

BOOK REVIEW

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Review of: *Forensic Science Handbook, Volume III*

REFERENCE: Saferstein R, editor. *Forensic science handbook, Vol. III, 2nd ed.* Upper Saddle River, NJ: Prentice Hall, 2010, 534 pp.

The *Forensic Science Handbook, Volume III*, is the third in a series edited by Richard Saferstein. Designed for both students and forensic science practitioners, this book contains a diverse collection of reviews of forensic science topics. Chapters are authored by individuals with specialized subject matter expertise.

The book begins with the presentation of a strategy for approaching casework, focusing on casework decisions and the development of an analytical plan. Case examples are used to illustrate the importance of applying the scientific method.

The second chapter is a guide to the analysis of dust (trace evidence), emphasizing traditional analytical techniques, including the use of polarized light microscopy. Discussions include photographs illustrating microscopic observations. Protocols for the examination of hair, synthetic fibers, minerals, glass, and other dust materials are provided. Examples of sample data sheets are also included.

The next chapter provides an extensive review of the forensic applications of infrared spectroscopy. The chapter includes the theoretical basis for the technique, an explanation of Fourier transform instrumentation, sampling methods, and accessories. The chapter also includes a cogent discussion on spectral interpretation, including factors which affect spectra. The infrared analysis of various evidence types is also presented.

There is a chapter on using infrared microscopy for trace analysis. Diagrams are included to illustrate the microscope and its components. Features of various infrared microscopy systems are discussed. The chapter also reviews the application of infrared microscopy to various evidence types.

There are two chapters devoted to forensic toxicology. The first focuses on forensic pharmacology and presents the basic principles of toxicology, drug action, and the factors to consider when interpreting drug blood levels. A small number of drugs of forensic interest (e.g., heroin and morphine, cocaine, marijuana, and ethanol) are specifically discussed. A table with a summary of pharmacokinetic data for a larger number of drugs of abuse is provided. The second toxicology chapter provides information on drug interactions. After a general discussion, this section addresses specific drug interactions of interest to forensic toxicology, to include herb-drug interactions.

There are two chapters on relevant DNA topics. The first provides a general review of the chemical composition and structure of DNA, genes, and chromosomes. The chapter also includes other topics relevant to forensic DNA testing, such as polymerase chain reaction and forensic DNA analysis methods. The second DNA chapter presents the biology and forensic applications of Y-chromosomes.

The book concludes with a chapter on firearms discharge residue analysis, including topics such as the chemistry of ammunition, detection and composition of residues, and estimation of shooting distance.

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