

Forensic Science: The Evolution of Crime Solving

Forensic science, the application of scientific methods to criminal investigations, has a long and fascinating history spanning thousands of years. From rudimentary observations to cutting-edge technology, forensic techniques have continuously evolved, revolutionising the way crimes are solved.

The Beginnings of Forensic Science:

The origins of forensic science date back to ancient civilizations. In Egypt, medical examiners used basic methods to determine causes of death, particularly during the mummification process. Across the world, in 1248, a Chinese judge, Song Ci, composed 'The Washing Away of Wrongs' or 'Xi Yuan Lu', which presented procedures for the identification of causes of death, such as distinguishing between strangulation and drowning and the use of insects to determine the murder weapon. His work became the foundation of modern forensic pathology.

Progress During the Middle Ages:

During the Middle Ages, forensic science advanced gradually. In Europe, coroners began investigating unexplained deaths, relying mostly on simple medical knowledge. Poison detection consolidated with the ease by which the presence of compounds such as arsenic, one that was commonly used in murders, could be detected. During the 1500s Italian physician Fortunato Fidelis proposed the concept of comparing autopsy findings with symptoms observed before death, helping establish forensic medicine as its own field.

Forensic Science in the 18th and 19th Centuries:

The 18th and 19th centuries marked significant strides in forensic science. The Spanish chemist Mathieu Orfila in 1813, did detailed work on poisons, which thus facilitated the identification of toxic agents in vivo and established him as 'Father of Toxicology'. Around the same time, fingerprint analysis also began to take shape. In 1892, Sir Francis Galton's research demonstrated the uniqueness of fingerprints, establishing them as a reliable method for personal identification. The Austrian criminologist Hans Gross also contributed to forensic science by his 1893 publication, Criminal Investigation, suggesting the systematic application of scientific techniques to solve crimes.



NAASHA MAHADEVIA



Forensic Science in the 20th Century:

The 20th century brought remarkable innovations to forensic science. In 1984, the British geneticist Sir Alec Jeffreys came up with DNA profiling, which is a technique used to identify a person based on the unique genetic code of that person. This discovery quickly became one of the most reliable tools in criminal investigations, helping match suspects to evidence like blood, hair, and skin cells. DNA profiling was first applied in 1986 in an attempt to solve the murder of two schoolgirls in Leicestershire, UK. It not only mapped the real killer but also freed a wrongly implicated suspect thereby showing its capability of convicting the guilty and exonerating the innocent.

Other branches of forensic science also further advanced. Forensic psychology became more widely used, helping investigators understand criminal behaviour and profile suspects. Ballistics advanced through better methods for analysing bullets and guns, whereas digital forensics came into being to track electronic evidence such as emails and computer files. These developments provided researchers with more tools than before to find the truth and obtain justice.

The Future of Forensic Science:

Forensic science continues to evolve with modern technology. Artificial intelligence (AI) now accelerates evidence analysis, enhancing accuracy and efficiency. Forensic genealogy, which leverages DNA databases, has become a powerful tool in solving cold cases. Meanwhile, facial recognition technology is increasingly used to identify suspects from surveillance footage, making investigations more effective than ever before. From ancient observations to state-of-the-art forensic techniques, the pursuit of truth and justice has driven the evolution of forensic science. As technology continues to advance, so too will the ability to solve crimes with unprecedented precision and reliability.



NAASHA MAHADEVIA



CITATIONS

“CBSNews.com.” Wwww.cbsnews.com,
www.cbsnews.com/htdocs/forensics/timeline.html.

Sung, Tz’u. The Washing Away of Wrongs. 1 Jan. 1981,
<https://doi.org/10.3998/mpub.19945>. Accessed 28 June 2023.

The. “Forensic Medicine | Definition & Facts.” Encyclopedia Britannica, 20 July 1998, www.britannica.com/topic/forensic-medicine?utm_source=chatgpt.com. Accessed 19 Feb. 2025.

“First Person Convicted Using Forensic Material Matching.” Guinness World Records, www.guinnessworldrecords.com/world-records/118957-first-person-convicted-using-forensic-material-matching.

“SFR | E-Content Development Program.” Sfrcollege.edu.in, 2025, www.sfrcollege.edu.in/el-modules/chemistry/FORENSIC%20SCIENCE/History.php. Accessed 19 Feb. 2025.

“Encyclopedia of Forensic Science : A Compendium of Detective Fact and Fiction : Conklin, Barbara Gardner : Free Download, Borrow, and Streaming : Internet Archive.” Internet Archive, 2020, archive.org/details/encyclopediaoffo0000conk. Accessed 19 Feb. 2025.

“A Century of Human Genetics.” Le.ac.uk, le.ac.uk/dna-fingerprinting/century.