Law Enforcement BULLETIN

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FBI Law Enforcement Bulletin

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Nederal Bureau of Investigation United States Department of Iustice Washington, D. C. November 1, 1947

TO ALL LAW ENFORCEMENT OFFICIALS:

A crumpled body in an old well, a strangled three-year-old thrust under a porch, a screaming child's breath choked off by a brutal hand - these are nightmares which haunt the parents of America.

They have reason to be haunted. A criminal assault occurs in the United States every forty-three minutes, day and night. This average is based only on reported assaults. No one knows how many are concealed from the police in order to protect the victim from publicity.

The number of crimes committed by sex offenders is increasing. In the last ten years arrests of persons charged with rape have increased 62 per cent; those charged with prostitution and commercialized vice, 110 per cent; and arrests of other sex offenders have increased 142 per cent.

In spite of the rapid increase in these most vicious crimes, 'law enforcement has been, and is, hampered by public apathy, inadequate legislation and abuses in administration of probation and parole. Yet it is still possible for members of our profession to do much to correct the existing situation.

Every effort should be made to protect the victims. A policy of concealing their identities and that of their families would undoubtedly influence reporting of such crimes and thus lessen the opportunities of the sex maniac to operate undetected. Until such a policy becomes accepted, any campaign for the reporting of all sex crimes will necessarily be limited.

The officer of the law, through his contacts with the press and radio, wields an unusual influence on public opinion. His attitude is often reflected in those mediums of expression. If he has their respect and cooperation, he is in a position to dispel, to a large extent, both official and public laxity. Those people living within the area patrolled by a well-liked and competent policeman will not ignore his warnings.

The alert and informed officer can never minimize the threat which is ever present when unreformed and untreated sex delinquents are free to prey upon society.

Very truly yours,

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John Edgar Hoover Director



Firearms

Training

Introduction

Since the FBI was given congressional authority to carry firearms in 1934 and to make arrests, only eight special agents have lost their lives by gunfire from the hands of criminals. During this period, 27 criminals have been killed resisting arrest. This is the result of proper training in the use of firearms, of proper equipment, and of intensive training in the techniques and mechanics of arrest.

POLICE TRAIN

Proper firearms training is an aspect of the lawenforcement profession which has been neglected by many organizations.

The reputation for marksmanship achieved by the members of some police departments has made their communities safer by curtailing the activities of criminals.

Training and equipment count in other ways. A police officer must account for every bullet fired. The safety of innocent bystanders must be assured.

Money spent in training is an investment—life insurance for members of the departments and property insurance for the community.

Training With Hand Weapons

Many departments give only bulls-eye, slow-fire training with the revolver or pistol from the standing position under shooting match conditions.

Training should be expanded to include the various positions practical to combat shooting, such as the hip shooting, prone, sitting, and barricade positions. (July, August, and September, 1946, Law Enforcement Bulletins.)

Actual shooting is the easiest part of a gun battle for a skilled shooter. Knowing when to shoot, and at which target to shoot first, are the most difficult problems confronting an officer.

FOR LAW ENFORCEMENT OFFICERS

They are problems in which his life depends upon the action he takes.

In the majority of training courses police officers are told when to shoot and at which target to shoot. In the FBI course, in addition to the conventional types of training afforded its agents, a Surprise Target Course is offered using life-sized photographs for targets. The agents are required to recognize the individual and the circumstances justifying shooting from the standpoint of firing in self-defense. This is a reaction course and offers the same experience as a man would ordinarily receive in 11 different gun battles. It illustrates the speed with which certain situations arise. An agent is not permitted to see the targets before shooting the course, and he does not know where they will appear.

The target equipment is operated from the horizontal to the vertical position by electropneumatic means. The instructor in the control booth operates any one or a combination of fifteen targets, and with the use of a public-address system, he can correct any errors made on the part of the agent.

Before starting the course, the agent is shown pictures of four individuals. These are desperate criminals known to be in an imaginary apartment house which is being raided by a group of agents. Each man, as he goes through the course, is instructed to walk along a certain line toward a position to command a view of the rear entrance of the imaginary apartment house, and en route to that place, the targets confront him from different angles. The agent is graded on his reaction to the target; that is, whether he shoots or does not shoot, and he is allowed three seconds to take the necessary action.

Specifications—Vacuum Operated Targets

This target device is constructed on a base frame of angle iron in which holes are provided for fastening to concrete or wood. At the front end of



Closeup of mechanism controlling the surprise targets.

this frame there are bolted two upright steel pieces, triangular in shape, to provide bearings for a rotating member. To this rotating member, two oblong sockets are welded to receive two 1by 2-inch wood uprights attached to the target proper. The oblong sockets are provided with thumbscrews to secure the wooden uprights. A double acting vacuum cylinder is fastened to the rear end of the base frame and linked to the rotating members by levers and yokes. This actuates the rotating member through a 90° arc which causes the target to operate from a horizontal to vertical position and vice versa. Attached to the cylinder is an electrically operated, solenoid, three-way valve-one side connected to a vacuum source, one side to the front end of the double acting cylinder, and one side to the rear end of the cylinder. Also welded to the rotating member is another lever connected by linkage and springs to the side of the base frame, which acts as a snubber contributing to the smooth operation of the target.

