

FORENSIC SCIENCE TIMELINE

PREHISTORY: Early cave artists and pot makers “sign” their works with a paint or impressed finger or thumbprint.

3500 B.C.: Mesopotamians perform animal autopsies in order to communicate with divine forces.

1000 B.C.: Chinese use fingerprints to “sign” legal documents.

THIRD CENTURY B.C.: Erasistratus (c. 304–250 B.C.) and Herophilus (c. 335–280 B.C.) perform the first autopsies in Alexandria.

SECOND CENTURY A.D.: Galen (131–200 A.D.), physician to Roman gladiators, dissects both animal and humans to search for the causes of disease.

C. 1000: Roman attorney Quintilian shows that a bloody handprint was

intended to frame a blind man for his mother’s murder.

1194: King Richard Plantagenet (1157–1199) officially creates the position of coroner.

1200s: First forensic autopsies are done at the University of Bologna.

1235: Sung Tz’u publishes *Hsi Yuan Lu* (*The Washing Away of Wrongs*), the first forensic text.

1276: *De Officia Coronatoris*, which describes the coroner’s duties, is published in England.

C. 1348–1350: Pope Clement VI (1291–1352) orders autopsies on victims of the Black Death to hopefully find a cause for the plague.

LATE 1400s: Medical schools are established in Padua and Bologna.

1500s: Ambroise Paré (1510–1590) writes extensively on the anatomy of war and homicidal wounds.

C. 1591: Zacharias Janssen (c. 1580–c. 1638) designs the first crude microscope with the help of his father, Hans.

1604: First autopsies in North America are done by French settlers on St. Croix Island.

1609: Francois Demelle publishes the first treatise on document examination in France.

1642: University of Leipzig offers the first courses in forensic medicine.

1683: Antony van Leeuwenhoek (1632–1723) employs a microscope to first see living bacteria, which he calls animalcules.

LATE 1600s: Giovanni Morgagni (1682–1771) first correlates autopsy findings to various diseases.

1685: Marcello Malpighi first recognizes fingerprint patterns and uses the terms *loops* and *whorls*.

1775: Paul Revere recognizes dentures he had made for his friend Dr. Joseph Warren and thus identifies the doctor’s body in a mass grave at Bunker Hill.

1775: Carl Wilhelm Scheele (1742–1786) develops the first test for arsenic.

1784: In what is perhaps the first ballistic comparison, John Toms is convicted of murder based on the match of paper wadding removed from the victim’s wound with paper found in Tom’s pocket.

1787: Johann Metzger develops a method for isolating arsenic.

1798: François-Emmanuel Fodéré (1764–1835) publishes *Traité de médecine légale et d’hygiène publique*.

C. 1800: Franz Joseph Gall (1758–1828) develops the field of phrenology.

1801: Andrew Duncan Sr. (1744–1828) begins lecturing on legal medicine at Edinburgh University.

1806: Valentine Rose recovers arsenic from a human body.

1807: Andrew Duncan Jr. (1773–1832) becomes the first Professor of Medical Jurisprudence.

1810: The first use of document examination in a criminal investigation involves the analysis of ink dye on a document known as Konigin Handschrift in Germany.

1813: James S. Stringham (1775–1817) becomes the first Professor of Medical Jurisprudence in the United States.

1813: Mathieu Joseph Bonaventure Orfila (1787–1853) publishes *Traité des poisons* (*Treatise on Poison*), the first toxicology textbook.

1821: Seville isolates arsenic from human stomach contents and urine, giving birth to the field of forensic toxicology.

1823: Johannes Purkinje (1787–1869) devises the first crude fingerprint classification system.

1835: Henry Goddard (1866–1957) matches two bullets to show they came from the same bullet mould.

1836: Alfred Swaine Taylor (1806–1880) develops first test for arsenic in human tissue.

1836: James Marsh (1794–1846) develops a sensitive test for arsenic (Marsh test).

1850s: Rudolph Virchow (1821–1902) establishes the roots of cellular biology and anatomy.

1850: Johann Ludwig Casper (1796–1864) publishes the first color forensic pathological lithographs.

1853: Ludwig Teichmann (1823–1895) develops the hematin test to test blood for the presence of the characteristic rhomboid crystals.

1857: The first paper on hair analysis is published in France.

1858: In Bengal, India, Sir William Herschel (1833–1917) requires natives sign contracts with a hand imprint and shows that fingerprints did not change over a fifty-year period.

1862: Izaak van Deen (1804–1869) develops the guaiac test for blood.

1863: Christian Friedrich Schönbein (1799–1868) develops the hydrogen peroxide test for blood.

1868: Friedrich Miescher (1844–1895) discovers DNA.

1875: Wilhelm Konrad Röntgen (1845–1923) discovers X-rays.

1875: Richard Caton (1842–1926) proves that animal brains possess electrical activity.

1876: Cesare Lombroso (1835–1909) publishes *The Criminal Man*, which states that criminals can be identified and classified by their physical characteristics.

1877: Medical examiner system is established in Massachusetts.

1880: Henry Faulds (1843–1930) shows that powder dusting will expose latent fingerprints.

1882: Alphonse Bertillon (1853–1914) develops his anthropometric identification system.

1883: Mark Twain (1835–1910) employs fingerprint identification in his books *Life on the Mississippi* and *The Tragedy of Pudd'nhead Wilson* (1893–1894).

1887: England passes the Coroner's Act, which establishes the position of coroner.

