

**FORENSIC
EVIDENCE**



HAIR and FIBERS

JOHN D. WRIGHT

ROUTLEDGE



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JOHN D. WRIGHT

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Introduction

As we approach the end of the first decade of the twenty-first century, interest in the forensic sciences continues to grow. The continued popularity of television shows such as *CSI*, *Crossing Jordan*, *Bones*, and the like has stimulated such an interest in forensic science among middle and high-school students that many schools now offer “forensic science” as a subject choice alongside the more traditional subjects of biology, chemistry, and physics. Each year, the number of colleges and universities offering majors in forensic science at both undergraduate and graduate level has increased, and more and more graduates are entering the job market looking for positions in the forensic science industry. The various disciplines that comprise forensic science provide the opportunity to use education and training in ways that the average student may imagine is rarely possible. On a day-to-day basis, the forensic scientist is called upon to apply the laws of science to the solution of problems that may link a particular individual to a particular crime scene or incident. Alternatively, the same tools and techniques may exonerate an innocent person who has been wrongly accused of committing a crime.

The four books that make up this series—*DNA and Body Evidence*, *Fingerprints and Impressions*, *Fire and Explosives*, and *Hair and Fibers*—are designed to introduce the reader to the various disciplines that comprise the forensic sciences. Each is devoted to a particular specialty, describing in depth the actual day-to-day activities of the expert. The volumes also describe the science behind those activities, and the education and training required to perform those duties successfully. Every aspect of forensic science and forensic investigation is covered, including DNA fingerprinting, crime scene investigation and procedure, detecting trace evidence, fingerprint analysis, shoe and boot prints, fabric prints, ear prints, blood sampling, arson investigation, explosives

A human hair magnified many times under a microscope. Among other things, testing hair from a crime scene can offer DNA evidence as well as reveal the racial background of the hair's owner.



analysis, laboratory testing, and the use of forensic evidence in the courtroom, to cover just a brief sample of what the four volumes of *Forensic Evidence* have to offer. Pull-out feature boxes focus on important aspects of forensic equipment, procedures, key facts, and important cases studies.

Numerous criminal cases are described to demonstrate the uses and limits of forensic investigation, including such famous and landmark cases as the O.J. Simpson trial; cases of mistaken identity, such as Will West, who was at first confused with his identical twin and eventually cleared via fingerprint analysis; notorious serial killer Jack Unterweger, who was eventually convicted using DNA analysis from a single hair; and the work of the Innocence Project, which has used DNA analysis to retrospectively overturn wrongful convictions.

In *Hair and Fibers*, the author describes the uses of hair and fibers in forensic investigation, how hair and fibers are collected and analyzed, criminal cases involving hair, and famous cases involving fiber analysis, such as that of Dr. Jeffrey MacDonald, which is still unresolved more than thirty years after the crime. Written in a plain, accessible style, the series is aimed squarely at the general reader with an interest in forensic science and crime scene analysis, and does not assume previous knowledge of the subject. All technical language is either explained in the text, or covered in an easy-to-reference glossary on pages 92–93. Taken as a whole, the *Forensic Evidence* series serves as a comprehensive resource in a highly readable format.

Ronald L. Singer, M.S.
President, International Association of Forensic Sciences



What Hair and Fibers Reveal

The most common clues at a crime scene are hair and fibers. Examined by forensic scientists, these clues can prove guilt.

When a crime is committed, even a careful criminal tends to leave clues, especially when violence is involved. Placing a suspect at the scene of a crime is a key element in criminal investigation. Among these traces of evidence are blood, flakes of skin, fingerprints, footprints, car tracks, mud, dust, paint flecks, firearm residue, and plant fragments. The most frequently found and analyzed, however, are hairs and fibers. Those from the criminal are found at the crime scene, and those from the victim are taken away, unwittingly, by the guilty, which is why a suspect's home and possessions must be carefully searched.

Hairs and fibers are most frequently found in cases of **homicide**, aggravated assaults, and sexual assaults, because these types of crimes normally involve a struggle or other personal contact of some sort. Other cases include burglary—for example, when a burglar's shoes pick up carpet fibers, or

◀ **A sample of hair is carefully prepared for analysis in a forensic science laboratory. Special care is taken to avoid contamination.**