

WHAT IS FORENSIC SCIENCE?

Forensic science describes the science of associating people, places, and things involved in criminal activities; these scientific disciplines assist in investigating and adjudicating criminal and civil cases. The discipline divides neatly into halves, like the words that describe it. "Science" is the collection of systematic methodologies used to increasingly understand the physical world. The word "forensic" is derived from the Latin forum for "public" (Oxford English Dictionary, 2005).

Forensics involves the application of scientific methods and techniques to matters under investigation by a court of law. It encompasses many different fields of science, including anthropology, biology, chemistry, engineering, genetics, medicine, pathology, phonetics, psychiatry, and toxicology.

EARLY FORENSICS

- 1248** The first written account using medicine and entomology to solve criminal cases was in 1248 and completed by Chinese director of Justice, Song Ci. He established the importance of preserving evidence in the examination process at autopsies and how to calculate time of death according to weather conditions and the presence of insects.
- 1784** In the 16th century, European scientists and medical practitioners began to research causes of death and the structure of the body once it became diseased. By the 18th century the first recorded cases of evidence based research was being used to solve criminal matters. In 1784, in Lancaster, John Toms was tried and convicted for murdering Edward Culshaw with a pistol. When the dead body of Culshaw was examined, a pistol wad (crushed paper used to secure powder and balls in the muzzle) found in his head wound matched perfectly with a torn newspaper found in Toms's pocket, leading to the conviction.
- 1816** In Warwick 1816, a farm laborer was tried and convicted of the murder of a young maidservant. She had been drowned in a shallow pool and bore the marks of violent assault. The police found footprints and an impression from corduroy cloth with a sewn patch in the damp earth near the pool. There were also scattered grains of wheat and chaff. The breeches of a farm labourer who had been threshing wheat nearby were examined and corresponded exactly to the impression in the earth near the pool.
- 1832** In 1832, chemist, James Marsh developed a test to identify arsenic in a person. He combined a sample containing arsenic with sulfuric acid and arsenic-free zinc, resulting in arsine gas. The gas was ignited, and it decomposed to pure metallic arsenic, which, when passed to a cold surface, would appear as a silvery-black deposit. So sensitive was the test, known formally as the Marsh test, it could detect as little as one-fiftieth of a milligram of arsenic.
- 1835** Henry Goddard at Scotland Yard pioneered the use of bullet comparison in 1835. He noticed a flaw in the bullet that killed the victim and was able to trace this back to the mould that was used in the manufacturing process.
- 1870's** During the 1870s French police officer Alphonse Bertillon is credited with developing many significant forensic techniques including forensic document examination, compounds to preserve footprints and he was the first to apply the anthropological technique of anthropometry to law enforcement. This process involved creating an identification system based on physical measurements. Before that time, criminals could only be identified by name or photograph. Bertillon also developed the "mug shot" and implemented crime scene photography techniques, both of these processes are still used today.
- 1910** Edmond Locard pioneered the development of criminalistics, the practice of gathering evidence for scientific examination and crime solving. In 1910 he created the first official crime laboratory in the world and his most important contribution is the principe de l'échange (principle of exchange). Locard stated "Toute action de l'homme, et a fortiori, l'action violent qu'est un crime, ne peut pas se dérouler sans laisser quelque marque." Translated, "Any action of an individual, and obviously the violent action constituting a crime, cannot occur without leaving a trace."
- 1945** Frances Glessner Lee revolutionized crime scene investigation through building miniatures, or tiny dioramas; these detailed how a crime scene was developed and how it possibly evolved.