When operating on 18 inches of vacuum the

target may be moved from the horizontal to vertical position in 35/100 of a second, and from vertical to horizontal in 30/100 of a second.

These targets, due to vacuum operation, will operate satisfactorily in any kind of weather and with little or no maintenance.



General view of the surprise targets.



Special agent firing surprise course.

Dueling Course

After completing the Surprise Target Course, the agents are permitted to fire duels with each other. The dueling target equipment is a combination of an electronic device and two specially constructed silhouette targets operated synchronously from horizontal to vertical position by electropneumatic means. The men start walking toward the place the targets will appear. When they do appear, the agents draw and fire at their respective targets. The first bullet hitting either of the targets stops a time clock, graduated to a hundredth of a second, to show how long it took the first target to be hit. The hit will also light a light on the panel of the control box to show which target was struck and another light on the outside of the control booth behind the corresponding man, and an audible signal is given to indicate that a target was hit. This audible signal is to cease fire. The first hit on either target neutralizes the electronic device so that it will not register a second hit on either target and the device will differentiate between two bullets striking either or both targets 10 microseconds apart. Pressing the starter button on the control panel will operate the targets from horizontal to vertical, and pressing a reset button will return the targets to horizontal or hidden position and set the electronic device and time clock for subsequent operation. This is an excellent incentive for firearms training and has taught the value of double-action shooting at 15 and 25 yards from the target.

The equipment measures a person's reaction time. It shows the limitations of the individual.

Shotgun Training in Law Enforcement

The lives of FBI agents have many times been saved by quick and accurate shooting and at moving targets. All officers should be trained to shoot at objects which move at unpredictable speeds and in unpredictable directions. The cost of constructing a surprise target and moving target range is, unfortunately, beyond the scope of most police departments.

Skeet shooting is the most sensible answer which the FBI has yet found for this particular training problem. It is precisely the kind of shotgun training that FBI agents need because it requires the shooter to handle the gun quickly and safely and to fire from all angles at targets moving in many directions. It develops the kind of controlled relaxation necessary in all kinds of shooting, the effortless coordination of vision, thought, and motion. Another practical consideration is that the type of shotgun used by the FBI and by many police departments can be used in shooting skeet. The shotgun used by the FBI is a 12-gage, repeater type, short barrel, cylinder bore.

Inasmuch as the shotgun is one of the most effective weapons available to law-enforcement officers, there has been installed at the FBI



Control tower. FBI LAW ENFORCEMENT BULLETIN



Agents practice shooting at "Incomer" at station No. 7.

Academy at Quantico, Va., a modern skeet range where FBI agents and officers attending the FBI National Academy can be given advanced training in the use of the weapon commonly known as the police riot gun.

In skeet shooting, two traps, one in a high house and one in a low house, are employed and throw targets along fixed lines of flight. These targets are shot at from eight different shooting positions, from each of which one shot is fired at a single target from each trap house. Four pairs of doubles are fired in each round of skeet, one each from number 1, 2, 6 and 7 positions. A repeat or optional shot is fired, repeating the first miss or when none is missed, from any position. Skeet requires the holding of the gun in an un-

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mounted position until the target appears. The targets leave the trap houses with a velocity of approximately 70 feet a second, requiring the fast mounting of the gun, swinging past, taking the necessary lead, and following through.

Training in skeet shooting begins with a brief lecture on the fundamentals of shooting at a moving target. The men are then given dry firing. With empty guns, they are spread in a semicircle from stations 1 to 7 on the range. At station 8 is a lead gage indicating the amount of lead necessary. Targets are thrown from each house and every shooter is coached in assuming correct stance, mounting the gun, keeping the head down, picking out the targets, swinging, leading, and following through. After several

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Instructor explains fundamentals of shooting at moving targets.

targets are thrown the line moves around the field so that the men can practice swinging for different angles of flight and using different leads. This phase of the training is quite inexpensive because the targets thrown are recovered in nets and used again.

Safety is heavily stressed on the skeet range as on all other ranges at the FBI Academy. In firing skeet the men, while behind the stations, are required to handle the shotgun with action open and muzzle elevated. They load only one shell when firing singles. They are required to have the safety on when loading and to keep it on until after the targets are called. This rule has an additional advantage of giving the men training in quickly bringing the guns from a "safe" to a "firing" position. Before firing skeet each man shoots at several incoming targets at station 7, learning to shoulder the weapon, find the target and follow through.

The men are enthusiastic over this type of training. As a result of it many FBI agents have joined skeet clubs in various localities throughout the nation where they are assigned. Officers attending the FBI National Academy frequently carry the same enthusiasm back to their local departments. Many National Academy graduates have arranged for men in their departments to receive riot gun training at local skeet clubs. Some departments, having little or no appropriations for firearms training, have found civic organizations willing to furnish targets and ammunition, the skeet clubs providing facilities and instructors.

