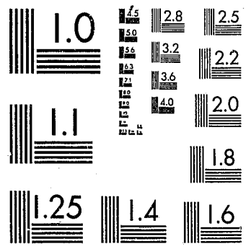


MF I

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

FINGERPRINT IDENTIFICATION

Introduction

THE great forward strides made in professional law enforcement during the past 50 years must be attributed to a combination of many important developments. These include the adoption of scientific methods, the growth of modern transportation and communications facilities, the use of improved and new types of equipment, and the dedication of trained career police officers.

No one factor can be singled out as being individually responsible for the progress which has been achieved. If an attempt were made, however, to list them in the order of their dramatic and far-reaching impact, a prominent place would have to be given to the science of fingerprint identification.

Being peculiarly adapted to the field of criminal identification, the fingerprint has come to be closely associated in the mind of the lay citizen with the problems of locating and identifying offenders. Thousands of lawbreakers each year are made to face the consequences of their crimes because of tiny, almost indiscernible imprints carelessly left behind. The fleeing felon is tied inescapably to his lawless past by a small cardboard square bearing the inked impressions of his fingertips. In this way, approximately 2,527 fugitives are identified each month.

In addition to its effectiveness in criminal identification, however, the fingerprint has become increasingly helpful to man through its humanitarian uses. It reunites joyful families with loved ones who have been long missing; it provides a name and a past for the unfortunate person tormented by amnesia; and in time of tragedy it resolves anguished uncertainty by establishing the identity of the disaster victim.

The following pages picture briefly the fascinating and often amazing development of the science of fingerprint identification. They also tell the story of the men and women of the Identification Division of the Federal Bureau of Investigation and how they serve the Nation through the use of the fingerprint – an effective and indispensable tool of modern law enforcement.

THE IDENTIFICATION DIVISION of the FBI

A brief outline of the history, the services, and the operating techniques of the world's greatest repository of fingerprints.

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

Outline of the History of Fingerprinting

In tracing the origin of the fingerprint science we must draw a distinction between the realization that the tips of the fingers bear diversified ridges and the application of this knowledge to the problem of personal identification.

Unquestionably, man's consciousness of the patterned ridges on his fingers and palms predates the Christian era by many centuries and has been evidenced in varying degrees by successive civilizations. On the face of a cliff in Nova Scotia, for instance, has been found prehistoric Indian "picture writing" of a hand with ridge patterns crudely marked. Scholars refer to the impression of fingerprints on clay tablets recording business transactions in ancient Babylon and to clay seals of ancient Chinese origin bearing thumb prints. The Apostle Paul concludes one of his epistles with the words, "The salutation of Paul with mine own hand, which is the token in every epistle: so I write." Some have inferred from these words that Paul used his finger impressions as a distinctive signature. Chinese documents identified with the eighth century (A.D.) T'ang Dynasty refer to fingerprints being impressed upon business contracts.

It is conjectural to what extent these earlier instances of fingerprinting were intended for actual identification of the persons impressing the prints. Certainly in some cases the object was simply to add more or less superstitious solemnity to business contracts through the personal contact of the contracting parties' fingerprints with the written record.

There is evidence, however, that the fact of the individuality of fingerprints, though not put to practical use, dawned recurrently through the ages. In fourteenth century Persia, various official government papers were reportedly impressed with fingerprints, and the observation was made by a government official who was also a physician that the fingerprints of no two persons were exactly alike.

In 1684, Dr. Nehemiah Grew, a fellow of the Royal College of Physicians, in the course of a lecture commented upon the ridge patterns appearing on the fingers. But if any of these early adventures in fingerprint observation had any direct influence on the men who are the fathers of the modern science of fingerprint identification, the known record does not reflect it.

A scientific approach to fingerprinting was essential before it could be put to practical use on any extensive scale. The outline which follows begins with what are believed to be the first scientific observations which may reasonably be supposed to have contributed to the inception of modern fingerprint identification. These observations were made in

1686 by Marcello Malpighi, Professor of Anatomy at the University of Bologna. Malpighi, making use of a newly discovered instrument, the microscope, noted and discussed in his treatises "certain elevated ridges" describing "divers figures" on the palmar surfaces. He perceived them to be "drawn out into loops and spirals" at the ends of the fingers. Apparently the significance of his observations escaped him, however, for he pursued them no further. More than a century elapsed, and it was not until

1823 that John Evangelist Purkinje, Professor of Anatomy at the University of Breslau, published a thesis in which he commented upon the diversity of ridge patterns "especially on the last phalanx of each finger" and evolved a vague differentiation of these patterns into nine varieties. Purkinje's paper was intended only as a scholarly treatise and had no practical application to the problem of personal identification, but thirty-five years later, in

1858 Sir William James Herschel, British chief administrative officer for the Hooghly district, Bengal, India, began the first known official use of fingerprints on a large scale. He required natives to affix their fingerprints as well as their signatures to contracts. Apparently he had no idea originally that the marks were individual but adopted the practice with the thought that this very personal type of contact with official papers would be impressive to the native mind and would discourage dishonesty and default. As familiarity with finger impressions grew, however, their individuality must have become evident to him, for in

1877 Herschel introduced the use of fingerprints in several departments at Hooghly and also submitted a report asking permission to extend the practice as a means of identification of prisoners as well as parties to civil contracts. This permission was not forthcoming, but Herschel, within his own province, applied the system extensively. He did not, however, evolve a method of classification suitable for general use.

At about this same time Dr. Henry Faulds, of Tsukiji Hospital in Tokyo, Japan, began his observations of fingerprints. The English scientific journal, "Nature," in

1880 published an article by Dr. Faulds, discussing his studies and making suggestions as to the future possibilities of the fingerprint science. His ideas are remarkable for their anticipation of present-day practices. He recommended the use of a thin film of printer's ink as a transfer medium, just as is generally used today. He discussed quite fully the potentialities of identification of criminals by their fingerprints left at the scenes of crimes, just as in the modern science of latent fingerprint identification. As a matter of fact, Faulds, himself, demonstrated the practical application of his theory by establishing through greasy fingerprint marks the identity of a person who had been drinking some rectified spirits from the laboratory supply – certainly one of the earliest latent fingerprint identifications of modern times.

1882 is the year in which appears the first authenticated record of official use of fingerprints in the United States. Mr. Gilbert Thompson of the United States Geological Survey, while in charge of a field project in New Mexico, used his own fingerprint on commissary orders to prevent their forgery.

An interesting sidelight, which had possible effect on the introduction of fingerprint identification into the United States, occurred in

1883 with the publication of Mark Twain's "Life on the Mississippi." An episode in this book relates to the identification of a murderer by his thumbprint. Mark Twain further developed his theme ten years later in 1893 with the publication of "Pudd'n'-head Wilson," a novel plotted around a dramatic fingerprint identification demonstrated during a court trial and including a striking exposition of the infallibility of fingerprint identification, the more remarkable because of the date of its publication.

It was also in the 1880's that Sir Francis Galton, a noted British anthropologist and a cousin of scientist Charles Darwin, began observations which led to the publication, in 1892, of his book, "Finger Prints." Galton's studies established the individuality and permanence of fingerprints, and he made another important contribution by devising the first scientific method of classifying fingerprint patterns.