1887: In Sir Arthur Conan Doyle's first Sherlock Holmes novel, *A Study in Scarlet*, Holmes develops a chemical to determine whether a stain was blood or not—something that had not yet been done in a real-life investigation.

1889: Alexandre Lacassagne (1843–1924) shows that marks on bullets could be matched to those within a rifled gun barrel.

1892: Sir Francis Galton (1822–1911) publishes his classic textbook *Finger Prints*.

1892: In Argentina, Juan Vucetich (1858–1925) devises a usable fingerprint classification system.

1892: In Argentina, Francisca Rojas becomes the first person charged with a crime on fingerprint evidence.

1893: Hans Gross (1847–1915) publishes *Criminal Investigation* and coined the term *criminalistics*.

1895: Dr. Eduard Piotrowski publishes his text on bloodstain pattern recognition.

1897: Herman Welcker (1822–1899) shows his own fingerprints taken in 1897 matched those taken in 1856, thus supporting the findings of William Herschel.

1897: Paul Brouardel (1837–1906) lays out the autopsy findings in vic-

tims of strangulation in his book *La Pendaion, la strangulation, la suffocation, la submersion*.

1898: Paul Jeserich (1854–1927) uses a microscope for ballistic comparison.

1898: Hans Gross publishes *Criminal Psychology*.

1899: Sir Edward Richard Henry (1850–1931) devises a fingerprint classification system that is the basis for those used in Britain and America today.

1901: Karl Landsteiner (1868–1943) delineates the ABO blood typing system.

1901: Paul Uhlenhuth (1870–1957) devises a method to distinguish between human and animal blood.

1901: Sir Edward Richard Henry becomes head of Scotland Yard and adopts a fingerprint identification system in place of anthropometry.

1902: Harry Jackson becomes the first person in England to be convicted by fingerprint evidence.

1903: The first systematic use of fingerprints for criminal identification in the United States begins in the New York State Prison system.

1904: Oskar and Rudolf Adlar develop the benzidine test for blood.

1908: President Theodore Roosevelt establishes the Federal Bureau of Investigation.

1910: Edmund Locard (1877–1966) opens the first forensic laboratory in Lyon, France.

1910: Albert Osborn (1858–1946) lays down the principles of document examination in his book *Questioned Documents*.

1910: Thomas Jennings becomes the first U.S. citizen convicted of a crime by use of fingerprints.

1912: Masaeo Takayama develops a microcrystalline test for blood hemoglobin.

1913: Victor Balthazard (1872–1950) publishes his belief that each fired bullet carries unique marks.

1915: Leone Lattes (1887–1954) develops a method for ABO typing dried bloodstains.

1915: State of New York adopts the medical examiner system.

1920: Physicist John Fisher invents the helixometer.

1920: The Sacco and Vanzetti case brings ballistics to the public's attention. The case highlights the value of the newly developed comparison microscope.

1923: Los Angeles Police Chief August Vollmer (1876–1955) establishes the first forensic laboratory.

1923: The Bureau of Forensic Ballistics is established in New York City.

1923: *Frye v. United States* sets standards for the admission of scientific evidence into U.S. courtrooms.

1924: Willem Einthoven (1860–1927) invents the electrocardiogram (EKG).

1924: Hans Berger (1873–1941) invents the electroencephalograph (EEG), the first objective test of human brain activity.

1925: Philip Gravelle and Calvin Goddard (1891–1955) develop the comparison microscope.

1929: The ballistic analyses used to solve the famous St. Valentine's Day Massacre in Chicago lead to the establishment of the Scientific Crime Detection Laboratory (SCDL), the first independent crime lab, at Northwestern University.

1931: John Glaister (1856–1932) publishes his landmark book on hair analysis.

1932: FBI's forensic laboratory is established.

1939: *The FBI Law Enforcement Bulletin* publishes W.H. Krogman's seminal article on examining skeletal remains, bringing the field of anthropology to the world of forensic investigation.

1943: Oswald Avery (1877–1955), Colin MacLeod (1909–1972), and Maelyn McCarty (1911–2005) discover that DNA carries genetic information.

1953: James Watson (1928–), Francis Crick (1916–2004), and Maurice Wilkins (1916–2004) identify DNA's double-helical structure.

01954: Indiana State Police Captain R.F. Borkenstein develops the breathalyzer.

1971: William Bass establishes the Body Farm at the University of Tennessee in Knoxville.

1972: The American Academy of Forensic Sciences establishes the Physical Anthropology Section.

1974: Detection of gunshot residue by SEM/EDS is developed.

1977: FBI institutes the Automated Fingerprint Identification System (AFIS).

1978: ESDA is developed by Freeman and Foster.

1984: Sir Alec Jeffreys (1950–) develops the DNA "fingerprint" technique.

1987: In England, Colin Pitchfork becomes the first criminal identified by the use of DNA.

1987: First United States use of DNA for a conviction in the Florida case of Tommy Lee Andrews.

1990: Congress establishes the Armed Forces Medical Examiner's Office in the Armed Forces Institute of Pathology.

1990: The Combined DNA Index System (CODIS) is established.

1992: The polymerase chain reaction (PCR) technique is introduced.

1993: *Daubert v. Merrell Dow Pharmaceuticals* establishes new rules for the admission of scientific evidence into the courtroom and alters the Frye Rules set in 1923.

1994: The DNA analysis of short tandem repeats (STRs) is introduced.

1996: Mitochondrial DNA is first admitted into a U.S. court in *Tennessee v. Ware*.

1998: The National DNA Index System (NDIS) becomes operational.