Skeet club members have unanimously approved such arrangements. They feel that by making such valuable training available to the police they are rendering a real public service.

In-Service Training School, St. Louis, Mo.

On June 2, 1947, the St. Louis Police Department inaugurated a course of instruction designed to give all of its personnel the benefit of progressive police training.

The school is scheduled to cover 30 weeks.

Each session convenes for a full week from Monday through Saturday. Police officers and FBI agents direct the instruction which is patterned after that offered in the FBI National Academy.



- 1. Simulated safe burglary scene.
- 2. Chief of Police O'Connell awards a certificate to a newly promoted corporal at conclusion of 6-day in-service course.
- 3. Newly promoted sergeants and corporals attending training conference.



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D.



- 4. Murder! St. Louis Police Academy model.
- 5. Portable room built especially for crime scenes, St. Louis Metropolitan Police Department Academy.
- 6. Opening ceremony (right to left): Maj. Curtis Brostron, Inspector of Police; Col. Francis L. George, Police Commissioner; Col. Ben L. Liberman, Police Commissioner; Col. H. Sam Priest, President, Board of Police Commissioners; Mr. Henry Chadeayne, Controller, General American Life Insurance Co.; Mr. Frank H. Schless, secretary to Board of Police Commissioners; Col. Jeremiah O'Connell, Chief of Police; Lt. Col. Leonard L. Murphy, Chief of Detectives; Special Agent in Charge Gerald B. Norris, St. Louis; Special Agent Elmer Emerick.



The Use of Invisible Radiation

IN THE EXAMINATION OF EVIDENCE

I. INTRODUCTION

Everyone with normal eyesight is very much aware of a group of radiations commonly known as visible light. Much of what we know of the world we learn through our eyes, that is, through the medium of light. Everyone has had the experience of viewing a beautiful rainbow, beautiful because of the color reflected from the sky. The rainbow is Nature's method of breaking the visible, or white, light into its component parts, which consist of the colors violet, blue, green, yellow, orange, and red. This broad colored band is known as the visible spectrum and can be produced in the laboratory by allowing a beam of light to pass through a narrow slit and fall upon a prism which disperses the white light into the various colors of the rainbow.

To produce white light all of the colors of the visible spectrum must be present. If one is missing, the result is a colored light.

It is possible to break ordinary white light up into the various colors of the spectrum because each color consists of radiations of different wave lengths. The length of the waves making up the central portion of the violet end of the visible spectrum are about 0.00004 centimeters in length and those of the red end are about 0.00007 centimeters in length. These radiations of different wave lengths are bent, or refracted, a correspondingly different amount as they pass through the glass prism, just as they are bent by different



Figure 1.—The visible spectrum.

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amounts by the tiny droplets of water in the air when a rainbow is formed.

As complex as visible light may seem from the above brief discussion, it is only a small proportion of the total radiations of this type now known. Ultraviolet light, sometimes called "black light," consists of radiations of shorter wave length than those forming the violet end of the visible spectrum. Radiations of still shorter wave length are known as X-rays. Radiations longer in wave length than the red end of the visible spectrum are called infrared and those of still longer wave length are used for radio broadcasting and are known as radio waves. Radiations even shorter than X-rays and longer than radio waves are also known.

The human eye is sensitive to radiations in the visible spectrum and many examinations of evidence are made possible by visible light alone. Even many technical examinations of evidence employ visible light only. Thus it may be possible to detect a forgery with the aid of a microscope or to show the differences between two inks by use of a color filter which allows only a part of the white light to reflect from a specimen in the course of a visual examination. The reproduction and examination of evidence by photography, using visible light, is also common.

Ultraviolet light, X-rays and infrared radiations cannot be seen and are known as invisible radiations. Although these radiations are invisible, it has been possible to examine evidence by using photographic and other technical materials which are sensitive to them and thus reveal many facts which would otherwise remain unknown.

II. INFRARED RADIATIONS

A. Infrared Photography

Examinations of evidence by infrared radiations have been made possible through the use of photographic plates and films which are sensitive to these radiations. Many materials exhibit characteristics of transmission and reflection in the infrared which are different from those in visible light. Thus, with infrared, it may be possible to distinguish between two dyes which appear identical in ordinary light. An ink opaque to infrared will show through an ink applied over it if the latter is transparent to infrared.



Figure 2.—The relationship of invisible radiations to visible light.

The method utilized in the examination of evidence with infrared has been to photograph it using an infrared sensitive film or plate and an infrared filter over the lens of the camera. The purpose of the filter is to exclude the visible light rays since most infrared film and plates are sensitive to visible light as well as to infrared radiations. Ordinary incandescent light consists of both visible and infrared radiations and may be used as a source of infrared light.