1891 marked the first installation of fingerprint files as an official means of criminal identification. Juan Vucetich, an Argentinian police official, based his system on the patterns typed

by Sir Francis Galton. At first it was used in conjunction with the Bertillon system of identification by body measurements, which it gradually replaced. The Vucetich system is the basis of those systems presently used in most Spanish-speaking countries and a number of other countries as well.

Vucetich also claimed the first official criminal identification by means of fingerprints left at the scene of a crime. In

1892 at La Plata, Argentina, a woman named Rojas, who had murdered her two sons and had cut her own throat, though not fatally, blamed the attacks on a neighbor. Bloody fingerprints on a doorpost were identified by Vucetich as those of the woman herself and led to her confession.

1901 marked the official introduction of fingerprinting for criminal identification in England and Wales. The system employed was also developed from Galton's observations and was devised by Mr. – later Sir – Edward Richard Henry, then Inspector-General of Police in Bengal, and later Commissioner of London's Metropolitan Police. Henry simplified fingerprint classification and made it applicable to police identification. His system and that devised by Vucetich form the basis of all modern ten-finger fingerprint identification systems. It is the basic Henry System, with modifications and extensions, which is used by the FBI and throughout the United States today.

1902 is the year in which the first known systematic use of fingerprints in the United States was begun with the establishment of the practice of fingerprinting by the New York Civil Service Commission to prevent applicants from having better qualified persons take their tests for them. Dr. Henry P. DeForest, an American pioneer in the fingerprint science, installed the system in December, 1902.

1903 is claimed by the New York State prison system as the date of the first practical, systematic use of fingerprints in the United States for the identification of criminals. As early as March of that year fingerprints of prisoners were taken and classified, and on June 5 the fingerprint system was officially adopted.

1904 found acceptance of the fingerprint system accelerated when the United States Penitentiary at Leavenworth, Kansas, and the St. Louis, Missouri, Police Department both established fingerprint bureaus. The St. Louis bureau was inaugurated with the assistance of a sergeant of London's Scotland Yard, who was on duty at the St. Louis Exposition guarding a British exhibit. The Leavenworth bureau became the first to offer facilities on more than a local basis when it gradually expanded the scope of its operations to include a free fingerprint exchange service among a growing list of contributing peace officers.

1905 saw the adoption of a fingerprint system for the United States Army. Installation was completed the following year, marking its first official military use in the United States. The first official use by the Navy was begun two years later by the Bureau of Navigation followed the next year by the Marine Corps.

During the first quarter of the 20th Century more and more local police identification bu-

reaus established fingerprint systems, and many sent copies of their fingerprint records to the National Bureau of Criminal Identification, established by the International Association of Chiefs of Police. The obvious need and demand by police officials led to an Act of Congress establishing, on July 1,

1924 the Identification Divisic r'BI. The fingerprint records of both the National Bureau of Criminal Identification ..d of Leavenworth Penitentiary, totaling 810,188, were consolidated to form the nucleus of the FBI files. This national repository of criminal identification data quickly proved its worth to law enforcement officials faced with the problem of criminals moving rapidly from city to city and state to state. Additional services were added in the FBI Identification Division as the need became apparent. On March 1,

1932 the International Exchange of fingerprint data was initiated with a number of other nations. On February 15,

1933 a Latent Fingerprint Section, for making technical examinations of latent prints or of inked prints on an individual basis, was instituted. On November 10 of this same year the Civil Identification Section was established. A steadily increasing rate of receipts brought the number of fingerprint cards in FBI files to 10 million in 1939, but it was the exigencies of World War II that brought about the most phenomenal period of the Identification Division's growth. During the years just before and during the war the number of civil fingerprints, including those of aliens, military personnel, and civilian employees in defense industries, far out-stripped the number of arrest prints. Both types together added to the swelling total until, on January 31,

1946 the 100 millionth fingerprint card was received in the Identification Division of the FBI, the world's largest repository of fingerprint records. Although new methods of personal identification are constantly being suggested even today, it is hard to conceive of a system being devised which can improve upon the combination of facility, practicality and infallibility which is characteristic of the fingerprint system. As of January 1,

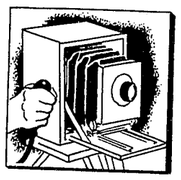
1964 the total number of fingerprint records on file approached 172,000,000. This was indeed an auspicious figure as the Identification Division approached its 40th year of uninterrupted service to citizen and peace officer alike.

1974 marked the Golden Anniversary of the Identification Division. In 1924, when the FBI Identification Division was established, few persons could envision the high degree of efficiency and utility which this newly formed branch of the FBI would attain in just 50 years. During the period of its existence the FBI Identification Division has made remarkable and far-reaching progress in fingerprint identification utilizing the most modern advances in technology to improve identification services. Ahead, lies the Division's greatest challenge – the successful development of a fully automated fingerprint processing system.

Why Fingerprint Identification?

Fingerprints offer an infallible means of personal identification. That is the essential explanation for their having supplanted other methods of establishing the identities of criminals reluctant to admit previous arrests. Other personal characteristics change. Fingerprints do not.

In earlier civilizations branding and even maiming were used to mark the criminal for what he was. The thief was deprived of the hand which committed the thievery. The Romans employed the tattoo needle to identify and prevent desertion of mercenary soldiers.

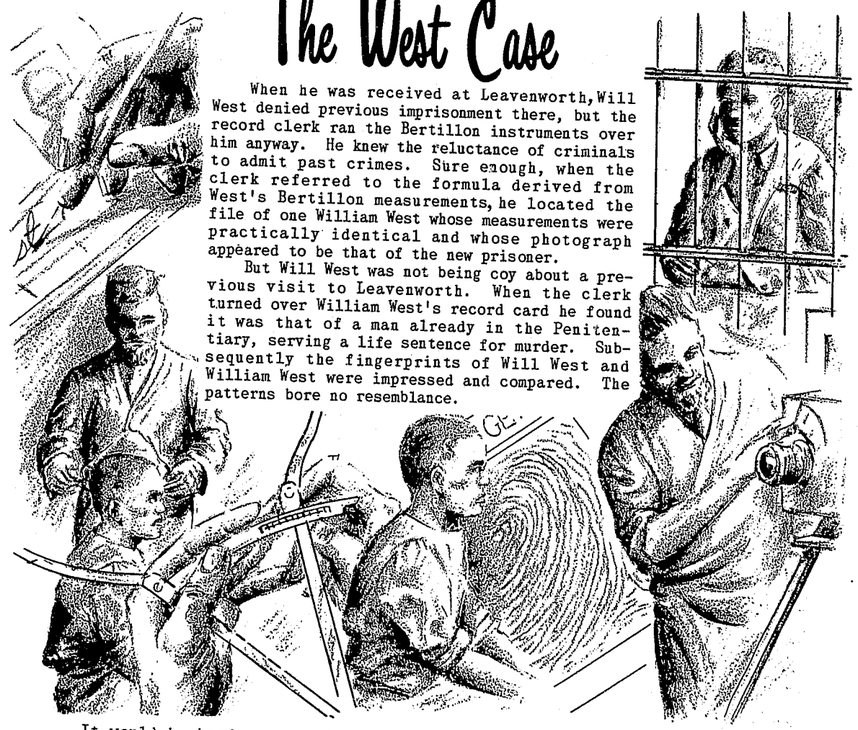


More recently law enforcement officers with extraordinary visual memories, so-called "camera eyes," identified old offenders by sight. Photography lessened the burden on memory but was not the answer to the criminal identification problem. Personal appearances change.

