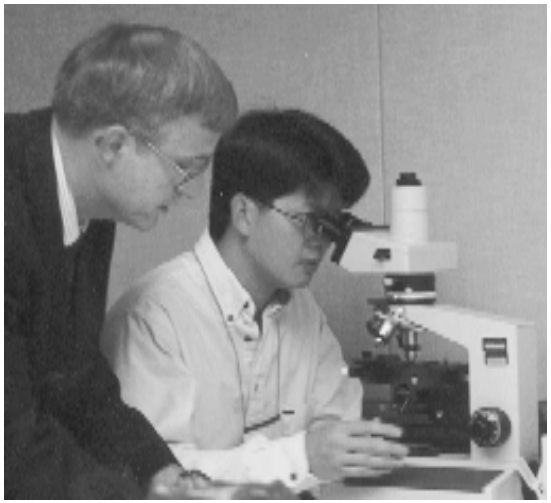

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*Training classes and materials are available through the California Association of Criminalists.*

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***Criminalistics is a scientific adventure from crime scene to courtroom where the scientific knowledge learned in the classroom is applied to the solving of crime.***

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*Becoming a successful criminalist requires patience and a thoughtful approach to problem-solving.*

Eugenio Edgardo

www.criminalistics.com/CAC

California Association of Criminalists

# *Consider a career in* FORENSIC SCIENCE

## CRIMINALISTICS

*From crime scene to courtroom*

*Criminalists regularly sharpen their investigation skills at mock crime scenes such as the one shown.*

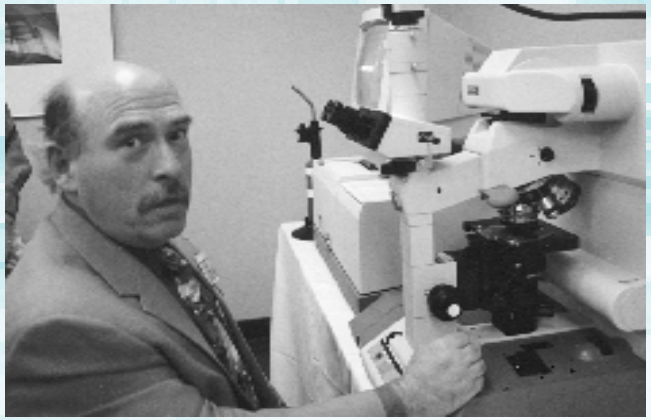
# CRIMINALISTICS—*the challenge of forensic science*

CACNews

*A criminalist prepares an experiment in bloodspatter pattern analysis.*

***Criminalists are scientists who evaluate, compare, analyze and interpret physical evidence taken from crime scenes, and from suspects, victims, or others possibly related to a crime.***

*Criminalists use complex, state-of-the-art scientific equipment to compare evidence recovered at crime scenes.*



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**Criminalistics** is one of many divisions in the field of forensic science. Forensic science includes forensic pathology, odontology, entomology, engineering, criminology, and other disciplines. All of these are specialized sections in forensic science. Criminalists use techniques learned in chemistry, molecular biology, geology, and other scientific disciplines to investigate and solve crimes. Criminalistics should not be confused with the field of criminology. Criminologists are sociologists, psychologists, and others who study the causes and effects of crime on society.

For the criminalist, crime scene investigation involves the recognition, documentation, collection, preservation, and interpretation of physical evidence which may be as big as a truck or as small as a diatom or pollen grain. Recognition of items out of place, articles improperly located or items added to the crime scene are an important part of crime scene processing. The criminalist collects, preserves, and makes interpretations about the evidence and their relation to the series of events resulting at the crime scene.

The criminalist brings evidence back to the laboratory where examinations will be conducted. Interpretations are made about the relevance of a particular item from the crime scene by associating particular items of evidence to specific sources and reconstructing the crime scene. This means not only associating a suspect with a scene but also the telling of a story about what transpired before, during and after the crime.

The criminalist must draw on a wide spectrum of scientific knowledge including chemistry, biology, genetics, molecular biology, physics, statistics and a working knowledge of civil and criminal law. Applying this knowledge, criminalist will associate and identify evidence, interpret the results, reconstruct the crime scene, and write a report summarizing the findings. Finally, the criminalist testifies in courts of law, teaching the judge and jury about the conclusions reached in the laboratory.

## Firearms and Toolmarks

Criminalists provide information to investigators about the caliber and type of firearm used in a crime. Scratches, or striation marks, are left on bullets by the barrel of a pistol or rifle. Once a firearm is recovered, these marks can individualize a bullet to a unique firearm to the exclusion of all other firearms. Similarly, tools used in crimes can leave striation and other marks on surfaces. These marks can be compared to the tool believed to have made them. If the comparison is a positive match, a tool may be individualized as having made the mark to the exclusion of all other tools. A computer database of marks on cartridge cases and bullets has been developed to link a particular firearm to serial crimes.

## Trace Evidence

Trace evidence, frequently overlooked because of its microscopic size, applies microanalysis to fibers, hair, soil, paint, glass, pollen, explosives, gunshot residue, food, plastic bags, and virtually anything involved in a crime. No training exists that will prepare the trace evidence analyst for every kind of case that will cross their workbench, as each case is fascinatingly unique. By having a thorough knowledge of the advantages and disadvantages of microscopic, spectroscopic, and chromatographic methods, the criminalist can meet the analytical challenge of each case.

## DNA and Serology

In the mid 1980's, deoxyribonucleic acid (DNA) techniques began to be applied to forensic cases. Any tissue from the body carrying the genetic code of DNA may be used to compare to a standard. This allows blood to be associated uniquely to a single individual. Databases of DNA profiles are being compiled to aid in identifying criminals and have already been used to solve cases many years old, where samples were properly preserved and reanalyzed. In some cases innocent persons have even been released from prison based on the reanalysis.

## Drugs, Alcohol and Toxicology

The criminalist uses a battery of analytical tools and their knowledge of chemistry to identify controlled substances in powders, pills and liquids and body fluids. A criminalist may be called to a clandestine laboratory by investigators, where illegal drugs are produced. Criminalists are frequently responsible for maintaining breath alcohol analysis instruments and training of the laboratory technicians and police officers who run the tests on those suspected of driving under the influence. Sometimes no controlled substance is present and sometimes more than one kind of drug can be detected in a sample.

Raymond Davis