pathologist in Medicolegal Investigations, by Richard S. Woodruff, M.D., C.M., Chief Medical Examiner, Office of State Pathologist, College of Medicine, University of Vermont, Burlington, Vt., February 1968, vol. 37, No. 2, p. 7.

PROCHEK, August 1968, vol. 37, No. 8, p. 12.

Some Crooks Sign Their Names on the Evidence, April 1968, vol. 37, No. 4, p. 20.

## TECHNIQUES

Ice Rescue Techniques, by Deputy Inspector Raymond J. Kenny, Commanding Officer, Emergency Service District, Police Department, New York, N.Y., January 1968, vol. 37, No. 1, p. 2.

Technique and Use of the Police Baton, Part I, July 1968, vol. 37, No. 7, p. 12; Part II, August 1968, vol. 37, No. 8, p. 18; Conclusion, September 1968, vol. 37, No. 9, p. 16.

Temporary Restraining Devices, August 1968, vol. 37, No. 8, p. 14.

Unusual Developments in Homicide Investigations, by Capt. Thomas F. Buckmaster, Director, Criminal Investigation Division, Delaware State Police, Dover, Del., July 1968, vol. 37, No. 7, p. 17.

Weaknesses in Traffic Accident Investigation, by James M. Slavin, Director, Traffic Institute, Northwestern University, Evanston, Ill., February 1968, vol. 37, No. 2, p. 2.

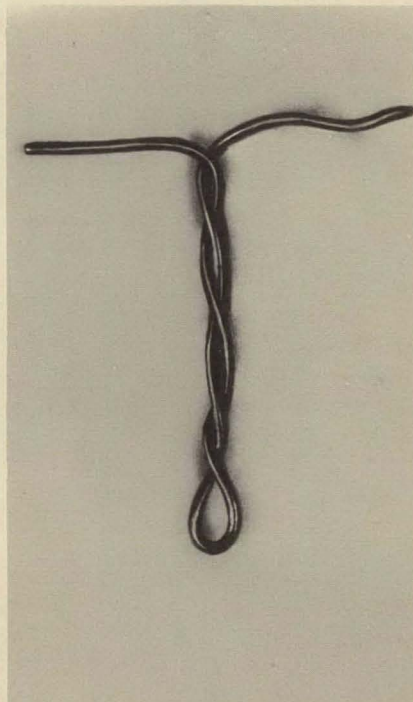
## TRAFFIC SAFETY

Drinking and Driving, December 1968, vol. 37, No. 12, p. 14.

Springfield's Talking Bicycles, by Lt. C. Les Reynolds, Traffic Division, Police Department, Springfield, Mo., June 1968, vol. 37, No. 6, p. 12.

## TURNING THEM ON

*Concealed Criminal  
Bufile # 03-42,96-10  
Serial # 835*  
Police in a midwestern city recently apprehended a young thief who had in his pocket a small piece of metal from a coathanger twisted into the shape of a "T." He allegedly used the instrument as a key for the ignition of cars he stole.



A young auto thief made this ignition key from a coathanger.

## TORN CORNER EVIDENCE

Three men entered a food market shortly after noon one day and, at gunpoint, robbed the store and fled with approximately \$3,800 in cash. They left in a stolen car which was later found abandoned in another supermarket parking lot.

Roadblocks were set up, and less than a half hour later four men were apprehended in another car—one at the wheel, the other three hiding in the trunk.

The money allegedly taken from the food store was found in the trunk. A \$20 bill with one corner missing was especially noted among the other bills, as, prior to this, a search at the holdup scene had turned up a corner of a piece of U.S. currency.

The \$20 bill with the corner missing and the torn corner of the currency found at the scene of the crime were sent to the FBI Laboratory for examination.

Examination in the Laboratory verified that the torn corner matched perfectly the torn edge of the \$20 bill found in the trunk of the car. An expert document examiner of the FBI Laboratory testified to this effect in State court.

One of the suspects was found guilty as charged on two counts and was sentenced to 5 years on one count and 30 years on another, the sentences to run consecutively. The record of this suspect showed that he had been arrested a number of times, once having been convicted and sentenced to serve from 1 to 4 years for robbery with a gun.