Around 1870 a French anthropologist devised a system to measure and record the dimensions of certain bony parts of the body. These measurements were reduced to a formula which, theoretically, would apply only to one person and would not change during his adult life.

This Bertillon System, named after its inventor, Alphonse Bertillon, was generally accepted for thirty years, but it never recovered from the events of 1903. That was the year a man named Will West was sentenced to the United States Penitentiary at Leavenworth, Kansas.

The West Case

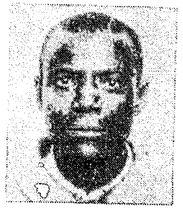


When he was received at Leavenworth, Will West denied previous imprisonment there, but the record clerk ran the Bertillon instruments over him anyway. He knew the reluctance of criminals to admit past crimes. Sure enough, when the clerk referred to the formula derived from West's Bertillon measurements, he located the file of one William West whose measurements were practically identical and whose photograph appeared to be that of the new prisoner.

But Will West was not being coy about a previous visit to Leavenworth. When the clerk turned over William West's record card he found it was that of a man already in the Penitentiary, serving a life sentence for murder. Subsequently the fingerprints of Will West and William West were impressed and compared. The patterns bore no resemblance.

It would be hard to conceive of a more nearly perfect case for refuting the claims of rival systems of identification. Although the two Wests are not known to have been related, there was a facial resemblance like that of twin brothers. The formulas derived from their Bertillon measurements were nearly identical, allowing for slight discrepancies which might have been due to human variations in the measuring process. And finally, there was the crowning coincidence of the similarity of names.

The fallibility of three systems of personal identification--photographs, Bertillon measurements, and names--was demonstrated by this one case. The value of fingerprints as a means of detecting that fallibility was established.



William West

William West

Will West

Will West

FBI Identification Facilities

Rolling inked impressions on a standard 8" by 8" fingerprint card.

ORIGIN OF THE IDENTIFICATION DIVISION

After the turn of the century, with the substantial acceptance of fingerprints as the logical method of identification for police purposes, many individual law enforcement agencies established their own fingerprint record bureaus. As the number of them increased, it became obvious that a central repository of fingerprints, available to authorities throughout the nation, was needed. The individual local bureau would serve to identify the criminal who restricted his activities to one community, but what of the "peripatetic recidivist" – the confirmed lawbreaker who moved about from one city or state to another?

Initial attempts to meet this problem were made by Leavenworth Penitentiary authorities and by the International Association of Chiefs of Police, which included as members the heads of most large municipal departments in the United States and Canada. The fingerprint bureau at Leavenworth, originally established in 1904 for Federal prisoners only, soon expanded its operations into a free exchange service, circularizing criminal records among a growing list of contributing peace officers. In 1896 the International Association of Chiefs of Police had established in Chicago, Illinois, and later moved to Washington, D. C., the National Bureau of Criminal Identification for the compilation and exchange of criminal identification data. As members discontinued Bertillon in favor of fingerprint identification, this National Bureau of Criminal Identification gradually acquired a valuable fingerprint collection.

Still there was a growing, insistent demand by police officials for one cooperative system on a national scale, available to all authorized law enforcement agencies. The result was the formation of the Identification Division of the FBI in 1924, consolidating in Washington, D. C., the 810,188 records formerly comprising the fingerprint files of Leavenworth Penitentiary and the National Bureau of Criminal Identification.

The Main Files

EXTENT

The standard card for filing a set of ten finger impressions in the Identification Division is eight inches square and somewhat thicker than the cover of this booklet.

Imagine stacks of these cards piled on top of one another, each as tall as the Empire State Building. One hundred and ten such stacks would represent the approximately 165,000,000 cards.

Or, visualize a path of fingerprint cards lined up edge to edge, card after card extending across the horizon, across the nation, across the sea. The one hundred sixty-five millionth card at the end of the path would reach more than four fifths way around the world. At the present time, more than 8,000 contributing agencies submit over 22,000 sets of fingerprints daily.

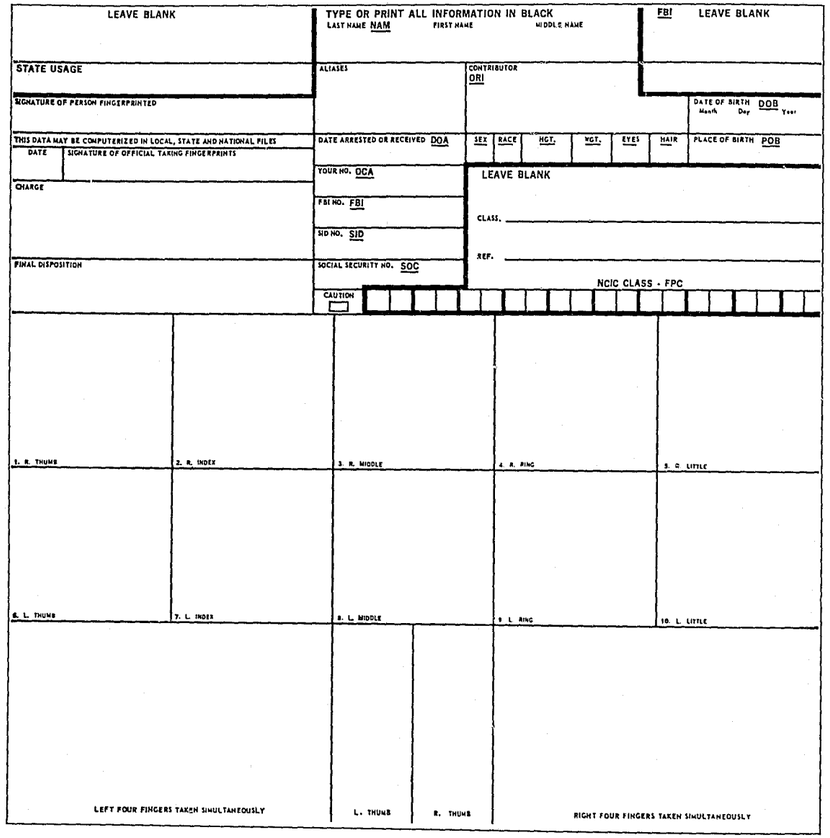
Of all the fingerprint impressions received and examined, FBI technicians have never found two fingerprints exactly alike in all details unless they were both made by the same finger. Twins, triplets, quadruplets or even quintuplets may look, speak and act alike, but reference to their finger impressions establishes that their similarities do not extend to the patterns of the friction ridges upon their fingers.

