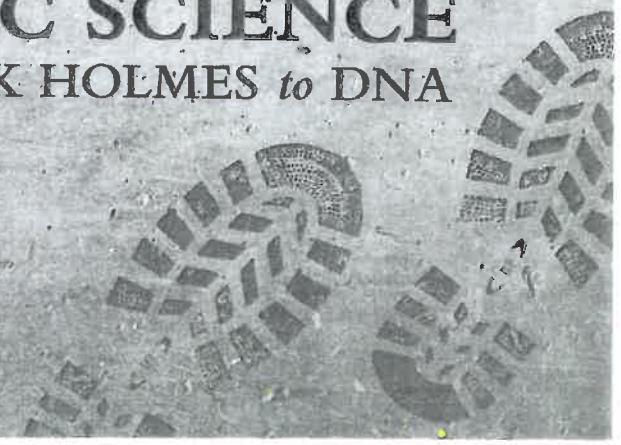


# Blood, Bullets, and Bones

*the* STORY of  
**FORENSIC SCIENCE**  
*from* SHERLOCK HOLMES *to* DNA



# 5

## **Fingerprints Are Forever: Early Fingerprint Evidence**

Of the many types of evidence at a crime scene, one of the most personal is the fingerprint. Or at least, that was true before DNA testing. Fingerprints remain the same throughout a person's life. To avoid being identified, criminals have tried obliterating their fingerprints. But even mutilated fingerprints can be used to identify a suspect. John Dillinger, a bank robber, escaped convict, and cop killer, succeeded somewhat in burning his fingerprints off with acid, but this only made them more unique to him because of the scarring. And when Dillinger was shot and killed by FBI agents, his fingerprint patterns could still be seen around the edges of his fingertips. To this day, some criminals still have skin grafted onto their fingertips. Though this eliminates the need to wear gloves to a crime scene, it's hardly helpful during an arrest. The absence of fingerprints is fishy to say the least.

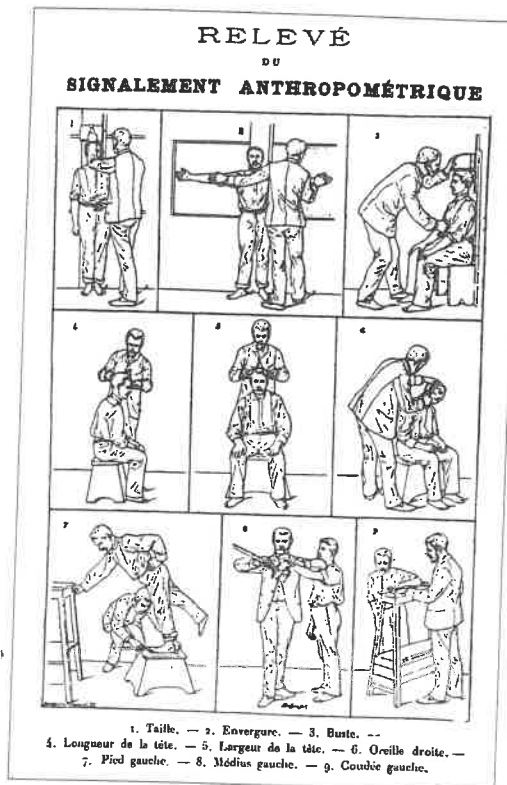
Before fingerprints were discovered, the police had a hard time keeping track of known criminals. They needed a way of identifying repeat offenders so that they could receive harsher sentences. A name wasn't enough. The criminal could give a fake one. At first, police turned to photography, a process invented in the 1820s and 30s. But there were limits to that. Two people could look an awful lot alike, and a person's appearance could change over time, or be altered by growing a beard, for instance.

Eventually, a forensic scientist for the Sûreté, Alphonse Bertillon, developed a more precise method. Bertillon came from a family of scientists, and his grandfather often said that no two humans have the same physical measurements. Working on that belief, Bertillon created an identification system that was unique to each criminal. It involved measuring the convict's height, left arm from the elbow to the tip of the middle finger, head circumference, ear length, and more. With so many measurements, the odds were one in 286 million that any two people would have the same measurements. In its first year, his system, called Bertillonage, identified three hundred repeat offenders the police would have otherwise missed. The method spread to crime bureaus throughout the world.