Infrared photography has many uses in the examination of evidence in the FBI Laboratory. These include the detection of forgeries and erasures, the development of writing on charred documents or those which have deteriorated as a result of age or the accumulation of dirt, examinations of faded documents, detection of altered serial numbers, the differentiation between inks, dyes and pigments which are visually identical, and the development of invisible inks and chemically bleached writing or writing which has been overwritten. Figure 3 illustrates how infrared photography can be used to bring up printing or writing prepared with a material which is opaque to infrared. Infrared photography may also be used to develop faded laundry marks, markings of identification on leather goods, and to detect stains on articles of clothing.



UNITED STATES DEPARTMENT OF JUSTICE FEDERAL BUREAU OF INVESTIGATION WASHINGTON 25, D. C.

OFFICIAL BUSINESS

Figure 3.—Printing covered with ink brought up by infrared photography.

No. 47908

No. 17903

Figure 4.—Altered serial number detected by infrared photography.

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B. Infrared Combination Unit

The FBI Laboratory has recently made use of an infrared combination unit for visually examining evidence by means of infrared radiations. This is an adaptation of an instrument developed by the armed forces during the last war for night reconnaissance work.

The infrared combination unit converts the infrared radiations reflected from a material to visible light, so that evidence can be examined with infrared visually by use of this instrument. The infrared combination unit does not displace infrared photography, since a photographic record is always highly desirable, but it does make possible a preliminary examination and a determination of results in a shorter time than that required by photography. It may also eliminate the necessity for photographing much evidence by infrared where no positive results are obtained.

C. Other Uses of Infrared Radiations

Use is also made of infrared radiations in the spectrographic examination of materials. The spectrograph is a device designed to break up the radiations from a volatilized sample of a substance emitted. The radiations from some substances will occur within the infrared region of the spectrum and are used in their identification along with those emitted in other regions of the spectrum.

The recording spectrophotometer is an instrument used by the FBI Laboratory to examine evidence by means of recording the percentage of visible and infrared light absorbed, transmitted or reflected by it. It is thus possible to obtain



Figure 5.—Chemically eradicated ink writing developed with ultraviolet light.



Figure 6.—An invisible laundry mark made visible by ultraviolet fluorescence.

considerable information regarding a material, since two materials may have the same appearance visually, yet may vary in the amounts of certain wave lengths in infrared radiations they transmit. These can be accurately measured with the spectrophotometer.¹

III. ULTRAVIOLET RADIATIONS

There are two methods of examining evidence under ultraviolet light, which, like infrared radiations, is invisible to the human eye. These two methods are referred to as the fluorescent light method and the reflected ultraviolet method.

A. Fluorescent Light Method

Although ultraviolet light is invisible it can produce a visible phenomenon known as luminescence, that is, it can cause a great number of materials to give off wave lengths of light which are visible. There are two types of luminescence, namely, fluorescence and phosphorescence. Certain materials absorb ultraviolet radiations and emit radiations which are visible only during the time that ultraviolet radiations are being absorbed. This phenomenon is known as fluorescence and the materials are said to be fluorescent in ultraviolet light. Certain other types of materials

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not only give off visible light while actually absorbing ultraviolet radiations, but continue to give off these visible radiations for varying periods of time after they are removed from the source of ultraviolet. This phenomenon is known as phosphorescence.

The fluorescent light produced when a material is exposed to ultraviolet light can be reproduced photographically, if a filter is used over the lens of the camera which will absorb the reflected ultraviolet light but allow the visible light to pass through. The filter is necessary since the reflected ultraviolet is many times stronger photographically than the relatively dim fluorescent light. Since the fluorescent light is relatively dim, this work must be done in a dark room. This method has been used to reproduce ink writing which has been chemically eradicated or writing which has faded. Figure 5 illustrates the results of such an examination. The obliterated or faded ink lines may fluoresce strongly or as is frequently the case the paper fluoresces strongly and the portions of the paper where the ink originally appeared have less fluorescence. In either case it is possible to bring up the writing with ultraviolet visually and to photograph it.

In the same manner it is possible to detect erasures, detect and decipher secret inks and laundry marks and to detect seminal stains on evidence in rape cases as well as other kinds of stains, by the use of ultraviolet radiations. Figure

¹ For a complete discussion of the recording spectrophotometer see an article entitled "The Use of a Recording Spectrophotometer in the Examination of Evidence" which appeared in the April 1946, *FBI Law Enforcement Bulletin*.



Figure 7.—Stains located on a piece of cloth by ultraviolet fluorescence.

6 shows a laundry mark, invisible in ordinary light, being developed by ultraviolet fluorescence, and figure 7 shows stains located in a piece of cloth by ultraviolet fluorescence.

It is sometimes possible to differentiate between materials which may appear identical in ordinary light by observing their respective luminescent properties; thus comparisons of dyes, chemical compounds, ores, and minerals are possible. Materials may be marked with powders which will later show, under ultraviolet light, whether a suspect has been in contact with a material so marked. Ransom money, locks, fire boxes, and similar objects may be marked with fluorescent materials. By later examining the hands of a suspect under ultraviolet light, it can be definitely established whether or not he has handled any of the objects which have been marked with a fluorescent material.