TYPES OF RECORDS

There are two general types of fingerprint records maintained by the FBI. By far the most extensively used is the "10-finger" type. All ten fingers are inked individually with printer's ink and impressions are made in the ten designated spaces of a standard eight-inch-square card. The raised friction ridges, which may be observed by close inspection of your fingers, leave their patterns in ink upon the card. For verification purposes, and to insure that the individual fingers were impressed in the proper order on the card, simultaneous impressions of all fingers on each hand are made in the "plain" impression block at the bottom of the card.

The "ten-finger" files are the records to which most frequent reference is made. They serve to inform the law enforcement officer of prior offenses committed by persons arrested and fingerprinted. They constitute the principal files of the FBI Identification Division. Name and general appearance files are supplementary but cannot substitute for positive fingerprint identification. Although footprints are equally as positive a means of identification as fingerprints, they cannot be secured with the same facility and do not lend themselves to such extensive modifications in classifications as do the ten fingers. The FBI requests footprints only when fingerprints are not available.

The other general type of fingerprint record consists of a file on a selected group of notorious criminals. The prints in this file are classified under a special system which makes it possible to search for duplicates of a single finger impression. When a single latent fingerprint is developed at the scene of a crime, it is this file to which the fingerprint expert refers in his efforts to identify the source of the print. The operations of the FBI Latent Fingerprint Section are discussed in a subsequent section.


LEAVE BLANK

TYPE OR PRINT ALL INFORMATION IN BLACK
LAST NAME NAM FIRST NAME MIDDLE NAME

FBI LEAVE BLANK

STATE USAGE

ALIASES

CONTRIBUTOR ORI

SIGNATURE OF PERSON FINGERPRINTED

DATE OF BIRTH DOB Month Day Year

THIS DATA MAY BE COMPUTERIZED IN LOCAL, STATE AND NATIONAL FILES

DATE ARRESTED OR RECEIVED DOA

SEX RACE HGT. WGT. EYES HAIR

PLACE OF BIRTH POB

DATE SIGNATURE OF OFFICIAL TAKING FINGERPRINTS

YOUR NO. OCA

LEAVE BLANK

CHARGE

FBI NO. FBI

CLASS.

SID NO. SID

REF.

FINAL DISPOSITION

SOCIAL SECURITY NO. SOC

NCIC CLASS - FPC

CAUTION

1. R. THUMB | 2. R. INDEX | 3. R. MIDDLE | 4. R. RING | 5. R. LITTLE

6. L. THUMB | 7. L. INDEX | 8. L. MIDDLE | 9. L. RING | 10. L. LITTLE

LEFT FOUR FINGERS TAKEN SIMULTANEOUSLY | L. THUMB | R. THUMB | RIGHT FOUR FINGERS TAKEN SIMULTANEOUSLY

CLASSIFICATION SYSTEM

Although the original nucleus of 810,188 fingerprint records received in 1924 was but a fraction of the tremendous volume to be received in the years to come, it was apparent even then that a filing system was needed which would accommodate both current and future reference requirements. Obviously each incoming print could not be compared individually with every print already in file. A system which would segregate into groups prints with similar ridge patterns in corresponding fingers was needed. The classification system devised by Sir Edward Henry, later Commissioner of London's Scotland Yard, was selected. The Henry System had been introduced successfully into England and Wales in 1901 and today forms the basis of the great majority of systems employed in English-speaking countries. An Argentinian, Juan

Vucetich, devised the system bearing his name, which is used by most nations where Spanish is the common language.

The Henry System divides fingerprint patterns into the eight basic types depicted on page 23. The ten fingers are considered as a unit to obtain the complete classification. This classification, symbolized in a formula consisting of a combination of letters and numerals, reflects the general characteristics of the patterns in all fingers. This numeral and letter classification permits filing in proper sequence for ready reference.

Although the system presently employed by the FBI is basically the same as that devised by Sir Edward Henry, it has been necessary to amplify and extend it into numerous additional subdivisions. The voluminous present-day files thus have been separated into a multitude of smaller groups with similar characteristics. As a result the expert technician can establish an identity within a few minutes by examining a limited number of the millions of individual cards on file.

ARREST RECORDS

The fingerprints of persons who have been charged with various crimes constitute the most active identification files of the FBI although they represent less than 45% of the fingerprint cards in the FBI's possession. The original nucleus of arrest records received by the Identification Division in 1924 has multiplied many times, but the number of arrest prints has been outnumbered by the contents of the civil files which have been added to FBI identification facilities. These civil files are described in a later section of this booklet. The FBI serves merely as a custodian of identification data, and the records contained in our Identification Division are considered to be the property of the agency which transmits the information. Such records may only be altered or removed upon request of the original contributor of fingerprints.

The following pages illustrate how the FBI Identification Division deals with the problem of handling the tremendous volume of prints received for search against its "ten-finger" arrest records.

Interesting Idents

Nighttime Thief Identified as Murderer

Fingerprints taken in connection with a nighttime breaking and entering offense revealed that the subject was wanted elsewhere for a more serious crime.

When a man was arrested by an eastern sheriff's office on a breaking and entering charge, his fingerprints were taken and forwarded to the FBI in Washington, D. C. The violator had refused to give any name but "James Smith."

A search of the criminal files of the Identification Division soon established the man's true identity. It was also learned that he was wanted by another sheriff's office in the South on a murder charge. Authorities there were promptly notified that their fugitive had been apprehended.

Prints Identify Amnesia Victim

The unfortunate victim of amnesia frequently turns to police for assistance in the search to regain a lost identity. When a telephone call came into police headquarters in a southwestern city, a male voice implored officers to come and help. The caller gave the address of the booth from which he was calling.

When the officers arrived, they found a tall young man with red hair waiting for them. He had a gun in a shoulder holster and he told the police that he did not know who he was or where he came from.

The chief of police promptly forwarded the young man's fingerprints to the FBI, and these were identified with a set taken when the victim had enlisted in the Navy eleven years before. The interested law enforcement agency was immediately informed of the identity of their amnesia victim.

Placing the recording stamp on incoming fingerprint cards.

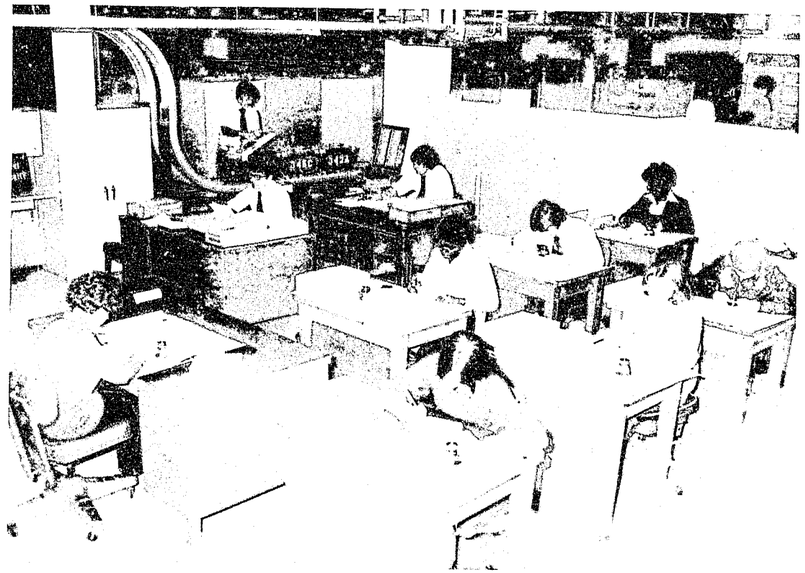
PRINTS RECEIVED AND RECORDED

Every working day thousands of fingerprint cards reflecting arrests are received in the FBI Identification Division from law enforcement agencies throughout the country. The procedure in handling them must be both accurate and expeditious. The possibility of erroneous information being furnished the contributing agency must be eliminated. Data furnished to the contributors must be absolutely correct and must be transmitted promptly if it is to be of maximum value.

