

FINGERPRINT IDENTIFICATION



FBI Guide to the Science of Fingerprints, Classification & Uses

Originally Prepared by
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FEDERAL BUREAU OF INVESTIGATION**

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Press™

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FOREWORD

As every trial attorney knows, the ‘real thing’ doesn’t look anything like it’s portrayed by the entertainment industry, especially in those countless courtroom scenes so popular on law-themed television shows featuring well-dressed, glib attorneys prancing around ‘in the well,’ approaching the witness without asking permission, including arguments in their questioning, walking forward to hand documents to the judge, and making just about every other improper move the legal community has seen inexperienced attorneys attempt.

A majority of criminal trials do not involve fingerprint evidence, but when one does, there have been instances where instead of the prosecution qualifying an expert technician from their forensic lab testify as to an opinion regarding a fingerprint comparison, they’ve simply allowed a detective to testify that a ‘positive match existed between the defendant’s prints and those found at the crime scene.

Fortunately, instances like this are not too common, but when you experience one and your objections are not sustained, you should have the knowledge to ask the witness if it’s possible to mistake a fingerprint’s *tented arch* for a *loop*, how many points of similarity were found that led to the ‘match’ opinion, and to hold this book up and ask if he or she is familiar with it.

The science of fingerprint analysis and identification is a not an overly simple one, but it’s not brain surgery, and no defense attorney should be without this book’s relative sections in mind during any trial in which the prosecution wants to qualify an ‘expert’ fingerprint witness, because it’s nice to have enough knowledge to ask some procedural questions of that witness to find out if proper procedures were followed – and that they conformed to the standards set forth in this book.

No lab or expert is immune to all forms of mistake, sloppiness or corner-cutting that might deny one a fair trial, and/or create a reasonable doubt in the mind of the trier of facts, whether it be court or jury.

Gene Grossman

INTRODUCTION

This book concerning the study of fingerprints has been prepared by the United States Department of Justice's Federal Bureau of Investigation for the use of interested law enforcement officers and agencies, particularly those which may be contemplating the inauguration of fingerprint identification files.

Criminal identification by means of fingerprints is one of the most potent factors in obtaining the apprehension of fugitives who might otherwise escape arrest and continue their criminal activities indefinitely.

This type of identification also makes possible an accurate determination of the number of previous arrests and convictions which, of course, results in the imposition of more equitable sentences by the judiciary, inasmuch as the individual who repeatedly violates the law finds it impossible to pose successfully as a first, or minor, offender. In addition, this system of identification enables the prosecutor to present his case in the light of the offender's previous record. It also provides the probation officers, parole board, and the Governor with definite information upon which to base their judgment in dealing with criminals in their jurisdictions.

From earliest times fingerprinting, because of its peculiar adaptability to the field, has been associated in the lay mind with criminal identification to the detriment of the other useful phases of the science. However, the Civil File of the Identification Division of the Federal Bureau of Investigation contains three times as many fingerprints as the Criminal File.

These civil fingerprints are an invaluable aid in identifying amnesia victims, missing persons and unknown deceased. In the latter category the victims of major disasters may be quickly and positively identified if their fingerprints are on file, thus providing a humanitarian benefit not usually associated with fingerprint records.

The regular contributors who voluntarily submit fingerprints to the Federal Bureau of Investigation play a most important role in the drama of identification. Their action expands the size of the fingerprint files, thereby increasing the value of the files to all law enforcement agencies. Mutual cooperation and efficiency are resultant by-products.

The use of fingerprints for identification purposes is based upon distinctive ridge outlines which appear on the bulbs on the inside of the end joints of the fingers and thumbs. These ridges have definite contours and appear in several general pattern types, each with general and specific variations of the pattern, dependent on the shape and relationship of the ridges.

The outlines of the ridges appear most clearly when inked impressions are taken upon paper, so that the ridges are black against a white background. This result is achieved by the ink adhering to the friction ridges. Impressions may be made with blood, dirt, grease or any other foreign matter present on the ridges, or the saline substance emitted by the glands through the ducts or pores which constitute their outlets. The background or medium may be paper, glass, porcelain, wood, cloth, wax, putty, silverware, or any smooth, nonporous material.

Of all the methods of identification, fingerprinting alone has proved to be both infallible and feasible. Its superiority over the older methods, such as branding, tattooing, distinctive clothing, photography, and body measurements (Bertillon system), has been demonstrated time after time. While many cases of mistaken identification have occurred through the use of these older systems, to date the fingerprints of no two individuals have been found to be identical.