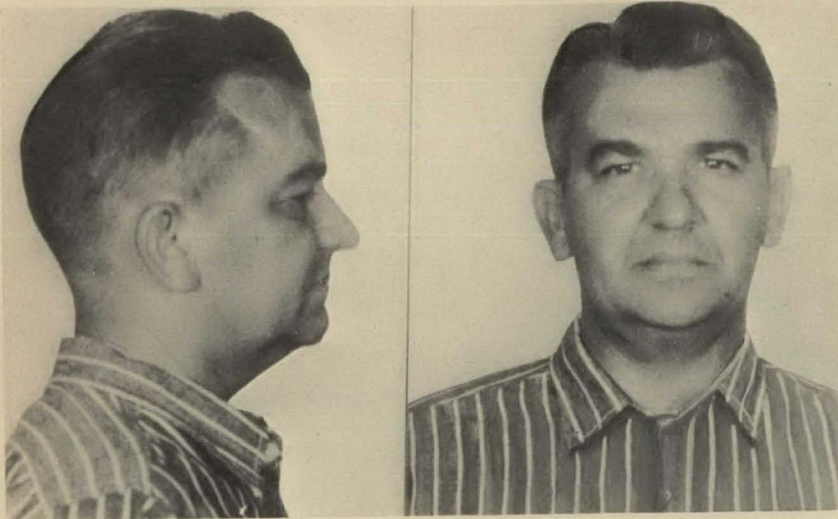
The other three subjects, while out on bond, were involved in a robbery in which a police officer was brutally murdered. Each was convicted and sentenced to death by electrocution for willful murder and to life imprisonment for armed robbery.



# WANTED BY THE FBI

## Notify the FBI

Any person having information which might assist in locating this fugitive is requested to notify immediately the 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.



**ROBERT GROVER DUKE**

### Interstate Flight—Murder

The FBI is currently seeking Robert Grover Duke for unlawful flight to avoid confinement after conviction for multiple murders. On June 17, 1954, Duke was convicted in Anderson County, Tenn., Criminal Court and sentenced to life imprisonment at the State penitentiary for the gunshot slayings of his mother-in-law, father-in-law, and sister-in-law's husband during a family quarrel. On March 11, 1967, he escaped from the Ft. Pillow State Farm in Tennessee. A Federal warrant for his arrest was issued on April 3, 1967, at Memphis, Tenn.

### Description

Age----- 53, born Nov. 8, 1915,  
Pioneer, La.  
Height----- 5 feet 10½ inches.  
Weight----- 175 pounds.  
Build----- Medium.

Hair----- Gray.  
Eyes----- Brown.  
Complexion----- Medium.  
Race----- White.  
Nationality----- American.  
Scars and marks----- Scar above right eye, birthmark left inner forearm, scar right index finger, crescent-shaped scar right forearm, pitted scar left knee, pitted scar lower right thigh.  
Occupations----- Clerk, ironworker, restaurateur, stenographer.  
FBI No.----- 536,705 B  
Fingerprint classification----- O 31 W IOI  
I 32 W OII 19

### Caution

Duke is reportedly armed and should be considered dangerous.

*Bu File 63-4296*  
**RUDE AWAKENING**  
*Crimdel - Salt Lake City*  
*5-10-68*

Parents in one western city may be in for a rude awakening concerning the whereabouts of their children at night. The district juvenile court has an officer on duty until late hours on weekdays and through weekends for the purpose of handling young offenders who are found loitering or otherwise getting into trouble on the streets.

Youngsters apprehended by the police will be brought to the detention center, where the officer on duty will call the parents and ask them to come to court immediately. Those parents refusing to come will be assessed \$17 a day in costs for the keep of their children at the center.

The object of the program is to eliminate the detention of children who should not be detained and to call forcefully to the attention of parents the fact that youngsters are out in the streets at a time when they should be home.

### WELL-GROOMED ESCAPE

*Little Jack Crimdel 2-10-68*  
Two criminals sawed through cell bars and escaped through a window duct in a county jail in the South. Following an extensive investigation, prison officials discovered that hacksaw blades used by the escapees had arrived in the mail hidden in large tubes of toothpaste and hair dressing.

