

DNA Fingerprinting: Condemning Evidence

Anyone who watches television shows like *CSI: Crime Scene Investigation* will be familiar with DNA fingerprinting's importance in modern crime-solving. The day-to-day work of police detectives, crime scene **investigators**, and *forensic* technicians may not be as glamorous as it appears on television; nor can blood, saliva, hair, or skin samples be collected, **analyzed**, and **matched** to a **suspect** in 45 minutes. In any case, without DNA evidence and the technology that has evolved around its **detection**, many **violent** offenders would still be on the loose and innocent people would be executed or imprisoned for crimes they did not commit.

Before DNA arrived on the scene, digital fingerprints were the key to determining an individual's identity. The ridges and loops of fingerprints were first discovered in 1686 by an Italian anatomy professor, but it was not until 1892 that an Argentine police official **identified** a woman as the murderer of her two sons from a bloody fingerprint left on a doorpost. Fingerprints soon made their way into the criminal justice systems of England and the United States, where they were used to keep a record of convicted criminals. Although fingerprints are an *infallible* means of identification, careful criminals can avoid leaving them at a crime scene. On the other hand, DNA, which is present in every human cell even though invisible to the naked eye, is nearly impossible to **remove** completely, particularly in cases involving violent, unpremeditated crimes.

DNA testing would not be where it is today without the discoveries of British geneticist Alec Jeffreys and American biochemist Kary Mullis. In the early 1980s, Jeffreys developed the process of restriction fragment length polymorphism (RFLP) to **locate** polymorphic **regions** of a DNA strand where the greatest variation from person to person occurs. In 1984, he succeeded in photographing radioactive DNA fragments with X-ray film. The resulting image resembled a bar code, and the genetic **sequence** was unique to an individual, the only *exception* being identical twins.