The background and history of the science of fingerprints constitute an eloquent drama of human lives, of good and of evil. Nothing, I think, has played a part more exciting than that enacted by the fascinating loops, whorls, and arches etched on the fingers of a human being.



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DIVISION OF INVESTIGATION
U.S. DEPARTMENT OF JUSTICE

Fingerprint Identification



Identification Key

- | | | |
|-----------------|------------------|------------------|
| 1. Ending Ridge | 13. Ending Ridge | 25. Bifurcation |
| 2. Bifurcation | 14. Ending Ridge | 26. Bifurcation |
| 3. Bifurcation | 15. Ending Ridge | 27. Ending Ridge |
| 4. Bifurcation | 16. Bifurcation | 28. Bifurcation |
| 5. Island | 17. Bifurcation | 29. Ending Ridge |
| 6. Bifurcation | 18. Bifurcation | 30. Bifurcation |
| 7. Bifurcation | 19. Bifurcation | 31. Ending Ridge |
| 8. Bifurcation | 20. Bifurcation | 32. Bifurcation |
| 9. Bifurcation | 21. Bifurcation | 33. Ending Ridge |
| 10. Bifurcation | 22. Ending Ridge | 34. Ending Ridge |
| 11. Bifurcation | 23. Ending Ridge | 35. Ending Ridge |
| 12. Bifurcation | 24. Bifurcation | 36. Ending Ridge |

CHAPTER I

The Identification Division of the FBI

The FBI Identification Division was established in 1924 when the records of the National Bureau of Criminal Investigation and the Leavenworth Penitentiary Bureau were consolidated in Washington, D.C. The original collection of only 810,000 fingerprint cards has expanded into many millions. The establishment of the FBI Identification Division resulted from the fact that police officials of the Nation saw the need for a centralized pooling of all fingerprint cards and all arrest records.

The Federal Bureau of Investigation offers identification service free of charge for official use to all law enforcement agencies in this country and to foreign law enforcement agencies which cooperate in the International Exchange of Identification Data. Through this centralization of records it is now possible for an officer to have available a positive source of information relative to the past activities of an individual in his custody. It is the Bureau's present policy to give preferred attention to all arrest fingerprint cards since it is realized that speed is essential in this service.

In order that the FBI Identification Division can provide maximum service to all law enforcement agencies, it is essential that standard fingerprint cards and other forms furnished by the FBI be utilized. Fingerprints must be clear and distinct and complete name and descriptive data required on the form should be furnished in all instances. Fingerprints should be submitted promptly since delay might result in release of a fugitive prior to notification to the law enforcement agency seeking his apprehension.

When it is known to a law enforcement agency that a subject under arrest is an employee of the U.S. Government or a member of the Armed Forces, a notation should be placed in the space for "occupation" on the front of the fingerprint card. Data such as location of agency or military post of assignment may be added beside the space reserved for the photograph on the reverse side of the card.

Many instances

have been observed where an individual is fingerprinted by more than one law enforcement agency for the same arrest. This duplicate submission of fingerprints can be eliminated by placing a notation on the first set of fingerprints sent to the FBI requesting copies of the record for other interested

If a photograph is available at the time fingerprints are submitted to the FBI Identification Division, it should be identified on the reverse side with the individual's complete name, name of the department submitting, the department's number, and it should be securely pasted in the space provided on the fingerprint card. If a photograph is to be submitted at a later date, it should be held until the identification record or "no record" reply from the FBI is received in order that FBI number or fingerprint classification can be added to the reverse side of the photograph for assistance of the Identification Division in relating it to the proper record.

The FBI number, if known, and any request for special handling, such as collect wire or telephone reply, should be indicated on the fingerprint card in the appropriate space. Such notations eliminate the need for an accompanying letter of instructions.

* * * *

As indicated, the FBI's service is given without cost to regularly constituted law enforcement agencies and officers. Supplies of fingerprint cards and self-addressed, franked envelopes will be forwarded upon the request of any law enforcement officer. The following types of cards and forms are available: Criminal (Form FD-249), used for both arrest and institution records; Applicant (Form FD-258); Personal Identification (Form FD-353); Death Sheet (Form R-88); Disposition Sheet (Form R-84); Wanted Notice (Form 1-12); Record of Additional Arrest (Form 1-1). An order form for identification supplies appears each month with the insert to the FBI Law Enforcement Bulletin.

