

## BOOK REVIEW

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### Review of: *Forensic Analysis on the Cutting Edge*

**REFERENCE: Blackledge RD, editor. Forensic analysis on the cutting edge. New York: Wiley Interscience, 2007; 486 pp.**

This book came about as a result of a symposium put on at Pittcon by the editor and some of the symposium participants. It is an edited volume of monographs on various types of so-called *trace evidence*. This is a term of art in forensic science that denotes evidence that occurs in limited quantities or requires a microscope for analysis. The book starts with a forward by Peter DeForest who engages in a bit of a philosophical discussion about trace evidence and the general lack of appreciation for its power and value to forensic investigations. This is followed by 15 chapters written by experts in the various fields. There is no overall theme or order to the chapters. They mostly cover rather narrow areas of trace evidence or focus on a newly developed analytical technique.

The trace evidence areas covered include the following:

1. Cosmetic glitter.
2. Trace evidence from automotive airbag content.
3. Ink analysis by laser desorption mass spectrometry.
4. Trace evidence from condoms.
5. Latent invisible trace evidence (e.g., blood).
6. Fibers including dyes and surface modified fibers.
7. Smokeless powders.
8. Materials cut by glass.
9. Pressure sensitive tape.
10. Optically variable flake pigments.

The other chapters cover analytical techniques. These include the following:

1. Cathodoluminescence.
2. Direct analysis in real time (DART) mass spectrometry.
3. The use of multivariate statistics in the analysis of forensic data.
4. Forensic analysis of stable isotope ratio analysis.

As the authors point out, this is not meant to be a text book. It is a reference book and a weighty one at that. It is not for the CSI enthusiast or novice. This book requires a fairly sophisticated knowledge of analytical chemistry. Many of the chapters do not go into great detail about explaining how a technique works. This is especially true of the chapters on cathodoluminescence and DART. The emphasis on the analytical techniques chapters is much more on applications than detailed explanations of the workings of the instrument. This is a strength and a weakness. If one is interested in how these instruments may be used in forensic work, there is a lot of discussion. If one needs to know the intimate ins and outs of how the instrument functions, this is not the place. The chapter on multivariate statistics also bears some mention. This is a powerful chapter with many good examples of the utility of such techniques as "principle component analysis." It requires, however, that the reader know a good deal about statistics to start with and how to interpret large amounts of data.

The chapters on various types of trace evidence are, for the most, part thorough and up to the minute. The chapters on latent invisible trace evidence and on pressure sensitive tapes particular stand out for their comprehensiveness. Admittedly, most of these chapters cover types of trace evidence that are not often encountered in day to day forensic work (e.g., tapes, glitter, glass cuts, optically variable flakes).

Who should read this book? First any trace evidence examiner who wants to break out of the familiar cocoon of fibers, hairs, paint, and glass fragments should read the book. Anyone who needs to analyze the particular types of evidence contained in the book or wants to know more about the analytical techniques that are presented should have the book on his or her shelf. This would also be a valuable book for analytical chemists who want to see forensic chemistry at its best.

There are very few forensic science books on the market with the high level of scientific content of this one. The authors and editor are to be commended for raising the bar of trace evidence analysis.

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