

BOOK REVIEW

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Review of: *Geological and Soil Evidence*

REFERENCE: Pye K. *Geological and soil evidence*. Boca Raton, FL: CRC Press—Taylor & Francis, 2007, ISBN 978-0-8493-3146-6, \$99.95.

There is a commonsense, as well as a *Daubert*, expectation that the analysis and interpretation of soil and mineral evidence should rest on a sturdy scientific basis. If a science is an orderly body of knowledge with principles that can be clearly enunciated, which is one classical definition of a science, then this book will be of great benefit.

The text is written by a prominent soil scientist, who provides us with a thoroughly comprehensive tour of soil science. We are introduced to a formidable pantheon of subjects—the geomorphical structure and general character of soils and minerals, sediments, dusts and particulates, glasses, fossils, and anthropogenic additions which may be added to soil and mineral evidence. Properties by means of which evidence may be characterized and compared are dealt with from the standpoint of both bulk and individual particles. Guidance for sampling and sample handling is discussed, and an extended section is provided to deal with the statistical and probabilistic aspects of evidence interpretation. In short, the entire landscape of soil science is presented. It is presented clearly, and the text will be invaluable in responding to *Daubert* inquiry or other challenges to the scientific basis of soil or mineral evidence.

This is not, however, a book of techniques. For this, Dr. Pye has another text that is more technique-oriented—*Forensic Geoscience: Principles, Techniques and Applications*, published in 2004 by the

Geological Society of London. In most operational forensic laboratories, soil or mineral evidence is typically compared on the basis of color, behavior in a density gradient column, characterization of the component mineral suite, and, in some instances, elemental composition. The present text is silent on specifics of how these techniques are conducted. Color is given four pages, of which two pages are graphs and tables of examples. Density is given less than a page, and no mention is made of a density gradient. Four pages are devoted to the identification of specific minerals. The author has not intended this book to be a cookbook of analytical techniques. It is instead a treatment of what information may be derived from various approaches, and the scientific basis for these approaches. In this, the book succeeds in its aim.

A number of the analytical approaches described in the text may be familiar to soil scientists, but they have not found currency within the forensic science community. In some instances, this is because a technique may require a greater amount of sample than is commonly available in actual case situations, or because the discrimination of the technique has not been rigorously evaluated when projected against forensic considerations. This does not diminish the value of this text, however, as anyone involved in a defense of his or her selection of techniques should be conversant with, or at the very least aware of, out of the ordinary analytical approaches.

There is a full and useful section of references, numbering 51 pages, which melds the forensic science and soil science literature.

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