

## BOOK REVIEW

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### A Review of *Forensic Science Handbook Volume III*

**REFERENCE:** Edited by R. L. Saferstein, Ph.D. publisher: Regents/Prentice Hall, Englewood Cliffs, NJ, 1993, 466 pages. reviewer: Frederick P. Smith, Ph.D., University of Alabama at Birmingham.

This third volume follows what has become a tradition of in-depth chapters written by recognized forensic experts. The editor has judiciously chosen topics that meet distinct and timely needs. This handbook, like Volumes I and II, is an indispensable reference for scientists, attorneys, and students who are interested in or work with the forensic sciences.

Chapter 1, "Legal Standards for the Admissibility of Novel Scientific Evidence," addresses current changes in legal rules governing the introduction of expert testimony involving new or novel test methods. The author's description of the historical basis of traditional standards (such as *Frye*) provides a good background for the relevancy test he later describes. Definitions of legal procedures, such as *Motion In Limine*, are important knowledge for an expert witness's effectiveness. Attorneys and experts can consult the 134 references which include landmark cases.

Petraco and De Forest's chapter on forensic dust specimens fills a void in the literature and collates the authors' considerable forensic experience with over 100 references. Graphics effectively illustrate this chapter, with guidance on human hair, animal hair, synthetic fibers, mineral and glass particles, plaster chips, vegetable fibers and matter, starch grains, feathers, and other substances that may comprise dust. Specifically, readers who are familiar with Volume I of the series, published in 1982, will appreciate the additional photographs, diagrams, flow chart, data sheet, and protocol for hair examination. Petraco and De Forest confirm the significance, sometimes overlooked, of polarizing light microscopy to forensic dust investigations.

Nearly a monograph itself, Suzuki's comprehensive chapter on forensic uses of infrared spectroscopy (IR) has 516 specific references plus a general topics bibliography. It takes IR from its

underlying principles through the forensic applications of IR and fourier transform IR (FTIR). Examples include identification of controlled substances, toxicological samples, surface coatings, fibers, explosives, synthetic polymers, and documents. He visualizes future uses of IR-related techniques in forensic problems.

Bartick and Tongol's chapter on infrared microscopy shows how effectively IR combined with microscopy can resolve forensic issues. The authors clearly explain the historical basis and forensic applications. Various operational modes are discussed. They use tables, charts, graphs, and other figures liberally to illustrate.

Benjamin's chapter on forensic pharmacology provides a general overview of pharmacokinetics and pharmacodynamics used in forensic and clinical settings. Twenty references plus four general reference books guide the reader to more information on this topic.

Three full chapters dedicated to DNA recognize its increased role in forensic science. The editor organized these chapters in logical sequence. Kobilinski's chapter on DNA structure and function, while not specifically emphasizing forensic applications, provides a well-illustrated and well-documented academic groundwork. The excellent historical treatment is helpful. Next, Wayne and Fourney's chapter on forensic DNA typing of highly polymorphic VNTR loci effectively illustrates the RFLP procedure, results obtained, and their significance. They include a copy of the "Guidelines for a Quality Assurance Program for DNA Analysis." Finally, Sensabaugh and Blake's chapter on applications of polymerase chain reaction (PCR) in biological evidence shows how PCR detects genetic variation, how factors confound the analysis of forensic specimens, and how statistical considerations and genetics form the basis for interpreting results.

Forensic science practitioners and attorneys who interact with them, in either the criminal or civil arenas, will find this collection of learned treatises a required addition to their professional library. In addition, educators may find this an excellent reference or supplementary text for college and university curricula, including geology (PLM), chemistry (FTIR/IR microscopy), biology (molecular genetics/DNA), and law.