B. Reflected Ultraviolet Method

It is possible to examine evidence which does not fluoresce under ultraviolet radiations. An eradicated ink line may fluoresce in the same way that the paper on which the line was written fluoresces, yet there may exist a difference in the way the two reflect the ultraviolet radiations. This difference cannot be detected visually since the ultraviolet light is invisible, but can be photographed in much the same way that reflected infrared radiations are photographed. To make such a photograph it is necessary to use a filter over the lens of the camera which will transmit the ultraviolet light while keeping back any visible light. A filter is not needed over the lens of the camera if the ultraviolet light source is equipped with a filter which transmits only ultraviolet light, but if this arrangement is used, the photographs must be made in a dark room. The most convenient source of ultraviolet light is the quartz mercury vapor arc lamp. Exposures using reflected ultraviolet light can be made with an ordinary lens, but since glass absorbs ultraviolet it is sometimes necessary to use a quartz lens for best results.

C. Other Uses of Ultraviolet Radiations

Radiations in the ultraviolet region of the spectrum are used in the spectrographic examination. of materials in the same way that radiations in the infrared region are used. Radiations emitted from volatilized samples of some substances will occur within this region and therefore by using this part of the spectrum it is possible to identify many materials with the spectrograph which otherwise could not be identified. The recording spectrophotometer can also be adapted for determinations of the percentage of ultraviolet light absorbed, transmitted or reflected by a substance and thus render additional evidence of the similarity of, or the differences between, two substances.

IV. X-RAYS

X-rays, which are radiations shorter in wave length than the ultraviolet, are used in the FBI Laboratory to examine evidence in a number of ways.



Figure 8.—Comparison of paper edges by use of soft X-rays.

A. X-Ray Diffraction Spectrometer

One of the most important uses made of X-ray radiations is that of identifying crystalline substances by use of an instrument known as the X-ray diffraction spectrometer. X-rays are passed through an unknown crystalline material and are diffracted with the diffraction spectrometer. By recording the diffraction pattern it is possible to identify a substance by reference to known diffraction patterns available for such substances. It is thus possible not only to differentiate between two white crystalline materials, one of which may be sugar and the other a deadly poison, but it is also possible definitely to identify the poison by such an examination.

B. Soft X-Rays

Through experimentation with soft X-rays, socalled because they have less penetrating power than the shorter X-rays, uses have been found for these radiations in comparisons of cut edges of paper and the reproduction of watermarks where printing or writing would interfere with ordinary methods. Figure 8 illustrates a comparison of the cut edges of paper by the use of soft X-rays and figure 9 shows a watermark reproduced by transmitted light and the same watermark reproduced by soft X-rays.

C. Hard X-Rays

Hard X-rays have greater penetrating power than soft X-rays and are used for examinations of heavier types of materials than are soft X-rays. Hard X-rays are particularly useful in examinations of such things as metal castings for defects in sabotage and fraud cases. They are also useful in the examination of packages suspected of containing explosives.

V. CONCLUSION

Much information that may aid in the investigation of a crime can be obtained by the use of invisible radiations. Through their use examinations of many types of evidence reveal facts which otherwise would go unknown and as a result many cases might never be solved.



Figure 9.—Watermark reproduced with transmitted light and same watermark reproduced with soft X-rays.

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The Single Fingerprint Section of the FBI

In 1945 in a Pennsylvania city a defendant was being tried on charges of burglary and larceny. The circumstances in the case prompted the defendant to deny the offenses and enter a plea of not guilty. Prior to the trial a latent fingerprint developed on evidence submitted in the case was identified as an impression of one of the suspect's fingers. After hearing the testimony of the FBI expert, whose services were furnished without cost at the request of the prosecuting attorney, the defendant, who up to that time maintained his innocence, changed his plea to guilty. The latent print identification in this case was no different from any other—they are all convincing, absolute, and unequivocal.

One of the most valuable yet least expensive of procedures in criminal investigation is the latent fingerprint examination. Identifications of latent impressions developed on objects at crime scenes establish beyond doubt that those objects were handled or touched by specific persons. Proficiency in all the elements involved in such examinations, however, is unfortunately not attainable by the majority of officers and investigators since it requires years of training and devotion to a specialized field of knowledge. The



Enlarged photo of inked fingerprint showing method used in single fingerprint classification. The classification is shown at the bottom of the print.

FBI maintains in its Single Fingerprint Section a group of specialists to perform the latent fingerprint work. Since its inception the services and facilities of this Section have been available to all law enforcement agencies and officials without cost as a public service; and today with the vast increase in the number of fingerprint records available for comparison, it is of greater value than ever.

The Examiners

Men of extensive experience and capability are selected from the many hundreds of FBI fingerprint personnel for assignment to the Single Fingerprint Section. These latent print examiners have an average experience of 15 years each and have been continuously assigned to fingerprint work.

Five years of efficient work on the FBI fingerprint files are required before an employee is eligible for promotion to the Single Fingerprint Section. But mere assignment to the Section does not make him a latent print expert. He is given formal instruction in the history of fingerprinting, developing, lifting, and photographing latent impressions, and the Battley system of classifying single prints. He testifies in moot court sessions and, working in conjunction with skilled technicians for a period of 2 years, acquires endless experience in every phase of latent work.

