



**Fingerprints:  
Recording,  
Comparing &  
Navigating Coding  
Systems**

**Forensic Science**

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# Recording & Comparing Fingerprints 1 of 3

- ◆ In order for fingerprints to be useful in forensic investigations, they have to be compared to other prints, so repositories of reference fingerprint records have been collected over time.
- ◆ There are many reasons that a person might have a fingerprint record on file—or at least had one made at some point. Fingerprint records are made at the time of arrests, but people who work with large sums of money or other valuables have their prints recorded, too. Prints are also taken for background checks.





# Recording and Comparing Fingerprints 2of3

- ◆ Fingerprints are often taken by simple inking methods on a 10-print card. This standard presentation method collects a rolled print from each finger and both thumbs and a tapped print from the 4 fingers on each hand placed adjacently and then each thumb.
- ◆ Since around the early 1990s, digital technologies have been developed. Computerized fingerprint scanners now allow a digit to be put on a digital pad that records the fingerprint. Along with this movement from ink to scanning there have been changes in how prints are stored and compared.

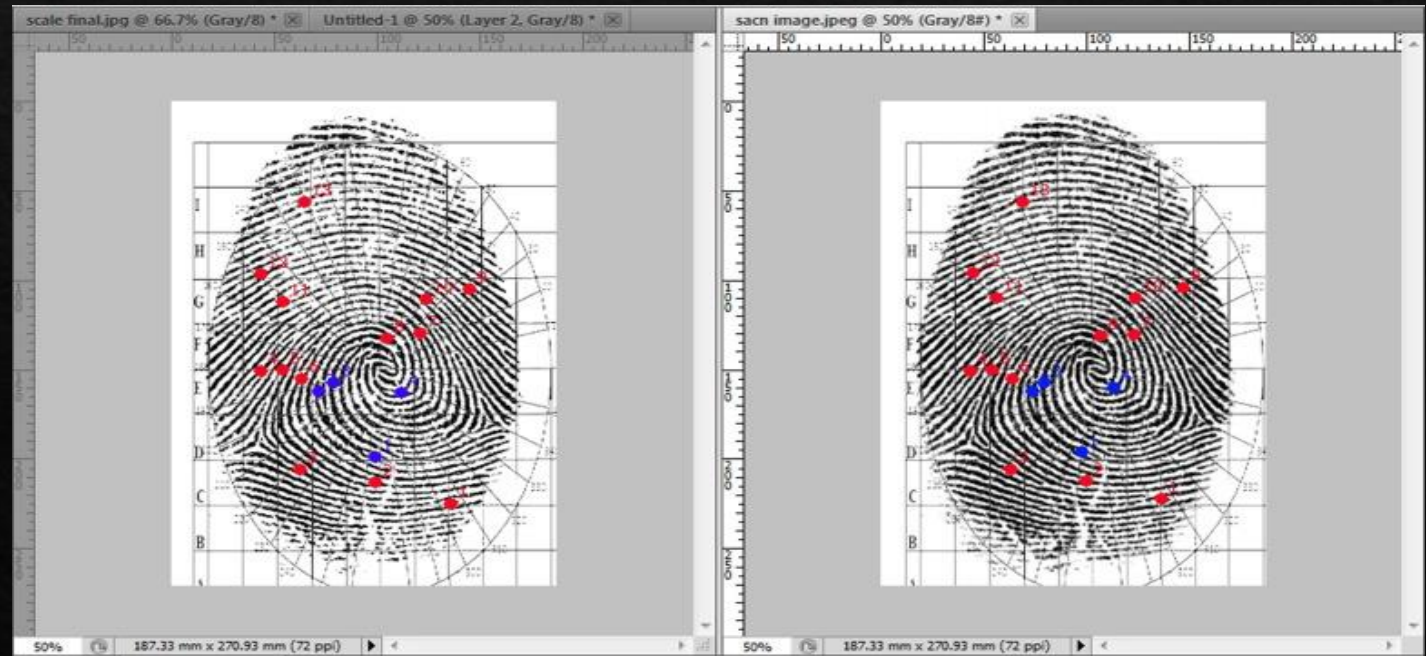
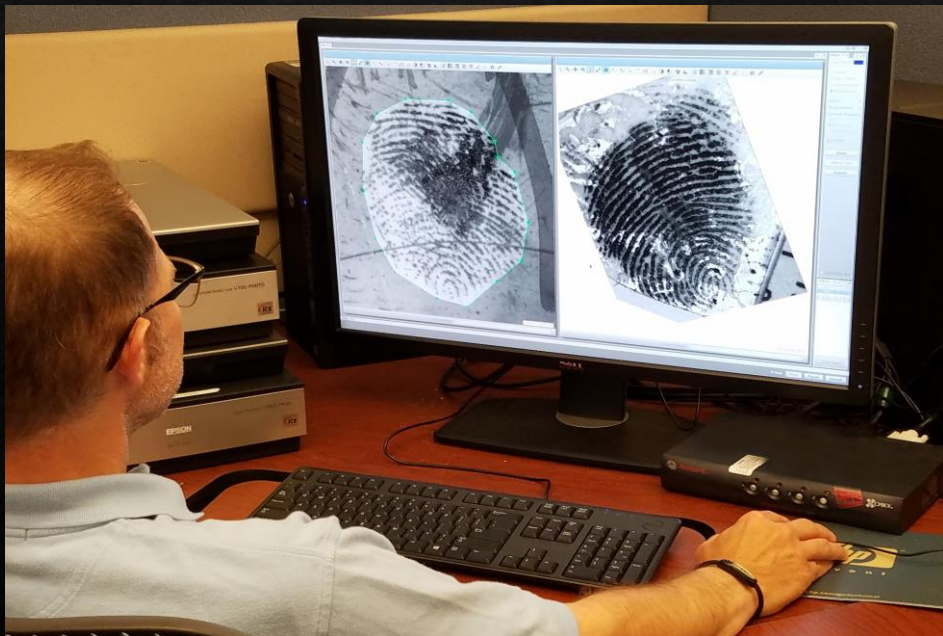