To insure against delay in handling incoming prints, a dated control record of each is made as soon as it is received and before it is started on its journey through the constantly moving "assembly line" processes of the Division. Thus tracers can be instituted when inquiries are received on specific records in process of handling.

The date stamp on the back of each print and a distinctive colored tag affixed to those prints to be given preferential attention indicate the relative priority each should be given by the employees who handle it in the various units of the Identification Division as it moves along the "assembly line."

When the print has been recorded, it is turned over to a fingerprint technician for....

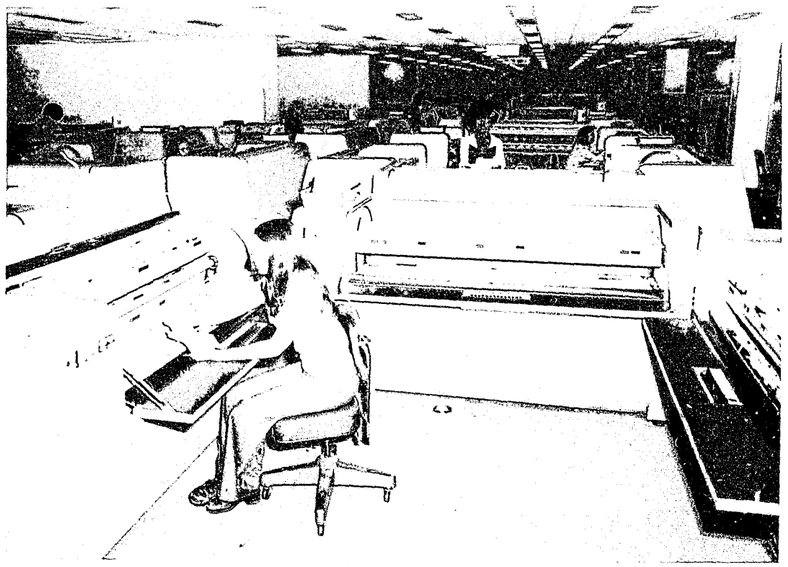


Placing preliminary classification on cards before routing to card index.

PRELIMINARY CLASSIFICATION

The voluminous files of the Identification Division necessarily cover a considerable area. To determine the particular group of file cabinets to which an incoming card should be routed for comparison with cards of similar classification already in file, a limited preliminary classification is made by a technical employee. The classifier examines each individual finger impression and indicates beneath the finger block a symbol reflecting specific pattern type. As previously stated, the system of classification utilized by the FBI has been patterned after the Henry System (see page 23) with modification and extension. From these symbols "blocked out" on the fingerprint card, an abbreviated portion of the classification formula is derived and set out in the designated place, the upper-right corner of the card. This initial classification serves a dual purpose. It affords sufficient formula for routing the print by telelift to the appropriate section of the files and will be elaborated and extended by the technician on duty at the fingerprint file cabinet where the actual search is conducted.

Secondly, it is contemplated that this partial classification will facilitate the subsequent search of the fingerprint card by name which is the function of....

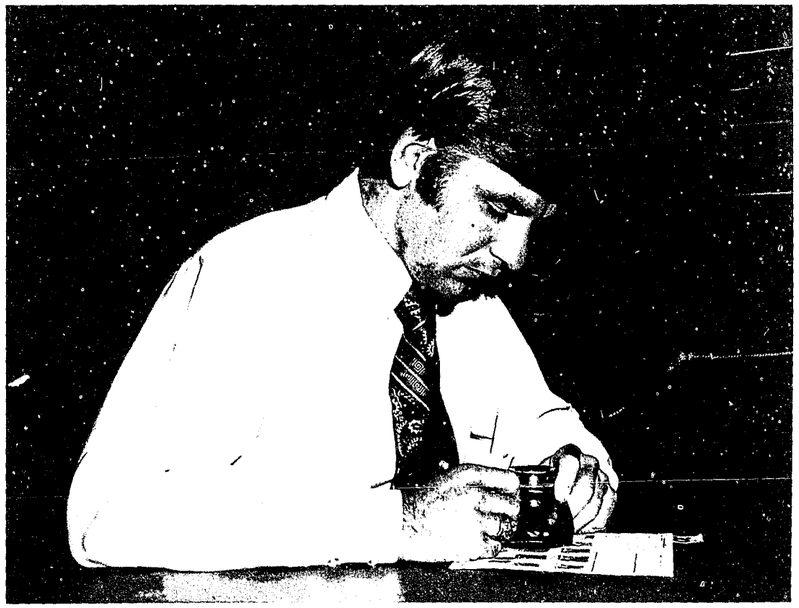


Electrically operated file cabinets contain the card index arranged in banks. The push of a button rotates the desired bank into arm's reach of the operator.

THE CARD INDEX SECTION

Here the name and aliases reported for each person for whom a record is on file will appear on separate 3 x 5 index cards together with certain descriptive data. Included are the full fingerprint classification and a record of every fingerprint card previously received on that individual, listing the identifying numbers assigned by the arresting agencies. In order to expedite location of any previous record under the same name as that appearing on the current print, the name is first searched in the alphabetical card index files. Any cards which appear to refer to possibly identical fingerprint records are attached to the incoming print to facilitate the location of such records by the fingerprint technician under the classification typed on the cards. Where an attached index card bears an FBI number, or where the contributing agency has indicated an FBI number on the current print, the fingerprint card is routed from the Card Index Section directly to the Assembly Section.

Frequently, of course, the recidivist criminal will use a name different from any he has given on previous arrests. Then the fingerprint technician must make his search of the fingerprint files without the benefit of the possible "idents" suggested by the index cards. Consequently, prints which reflect no contributor-placed FBI number and those on which no record is located by Card Index Section name search are routed back for....