Every examiner has duly qualified and testified in a court of law as a fingerprint expert, and, in hundreds of court appearances, personnel of the Section have testified in almost every State in the Nation.

Objectivity, impartiality, and truth are inherent in every examination, and the scientific basis of fingerprinting (that is, permanence and uniqueness of the pattern) establishes an identification as conclusive.

Services

Examinations are made for law enforcement agencies, prosecutors, and courts. Objects submitted will be processed for the development of latent impressions. Lifts and negatives will be examined for impressions of value. Photographs of all latents (finger, palm or foot impressions) determined to be of value are prepared and made a part of the permanent FBI records which are of course confidential.

Expert photographers and modern photographic equipment are at hand for every job, however difficult.

Fragmentary or single-inked prints such as are often made on checks or documents may also be forwarded for possible identification.

Comparisons of latent impressions with inked prints will not only be made at the time of submission of the original evidence but for an indefinite period thereafter, from the photographs on file.

During the past fiscal year the FBI made 1,548 latent print identifications.

Chief M. M. Little of the Hattiesburg, Miss., Police Department, a graduate of the FBI National Academy, recently told a representative of this Bureau that he had solved 85 burglary cases in the past 6 years through latent print identification alone. Chief Little regularly submits his latent work to the FBI and comparisons are almost constantly being made for him in his unsolved cases.

The enormous number of fingerprint records on file permits comparison of fingerprints of persons considered possible suspects, whose prints the local law enforcement agency may not deem advisable, or may not find possible, to obtain.

In every instance where an identification is made the FBI will furnish, on official request, one of its experts to testify. Charted enlargements illustrating the identification are always prepared for presentation to the court and jury.

Unidentified deceased persons are frequently found with bodies burned or decomposed to the extent of precluding the taking of legible finger impressions. The entire hands, fingers, or skin from the fingers from such bodies may be forwarded for possible identification. In instances of this kind it is often possible for an expert to obtain a classification which will permit a search of the files by direct observation of the digits even though identifiable impressions of all the fingers are not obtainable.

Of 85 such cases handled by the Single Fingerprint Section in the past year, identifications of 58 persons were made.

Much research has been conducted in the application of powders, chemicals, and new equip-



Preparing charts for latent fingerprint testimony.

ment to fingerprint work. From this research, sound practices have been developed and the FBI is constantly alert for further improvements in these techniques. Communications concerning technical problems and ideas will always be welcome.

The Single Fingerprint and General Appearance File

The FBI's file of single-finger impressions comprises the prints of about 15,000 persons who have participated in crimes of a violent or flagrant nature such as kidnaping, extortion, bank robbery or burglary, and armed robbery. Latent fingerprints which are classifiable will be searched through this file.

A valuable adjunct to this file is the general appearance file containing the criminals noted above together with those of confidence men and swindlers. Searches will be made therein on the basis of the personal description of subjects perpetrating the previously mentioned types of crime. To permit a search the descriptive data should be set out in complete detail and include noted peculiarities or mannerisms.

What to Submit

Surfaces of objects which are immovable or where shipment is impossible must necessarily be treated for latent impressions at the scene, in which case the photographs and lifts made should be forwarded. If not versed in fingerprinting, do not attempt to evaluate the print, however fragmentary, since an area of one-fifth or less of the ordinary rolled finger impression may be sufficient for identification. If any ridges are discernible, let an expert see it.

Small objects which are readily packed and mailed should be forwarded without processing.



Comparing a photograph of latents against the single fingerprint file.

guns

license plates

Inked fingerprints of suspects and persons known to have legitimately handled the evidence are preferably submitted along with the evidence. If such prints are not procurable the contributor may name the person as a suspect or for elimination purposes. In doing so the complete name, FBI number, previous arrest number, if any, date and place of fingerprinting, or personal description of the individual should be furnished to facilitate the location of a fingerprint record.

Some of the more common objects and surfaces

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on which visible or latent impressions have been found are listed below: window glass light bulbs smooth unpainted wood cellophane celluloid bottles glazed tile or porcelain polished metal letters and postcards silverware mirrors cardboard cartons polished leather maps wrapping paper magazines house and office furniture paper money newspapers safes checks enamel ware

automobile glass.

Exposure to rain or immersion in water does not necessarily destroy latent prints. In a recent bank robbery case involving thousands of dollars identification of suspects was made from latent prints developed on beer bottles recovered after being in ice water and exposed to rain. In a similar case, the latent print of a subject in the burglary of a store was identified on a soft drink bottle, which, after refreshing himself with the contents during the commission of the crime, he had replaced in the cooler of water.

The fact that several persons have handled an object after its recovery does not mean that fingerprints of the culprit have always been obliterated. Prints of forgers have been developed on checks after the checks were handled by indeterminate numbers of persons.