# Recording and Comparing Fingerprints

## 3 of 3

- ◆ When comparing prints, either a known or unknown person is compared to the records of known people. However, sometimes unknown prints from a crime scene are matched to other unknown prints from other crime scenes. In these cases, even though the identity of the perpetrator isn't known, the crimes are linked by the prints found at 2 or more scenes.
- ◆ Another important use of fingerprint comparisons is to help identify the unknown dead—but only if the body is in good enough shape to allow fingerprinting.
- ◆ Fingerprints are also used for security and access purposes, and some high-tech security measures involve scanning a person's prints like a key in a lock to open a door or log on to a computer system.







# Fingerprint Coding Systems



- ◇ Fingerprint coding systems turn the arch, loop, and whorl patterns on a set of 10 digits into alphabetical and/or numerical codes that can be more quickly and easily compared. This coding allows law enforcement to eliminate huge batches of data without even having to look at the prints the codes represent.
- ◇ Codes can also be communicated across distances, and if they don't correlate, then there is no relationship between the prints. If the codes do match, then the actual prints can be compared by hand, side-by-side, to look for minutiae and confirm whether the prints are a true match.





# The Henry System

- ◆ The Henry system was developed by Sir Edward Henry, head of the Metropolitan Police of London during the early 1900s.
- ◆ The Henry system boils down an entire set of 10 prints into a single fraction that represents the even digits of both hands over the odd digits of both hands.
- ◆ Some version of the original Henry system is still used in most European countries and by the U.S. Federal Bureau of Investigation.







# Fingerprint Coding Systems Continued



As computer technologies like scanning have improved, computerized matching of prints have become possible. In 1999, the U.S. FBI developed its Integrated Automated Fingerprint Identification System (IAFIS).

- ❖ As powerful as IAFIS is, it has its limitations. Fingerprint quality—particularly from scene prints—is often lacking, and IAFIS really only searches on ridge patterns, not all minutiae. A law enforcement officer or forensic scientist still has to view any IAFIS system- suggested matches and critically examine them.
- ❖ It's not only fingers that leave prints; people's palms also have unique prints. This is also true with the soles of the feet. Even lip prints—from a coffee mug or lipstick mark, for example—have been used to link a person to a scene or object.



Thank You For Your  
Time and Attention!

Questions and Comments