*Bu File 63-4296-23*  
**FBI Law Enforcement Bulletin**



## FOR CHANGE OF ADDRESS

Complete this form and return to:

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

\_\_\_\_\_  
(Name) (Title)  
\_\_\_\_\_  
(Address)  
\_\_\_\_\_  
(City) (State) (Zip Code)

### HOLIDAY BANKRUPTCY

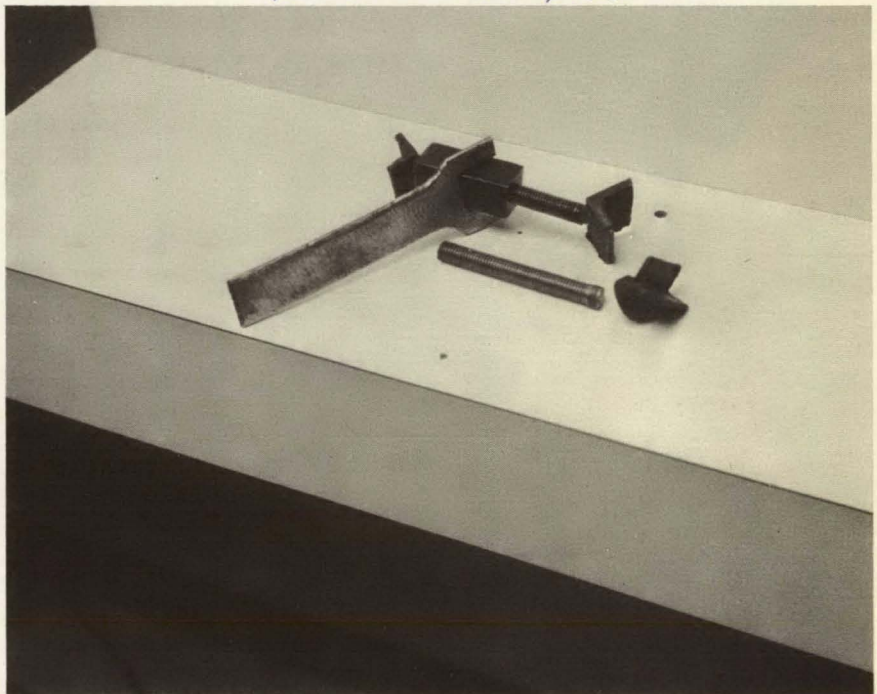
*Special Investigative Division  
12-6-65*

With the approaching holiday season, investigations of violations of the National Bankruptcy Act resulting from concealment of assets and other related offenses take on added importance because of what is commonly known as "scam" operations. In recent years the organized underworld has discovered that huge sums of money can be made in the deliberate takeover of legitimate businesses through purchase, intimidation, extortion, or loan-sharking activities. The takeover is usually followed by large-scale credit purchases, rapid disposition of the merchandise for cash, and abandonment of the business leaving creditors unpaid. These schemes are more likely to occur at this time of the year with the stepped-up activities associated with the Christmas buying season.

Concealment or embezzlement of assets of a business establishment in contemplation of bankruptcy is a violation of the National Bankruptcy Act. Violations of the Act are under the primary investigative jurisdiction of the FBI.

### ESCAPE TOOL

*Springfield Criminal 5-15-67  
Bu File #63-4296-52*



Bar spreader made by prison inmate.

An inmate of a Federal penitentiary constructed a small portable bar spreader from three 1-inch angle irons, two 1/2-inch bolts, and a threaded 1 1/4-inch square steel block. He also made a wrench to use with

the tool. The device will spread two ordinary bars to a distance of 10 inches, which is estimated sufficient to permit a person to escape from a jail cell. In this instance the tool was found before it could be used.



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

OFFICIAL BUSINESS

RETURN AFTER 5 DAYS

POSTAGE AND FEES PAID  
FEDERAL BUREAU OF INVESTIGATION

## QUESTIONABLE PATTERN



The pattern illustrated above is classified as an accidental-type whorl. Inasmuch as this impression contains more than two deltas, the tracing, which is inner, is obtained by tracing from the extreme left delta to the delta on the extreme right.