In addition to its criminal identification activities, the Bureau's Identification Division maintains several auxiliary services. Not the least of these is the system whereby fugitives are identified through the comparison of fingerprints which are received currently. When a law enforcement officer desires the apprehension of a fugitive and the fingerprints of that individual are available, it is necessary only that he inform the Bureau of this fact so a wanted notice may be placed in the fugitive's record. This insures immediate notification when the fugitive's fingerprints are next received.

The fugitive service is amplified by the Bureau's action in transmitting a monthly bulletin to all law enforcement agencies which forward fingerprints for its files. In this bulletin are listed the names, descriptions, and fingerprint classifications of persons wanted for offenses of a more serious character. This information facilitates prompt identifications of individuals arrested for any offense or otherwise located by those receiving the bulletin.

Missing-persons notices are posted in the Identification files so that any incoming record on the missing person will be noted. Notices are posted both by fingerprint card and by name, or by name alone if fingerprints are not available. The full name, date, and place of birth, complete description and photograph of a missing person should be forwarded, along with fingerprints, if available. Upon receipt of pertinent information, the contributing agency is advised immediately. A section on missing persons is carried as an insert in the Law Enforcement Bulletin.

The FBI Identification Division has arranged with the identification bureaus of many foreign countries to exchange criminal identifying data in cases of mutual interest. Fingerprints and arrest records of persons arrested in this country are routed to the appropriate foreign bureaus in cases when the interested agency in the United States has reason to believe an individual in custody may have a record in or be wanted by the other nation.

Similarly, fingerprints are referred to the Federal Bureau of Investigation by foreign bureaus when it seems a record may be disclosed by a search of the Bureau's records. Numerous identifications, including a number of fugitives, have been effected in this manner, and it is believed that the complete development of this project will provide more effective law enforcement throughout the world. When the facts indicate an individual may have a record in another country, and the contributor submits an extra set of his fingerprints, they are transmitted by this Bureau to the proper authorities.

In very rare cases persons without hands are arrested. A file on footprints is maintained in the Identification Division on such individuals. In view of the fact that many individuals in the underworld are known only by their nicknames, the Identification Division has for years maintained a card-index file containing in alphabetical order the nicknames appearing on fingerprint cards. When requesting a search of the nickname file, it is desired that all possible descriptive data be furnished.

The Latent Fingerprint Section handles latent print work. Articles of evidence submitted by law enforcement agencies are processed for the development of latent impressions in the Latent Fingerprint Section. In addition, photographs, negatives, and lifts of latents are scrutinized for prints of value for identification purposes. Photographs of the prints of value are always prepared for the FBI's files and are available for comparisons for an indefinite period. Should the law enforcement agency desire

additional comparisons it needs only advise the FBI Identification Division, attention Latent Fingerprint Section, and either name or submit the prints of the new suspect. It is not necessary to resubmit the evidence.

When necessary, a fingerprint expert will testify in local court as to his findings. Should a department have any special problems involving the development or preservation of fingerprints at a crime scene, the experts are available for suggestions. In connection with the Latent Fingerprint Section there is maintained a general appearance file of many confidence game operators. Searches in this file will be made upon request. In furnishing data on a suspect, the agency should make sure that complete descriptive data is sent in. Photographs and other material on individuals who may be identical with those being sought will be furnished to the interested departments.

During the years many persons have voluntarily submitted their fingerprints to the Identification Division for possible use in the case of an emergency. These cards are not filed with the criminal fingerprints but are maintained separately. Such prints should be taken on the standard fingerprint form entitled "Personal Identification" (Form FD-353). No answer is given to Personal Identification fingerprint cards.

The fingerprint records of the FBI Identification Division are used liberally not only by police agencies to obtain previous fingerprint histories and to ascertain whether persons arrested are wanted elsewhere, but by prosecutors to whom the information from the Bureau's files may prove to be valuable in connection with the prosecution of a case. These records are likewise of frequent value to the judge for his consideration in connection with the imposition of sentence. Obviously, the ends of justice may be served most equitably when the past fingerprint record of the person on trial can be made known to the court, or information may be furnished to the effect that the defendant is of hitherto unblemished reputation.

It should be emphasized that FBI identification records are for the *OFFICIAL* use of law enforcement and governmental agencies and misuse of such records by disseminating them to unauthorized persons may result in cancellation of FBI identification services.



CHAPTER II

Types of Patterns and Their Interpretation

Types of patterns

Fingerprints may be resolved into three large general groups of patterns, each group bearing the same general characteristics or family resemblance. The patterns may be further divided into sub-groups by means of the smaller differences existing between the patterns in the same general group. These divisions are as follows:..