Do not apply fingerprint powder to paper. It will not develop as many latent impressions as chemical processing, and affects the legibility of prints so developed. It also interferes with any document examination later conducted. Powders will adhere only to fresh latents, while chemical prints may be developed for an indefinite period.

How To Submit It

All communications relating to latent fingerprint examinations should be addressed to the Director, Federal Bureau of Investigation, Washington (25), D. C., for the attention of the Single Fingerprint Section. A letter should accompany each submission setting out in detail the items submitted, the examination desired, as well as information regarding the nature of the crime, date and place of occurrence, names of victims, and subjects. If the letter does not accompany the evidence, a copy should be placed in the package containing it to assure expeditious handling upon arrival.

Lifts, negatives and photographs are readily enclosed in letters. Bulky objects should be mailed or shipped separately, carefully packed to prevent breakage and smudging of prints. Undeveloped latents fare better in transit than developed prints.

Place each hard surfaced object in a cellophane envelope if possible; otherwise wrap in newspaper, never in cotton or cloth, as this absorbs the moisture and grease from the latents and sometimes completely destroys them. Many paper specimens may be placed in the same envelope since the latent impressions are absorbed into the surface and are not affected by physical contact with other items.

All evidence is preferably forwarded by registered mail or railway express as these means provide records of dispatch and receipt.

Hands and fingers have been received in the FBI shipped dry, in alcohol, dry ice, or formalin solution. If fingers are removed for shipment, each should be appropriately labeled as to its position on the hand and placed in a small bottle filled with some preservative solution. Dry ice, formalin solution, and cavity fluid used by undertakers are excellent preservatives and at least one of these is generally available. Never put dry ice in airtight containers.

All original evidence will be returned to the submitting agency on completion of the examination which is performed by the FBI without charge as a public service.



Wanted by the FBI

JOHN HARVEY BUGG, WITH ALIASES

Kidnaping

NATIONAL MOTOR VEHICLE THEFT ACT

On November 26, 1945, the Sheriff of Dade County, Mo., arrested John Harvey Bugg at Greenfield, Mo., on a bogus check charge and was holding him for local authorities at Seminole, Okla. On the way to the county jail. Bugg disarmed the officer and forced the latter to accompany him to Carthage, Mo., in a Buick automobile. At Carthage this machine was abandoned and Bugg commandeered a 1942 Chrysler sedan from a cab driver. The latter and the sheriff were forced to accompany the kidnaper, who robbed them of \$125, to a spot a short distance out of Carthage where the cab driver was tied to a tree. Under threat of death the sheriff accompanied Bugg in the stolen Chrysler as far as Kellyville, Okla., where he was left tied to a telephone pole at approximately 8 p. m., on the same date.

An indictment was returned by a Federal grand jury at Tulsa, Okla., on February 7, 1946, charging John Harvey Bugg with violating Section 408a, Title 18, U. S. Code in that he kidnaped an individual at Greenfield, Mo., on November 26, 1945, and forced the individual to accompany him under threats of death to Kellyville, Okla., and with violating Section 408, Title 18, U. S. Code in that he stole an automobile on November 26, 1945, and transported the automobile in interstate commerce.

NOVEMBER 1947

Bugg is known to have passed forged checks at various times. He has been arrested for vagrancy and for investigation. *He is armed and is considered dangerous*.

Bugg is described as follows:

Name	John Harvey Bugg, with aliases,					
	Johnny Bugg, "Cowboy," "Sock					
	Foot."					
Age	30.					
Date of birth	March 2, 1917.					
Place of birth	Cedar County, Mo.					
Height	6 feet, 1 inch.					
Weight	175 pounds.					
Eyes	Gray to blue.					
Hair	Brown.					
Complexion	Medium.					
Build	Slender.					
Sex	Male.					
Race	White.					
Nationality	American.					
Education	One-year high school.					
Occupations	Taxicab and truck driver, laborer, rodeo rider.					
Scars and marks	Scar from corner of left eye to end of nose, tatoo of kewpie doll on chest, word "Love" tatooed on left-hand					

nose, tatoo of kewpie doll on chest, word "Love" tatooed on left-hand fingers with one letter on each finger, several tattoos on right and left arms, pit scars on both sides of face.

(Continued on page 23)

*

Orchids to

an Unknown

Officer

Chief of Police Horrall, Los Angeles, has turned detective. He is looking for a policeman. When he opened a letter recently, a dime and a nickel fell out. The letter was from a resident of the city who stated that she had found herself in the downtown area of the city without money to get home. An obliging policeman loaned her the fare but she had forgotten his name. Would the chief ascertain who the officer was and return the money? The chief is looking for his man.

We would say the good will which accompanied this unknown officer's 15 cents will be returned a thousandfold to his police department. A great portion of the public judges its police department by such seemingly small acts of courtesy and thoughtfulness

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POLICE PERSONALITIES

Chief James F. O'Neil

UNANIMOUSLY CHOSEN NATIONAL COMMANDER OF THE AMERICAN LEGION

Chief of Police James F. O'Neil, of Manchester, N. H., was elected to the highest office of the American Legion on the first ballot at the Twentyninth National Convention in New York City, when three other nominees withdrew their names and asked the delegates to make their choice of Chief O'Neil unanimous.