At the same time, a new method of identification was slowly taking shape. People in ancient China and Japan understood that fingerprints were unique to each person. In China, important documents were sealed with clay, upon



Bertillon measurement  
being taken



Illustrated instructions for Bertillon measurements

which the author impressed a fingerprint to show authenticity. As early as 221 BCE a crime scene handbook told how handprints could be used to solve a crime. The importance of fingerprints came to be known much later in the West. Much has been made about who was the father of fingerprints in the West. That's because several people working independently of each other made discoveries in this area.

William Herschel was an Englishman working in India in the mid-1800s when he began collecting and studying the fingerprints of family, friends, and colleagues. When he was appointed to a government position, he used fingerprints to identify people in the criminal courts, prisons, and pension office. He would go on to study fingerprints throughout his life and was able to show that a person's fingerprints remained constant over time. In America, scientist Thomas Taylor gave a lecture on how fingerprints found at crime scenes could be matched to suspects. It was published in an 1877 issue of the *American Journal of Microscopy and Popular Science*.

Around the same time, Dr. Henry Faulds, a Scotsman working as a missionary doctor in Japan, became interested in fingerprints when he saw that Japanese potters used fingerprints as signatures on their work. In 1880, he wrote a letter to the journal *Nature* describing “the skin-furrows of the hand” and telling how to take fingerprints and how they might be used to identify criminals.<sup>1</sup> In fact, he wrote that he himself had used fingerprints to discover a thief in his own hospital. Someone had stolen surgical alcohol from a bottle and left their greasy fingerprints behind. He was able to match the prints on the bottle to an employee. Despite Faulds’s advances, Herschel would become a bigger name in the burgeoning field of fingerprints, a fact that would infuriate Faulds for many years.

In the 1880s, prominent British scientist—and cousin to Charles Darwin—Sir Francis Galton, contacted Herschel about collaborating on a study of fingerprints. Galton, too, had been collecting fingerprints, and together they had the largest collection in the world. Galton studied whether fingerprints really were unchanging, unique to individuals, and classifiable, so that they could be matched to their owners. Through his research, he found the answer to all these questions to be yes, and he reported this in many books and articles.

Elsewhere, fingerprints didn't replace Bertillonage right away as a method for identifying criminals. In America, the shift was made after the case of the two Will Wests. In 1903, a man named Will West was admitted to Leavenworth Penitentiary. His Bertillon measurements were taken, and they matched those of a man already

in prison, *William West*. Had he escaped? Nope, he was safe in bed. Now the prison had a case of two men with matching Bertillon measurements. The men claimed they were not related, though they looked alike and had the same name. Their fingerprints, on the other hand, were different. Because of this, fingerprint advocates said that a switch to the fingerprint system was needed. Fingerprinting overtook



FIG. 1.



FIG. 2.

PLATE I. PORTRAITS OF THE TWO WILL WESTS.

[By permission of Mr. R. G. Dodger.]

Portraits of the two Will Wests

Bertillonage the following year, and a fingerprint registry of all federal prison inmates was established in Leavenworth.

With the odds being one in 286 million that two people would have the same Bertillon measurements, and the world population at the time being about 1.6 billion, it was possible for two people to coincidentally match up.

It turns out the two Will Vests had twin Bertillon measurements because they *were* twins. A fellow prisoner testified that they were; and correspondence logs showed that the two men wrote to the same brother, five sisters, and an Uncle George. This problem probably wouldn't have come up much, as identical twins, and certainly identical twin criminals, are rare. And so whether this case actually was the impetus for the switch from Bertillonage to fingerprinting is debatable. The fact is, Bertillonage's drawbacks were becoming all too clear. It was time-consuming. And people didn't leave their measurements at crime scenes. They *did* leave their fingerprints.