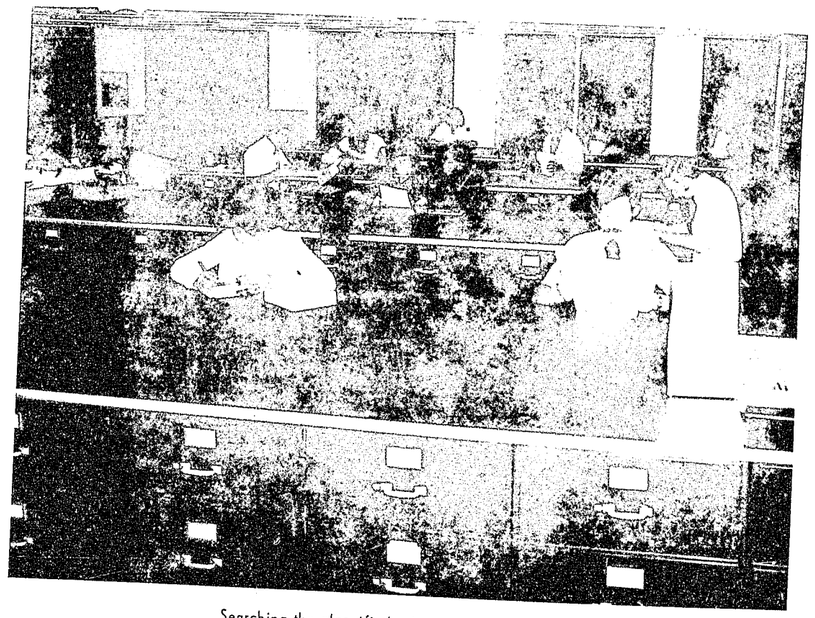
Completing the classification of a fingerprint card for the Technical Section search of the criminal files.

TECHNICAL SECTION INITIAL HANDLING

The fingerprint technician, upon receiving the incoming print from the Card Index Section, refers to those prints in file indicated by any index cards (without FBI number) attached as possibly identical with it. By visual comparison under his magnifying glass he determines if one of them is actually identical with the current print. If so, his search is ended, because only one "master" print is retained in Technical Section files for each individual, no matter how many prints for that individual may have been received in the past. Statistics show that approximately 68% of the persons currently fingerprinted in connection with arrests have previous records in file. As a result, the total number of persons represented by the "master" cards, limited to one for each individual, is considerably less than half the total of arrest cards in FBI possession.

If none of the attached index cards refer to a print identical with the incoming, or if the current fingerprint card is one on which no name card was located, the technician engages in a technical fingerprint search dependent entirely upon ridge details. First he completes the preliminary classification placed on the print at the start of its journey through the Division. He examines each individual finger impression under his magnifying glass and pencils in the numerical and letter symbols that describe it. These symbols for all ten fingers are combined in the complete classification.

Now the print is ready for....



Searching the classified prints against the files.

SEARCH BY CHARACTERISTICS

The technician, referring to the complete classification formula, goes to that section of the file containing prints with similar patterns as reflected by their classifications. The numerical and letter sequences by which the prints are filed enable him to locate them expeditiously. The number of prints in a particular group may vary from none to several hundred. A continuing project in the Section is to devise sub-classifications which will further divide large groups. The technician visually compares with the incoming print all prints in file bearing similar classifications within a margin allowed for possible differences in pattern interpretation. Detailed examination under a magnifier is necessary because two prints may bear exactly the same classification without being identical. It is the actual visual comparison of the minute ridge details that reveals the many discrepancies always present between sets of prints from two different persons.

If the technician finds an identical print, either by index card reference or by technical search, he pencils an "ident" symbol on the incoming print. If he finds none, the incoming set is marked as a "non-ident."

"Idents" are sent to the Assembly Section.

"Non-idents" are sent to the Automation and Research Section where an FBI number is assigned.

Below: Prints having FBI Number indicated by the contributor or those where the FBI Number has been revealed by name search are sorted in the Assembly Section. Right: After being picked up from the sorting rack, the prints are taken to the appropriate section of the assembly files, where the jackets are pulled for comparison, assembly and eventual verification if identical.

THE ASSEMBLY SECTION

The files of this section contain the "case histories" of individuals on whom more than one arrest fingerprint card has been submitted. These "case histories" or jackets are assigned FBI numbers and are filed in sequence according to those numbers. Current identifications are verified with fingerprints in the jacket and the complete record is assembled and checked before dispatch to the Fingerprint Correspondence Section for preparation of a reply.

Assembly Section also handles "locates" on a division-wide basis where records are temporarily out of file.

A long-range rehabilitation program involving microfilming of these vast records, as a space conservation measure, is being carried out. Under this program, all fingerprints in the jacket with the exception of one card, which is retained for verifying, are being recorded on microfilm.

Above: Through the use of new reproduction equipment, employees in the Fingerprint Correspondence Section have increased their efficiency of operations in handling correspondence matters with law enforcement, as well as other, agencies. Above Right: Requests for Missing Persons Notices are received from all parts of the world.

FINGERPRINT CORRESPONDENCE SECTION

Here replies for all records, other than those that are being automated, are prepared for law enforcement, as well as other agencies, which have submitted the current fingerprint cards. Nonidentified arrest responses and responses involving records previously automated are handled in the Automation and Research Section. If a previous record which has not been automated is located, it is outlined in detail and sent to the contributor of a current print and other interested agencies. These replies are prepared on modern reproduction equipment.

The Fingerprint Correspondence Section also makes index cards for all known names of the subject represented. These cards become an index to the fingerprint files. As additional prints are received on the individuals, entries are made on these cards in abbreviated form to indicate contents of the fingerprint file.

The Fingerprint Correspondence Section, in addition to preparing acknowledgements to incoming fingerprint cards, also sends acknowledgements to correspondents relative to information obtainable from the fingerprint files and, in addition, furnishes notification to law enforcement agencies of the apprehension of individuals whose custody is desired by them.

When the replies regarding the daily influx of fingerprint cards have been sent to the contributors and the index cards have been brought up to date, the fingerprint and index cards are ready to be returned to the Assembly, Card Index, and Technical Sections where they will be filed for future reference.

Requests for the placement of Missing Person Notices, which come from all over the world, are channeled to the Missing Person Unit, Fingerprint Correspondence Section. Thousands of reunions have resulted from this humanitarian service. Receipt of information that the missing person has been successfully contacted or located by interested relatives provides the Missing Person Unit with a basis for cancellation of the Missing Person Notice.

Wanted notices are placed in the FBI fingerprint records by Posting Section employees.

THE POSTING SECTION

When notice is received from an authorized law enforcement agency that an individual with fingerprints on file is wanted, the fingerprint card and index card are flagged with small red tabs, in addition to stamping the reverse side of the master print "Wanted card in jacket." The details concerning the wanted notice are then posted on a wanted notice card which is filed in the fugitive's FBI "jacket." Should the wanted person be fingerprinted at any future date, perhaps in connection with some minor violation, the chances are that he may not give his correct name. When his fingerprints are searched against FBI files, however, his true identity will be disclosed. The red tab is a signal for immediate notification to the agency seeking him that he is in custody and where, and to the agency submitting the incoming print that he is wanted by the other law enforcement authority.

Current statistics reflect approximately 138,000 active wanted notices in FBI files. An average year will see considerably more than 30,000 fugitives identified. Where an agency requests cancellation of a wanted notice, Posting Section employees are prompt to comply, thus maintaining FBI files in current condition.