Commander O'Neil has a long and distinguished record of public service in many fields. In addition to that in the Armed Forces, his experience in law enforcement and newspaper work, and his active interest in athletics, aviation, and good citizenship have combined to make him particularly fitted for the position. He has contributed solidly to good government in his city, his State and the Nation.

Of 13 years on the Legion's Americanism Committee, Chief O'Neil served 3 as chairman and 5 as vice-chairman. He was chairman of the Joint Committee (of the Legion's Americanism Commission and the Federal Bureau of Investigation) during the war, and served as special assistant to Assistant Secretary of the Navy for Air, John L. Sullivan, now Secretary of the Navy. President Truman named Chief O'Neil to serve on the three-man Amnesty Board, headed by Owen J. Roberts, former Associate Justice of the United States Supreme Court.

Extremely active in Legion affairs, Chief O'Neil has been sent by his State to 20 national conventions. He has served on numerous committees.

Chief of Police of Manchester since 1937, James O'Neil has won the admiration of law enforcement by an efficient and progressive administration. In the course of the war, Manchester was a city in which military police were not employed although thousands of soldiers were trained at nearby



Chief Hallowell.

Grenier Field. Former Secretary of War Patterson cited Chief O'Neil for "maintaining the highest of discipline among the military and civilian" population of the city during the war.

Also in the field of law enforcement, the new commander collaborated in writing the textbook used in training auxiliary police for service during the war years. He was a member of the Uniform Crime Commission, whose recommended legislation has been adopted in 41 States. In addition, he served as New Hampshire chairman of the International Association of Chiefs of Police and as chairman of the State Commission for Study of the Causes of Juvenile Delinquency.

*

Action Characterizes Chief's Career

It is almost impossible to remember when Theodore H. Hallowell was not Chief of Police in Cheltenham Township, Pa. "Dory" Hallowell, as he is known to everyone, was born on June 2,

1883, in Elkins Park, which in those days was known as Shoemakertown.

His desire for action and excitement led him to pack his bags in 1904 and start West where for 2 years he worked on a Colorado ranch as a cowpuncher and general ranch hand. In 1906 he returned to Pennsylvania, and still with the desire for an active life, became a member of the Cheltenham Township Police Force, which, at that time, had seven men to cover a 10-mile-square area without call boxes or radios.

For 2 years he patrolled his beat on foot, and then on horseback. In 1915 he was promoted to house sergeant, and in his endeavor to improve his profession, applied himself to the study of fingerprinting and photography. In 1916 this study paid off when it helped bring an important conviction in a major jewel robbery. The only clues found in the entire case were two fingerprints taken from a window and drawer by Hallowell and traced to the suspect, which resulted in a conviction in court. He was appointed Chief in 1916, and has held that position ever since.

Chief Hallowell, intensely interested in police work, is not content to remain behind his desk, but constantly patrols the township in one of the nine two-way radio cars with which the police force is now equipped. "One of the greatest improvements in police work," says Chief Hallowell, "has been the installing of call boxes and, best of all, the two-way radio system." "Dory" was president of the Montgomery Chiefs of Police Association during 1933 and 1934; president of the Southeastern Chiefs of Police Association in 1940; and, president of the Pennsylvania Chiefs of Police Association from 1944 to 1945. He is also a life member in the International Police Chiefs Association and is the vice president of the International Association for Identification.

* Wanted by the FBI

(Continued from page 21)

FBI Number		1,476,934.						
Fingerprint classi-	6	0	29	W	M00			
fication.	1.30	Ι	32	W	OII	18		
Reference	29	2	9	29				
	29	3	0	31				

Bugg is reported to have posed as a cowboy on many occasions. He may seek association with rodeo performers.

Any person having information which may assist in locating John Harvey Bugg is requested to immediately notify the Director of the Federal Bureau of Investigation, U. S. Department of Justice, Washington 25, D. C., or the Special Agent in Charge of the Division of the Federal Bureau of Investigation nearest your city.

A photograph of John Harvey Bugg appears on the inside back cover.

Questionable Pattern

FINGERPRINTS



The fingerprint pattern illustrated above is classified as a tented arch having two of the basic characteristics of a loop, but lacking the third. That is, a delta and a ridge count may be observed, but not a sufficient recurve. It must be remembered that the ridge count of a tented arch is merely a convention in fingerprinting, designed to facilitate a scientific classification of arches and tented arches, and has no connection with a loop. The ridge count referred to in this type of pattern is obtained by imagining that the ending ridges are joined by a recurve only for the purpose of locating the core and obtaining a ridge count.

Therefore, by using the lower ending ridge as a delta, a ridge count of one will be noted.

In the Identification Division of the Bureau, a reference search as a plain arch would be conducted.

Wanted by the FBI. . .

JOHN HARVEY BUGG, with aliases KIDNAPING

NATIONAL MOTOR VEHICLE THEFT ACT

Detailed descriptive information on this person will be found on page 21