Civil Records

In 1924, when the FBI Identification Division was established, the purpose was to provide a central repository of criminal identification data for law enforcement agencies throughout the nation. Today, criminal identification has become only one phase, though still an important one, of the Identification Division's functions. In the 1933 fiscal year the Civil Service Commission turned over to the FBI the fingerprints of more than 140,000 Government employees and applicants. In addition, a Civil Identification section of the FBI fingerprint files was established that same year to provide for the law-abiding citizen the same protection against loss of identity by amnesia or possible disfiguring death afforded the fingerprinted criminal. These innovations marked the initiation of a civil file which was destined to dwarf the criminal files by comparison.

As the clouds of World War II gathered and broke, the number of fingerprints in FBI possession doubled, trebled and quadrupled. From less than 10.8 million in 1939 they multiplied to more than 42.8 million at the close of the 1942 fiscal year. Aliens, armed services personnel, and civilian employees in national defense industry added their prints to the total. The peak was reached in 1943 when 28,733,286 were received, an average of 93,540 each working day.

The chart on the inside back cover illustrates the proportions of the various types of prints which total approximately 165 million fingerprint cards as of October 1, 1976. Since some persons have a number of fingerprint cards on file, the grand total does not represent as many individuals. Over 21 million individuals were represented by the fingerprint cards in the criminal files and more than 40 million by the civil files as of October 1, 1976. The colossal structure of the civil files contained over 90 million cards and the criminal files exceeded the 74 million level.

Thus, the scope of the Identification Division's operations has been broadened far beyond its original purpose of service to law enforcement only. It is now a service agency to the public at large. Unknown dead and amnesia victims are identified, missing persons are located for anxious relatives through the information collected in FBI fingerprint files. The security of the armed forces and the Government service generally is promoted through the processing of the fingerprints of military personnel and civil employees and applicants for Government positions.

FBI DISASTER SQUAD IS EVER READY

It was a plane crash which brought the FBI Disaster Squad into existence in 1940. In that year, about 40 miles from Washington, D. C., a regularly scheduled plane en route to Pittsburgh crashed in a cornfield. On the plane were 25 passengers, including a Special Agent of the FBI, who had just completed training school, and a stenographer on annual leave. FBI representatives were dispatched to the scene to assist in the identification, primarily of the FBI personnel. Upon arrival, they found that little identification work was being done. No one knew exactly how to proceed, and, for the first time, FBI assistance was offered to handle various identification problems which arise in a disaster of this type.

Since then, the FBI has stood ever ready to be of assistance in identifying disaster victims through fingerprints. It is important to identify the dead and injured for numerous reasons, including proper burial, insurance and settlement of estate purposes. In addition to making available the full facilities of the Identification Division in Washington, the FBI is prepared to send its Disaster Squad directly to the scene of an accident to assist in identifying the dead by fingerprints. In the past, these accidents have included plane crashes, train wrecks, steamship accidents, hurricanes, and other disasters.

This cost-free cooperative service rendered by the FBI is but one more of many aids inaugurated to assist local law enforcement agencies. Any agency requiring the services of the FBI Disaster Squad may get in touch with the nearest field office or resident agency of the FBI.

The Latent Fingerprint Section

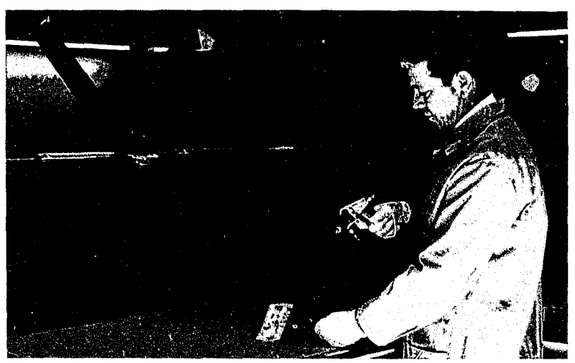
Identifications in the general fingerprint files of the FBI are made on the basis of the ink impressions of all ten fingers, printed on a standard fingerprint record card. The alphabetical and numerical formula derived by the fingerprint technician from these ten finger impressions tells any fingerprint expert who reads it not only the types of patterns appearing in the fingers but also in which finger each type pattern appears with relation to all the other fingers. Thus, all ten fingers must be considered as a unit in arriving at the classification.

Another section of the FBI Identification Division deals principally with the identification of latent impressions developed at crime scenes or upon articles of evidence. In this Latent Fingerprint Section the technicians, who include the most expert FBI fingerprint identification specialists, are not concerned with searching through the files to find a possible fingerprint record card bearing duplicates of the inked finger impressions of a person just arrested. Instead, their assignments generally involve the examination of fragmentary latent finger, palm, or even foot impressions developed by appropriate processes on objects associated with various crimes.

On a piece of metal, glass, smooth wood, or similar surface, for instance, such latent prints would be made more clearly visible by brushing them lightly with prepared powders contrasting in color with the background of the prints. The powder adheres to the almost imperceptible oily residue left by the contact of the skin ridges with the object handled and thus traces the pattern of the ridge formations. After the print is photographed, this powder tracing is generally "lifted" by the application of a special flexible tape having an adhesive surface to which the powder particles adhere. The resulting powder pattern is then sealed on the tape by the application of a protective transparent cover, such as celluloid or cellophane.

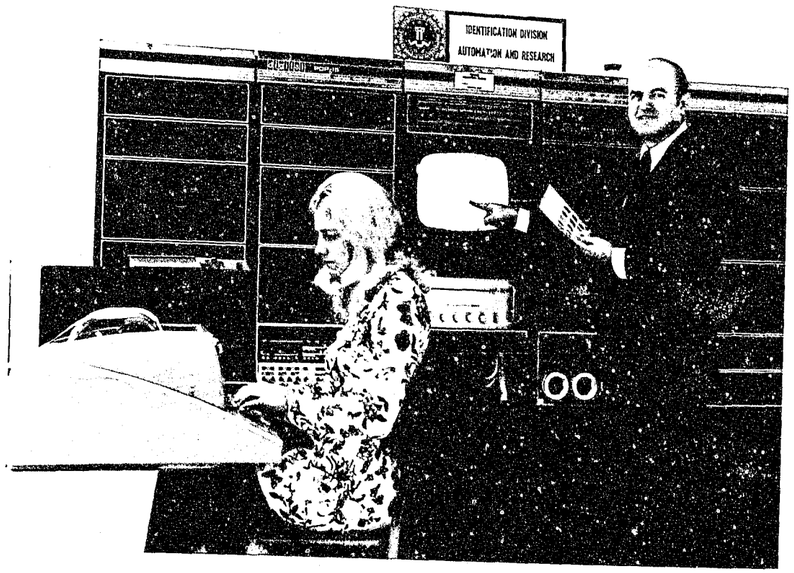
The Latent Fingerprint technician compares such latent impressions with the known fingerprints of criminal suspects or other persons who might have left the latent prints on the object under examination. This comparison takes into consideration the presence of the same ridge detail in both the latent and the known prints, such as ending ridges, bifurcations, divergences, "dots," and the positions of these ridge formations in the impression in relation to each other. If a sufficient number of points of similarity are noted between the latent and the known prints, with no unexplainable dissimilarities, an identification has been effected.

The General Appearance file contains photographs and descriptive data on known confidence game operators and major thieves. Searches are made in this file on the basis of physical characteristics, such as age, height, weight, color of hair and eyes, and other distinctive physical features. The photographs and other available material are furnished to interested law enforcement agencies to assist them in identifying confidence men and major thieves who operate in their jurisdictions.



A check is sprayed with a ninhydrin solution in an effort to develop any latent impressions which may be on it.

Automation and Research Section



The Automation and Research Section is responsible for all matters relating to research and development of ways and means of automating the work functions of the Identification Division. The development of automatic fingerprint-reading scanner equipment called "FINDER," which can classify a fingerprint in one-half second, is one of the major projects of this Section.

In June, 1974, a contract was awarded for the construction of five production model FINDER systems. When all five systems are delivered and placed in operation they will first be used to computerize the fingerprints of all arrestees in the FBI's criminal fingerprint file who are under 55 years of age. This represents approximately 14 million fingerprint cards to be converted. Thereafter, the FINDER systems will be used in the day-to-day fingerprint processing operations to speed up the daily processing of the approximately 22,000 fingerprint cards received at the Identification Division each day.

Further, in 1973, the Automation and Research Section began automating the personal description and arrest information of all first-offender arrestees received at the Identification Division. During September, 1976, the 2 millionth such record was entered into this automated file. It is projected that this file will grow at a rate of about 750,000 new records annually.

Fingerprint Patterns

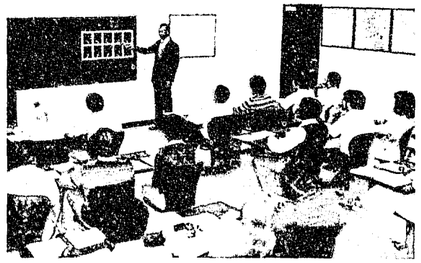
EIGHT BASIC FINGERPRINT PATTERNS


PLAIN ARCH


TENTED ARCH

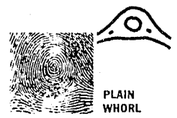

LOOP


LOOP



THE PRESENCE OR EXISTENCE OF WHORLS IN FINGER IMPRESSIONS IS USED AS THE BASIS FOR THE DETERMINATION OF THE CHIEF OR PRIMARY CLASSIFICATION. EACH WHORL APPEARING IN ANY OR ALL OF THE TEN FINGERS HAS A CERTAIN FIXED VALUE. THE ADDITION OF THE VALUES REPRESENTED BY SUCH WHORLS AND THE INDICATION OF THE TOTAL VALUE IS KNOWN AS THE PRIMARY CLASSIFICATION.

ILLUSTRATIONS OF THE WHORL TYPES ARE SHOWN ON THE BOTTOM OF THIS CHART; EXAMPLES OF THE OTHER TYPES ARE SHOWN ON THE LEFT.


PLAIN WHORL


CENTRAL POCKET LOOP


DOUBLE LOOP


ACCIDENTAL

Interesting Idents

Barefoot Burglar Identified

Recently, an intruder shattered a plate glass window to burglarize a restaurant. The police attempted without success to lift fingerprints from around the window area. However, prints – determined to be footprints and a toe print – were developed and lifted from a broken section of the plate glass.

A troublesome youth was arrested a few days later on a vagrancy charge, at which time it was learned that he often went barefooted. His footprints were taken, and along with the latent impressions, were forwarded to the Latent Fingerprint Section of the FBI's Identification Division.

FBI Fingerprint Examiners found the latent footprints were identical with the suspect's prints. The latent toe print was identified with the boy's right big toe impression. Testimony to this effect was presented by an Examiner at the trial.

During the trial, it was learned that the 17-year-old youth had removed his shoes and placed his socks on his hands to prevent leaving fingerprints at the crime scene. He was found guilty and received a three-year sentence.

Mummified Remains Identified by Fingerprints

When the mummified body of a man was discovered in a boxcar which had been standing on a railroad siding for almost a year, no identification could be found on the corpse. Accordingly, the local chief of police sent the hands to the FBI Identification Division.

There, an expert was able to photograph the ridge formations on three of the fingers, but details on the other fingers were too indistinct for photographing. Approximate classification was obtained, however, through visual examination of the remaining fingers. A search of this classification in the main fingerprint files was successful in establishing the identity of the deceased.

Fingerprints Unite Family

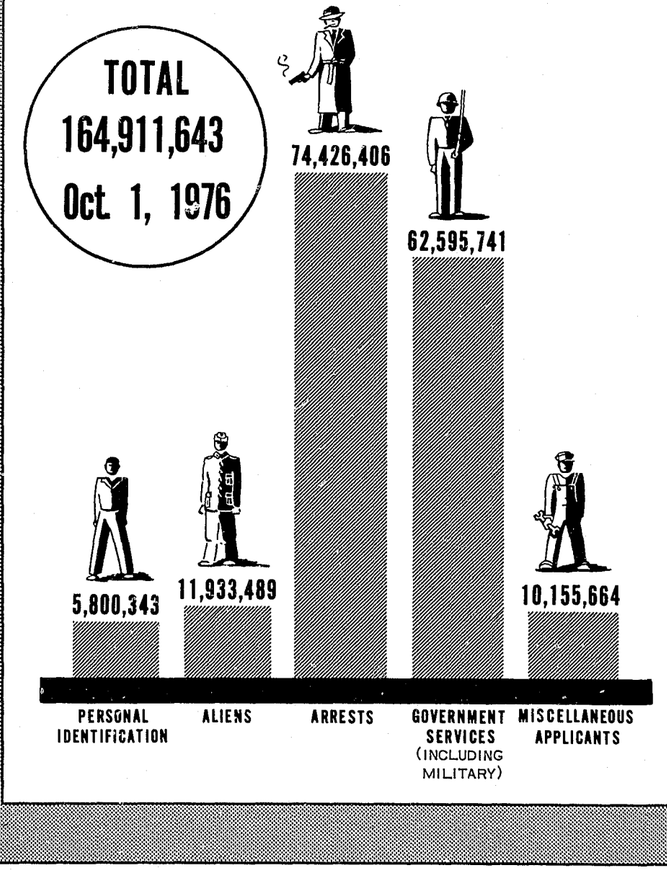
When a woman in a Midwestern city wrote to request FBI assistance in locating her family, she stated that she had been adopted when she was only three months old. Forty-three years had elapsed since her separation from the family.

Based on the information she furnished, the only one of her relatives on whom it was possible to conduct a file search in the Identification Division was a brother. This search revealed that a man with a name similar to her brother's had been fingerprinted by a New England police department 16 years earlier in connection with his employment. His address at the time was furnished to the woman, and shortly thereafter the missing brother and his sister enjoyed a happy reunion.

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

FBI IDENTIFICATION DIVISION

TYPES OF FINGERPRINTS IN FBI POSSESSION



FBI EXHIBITS SECTION

(1/77)

FBI/DOJ

END