

## BOOK REVIEW

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### Review of: *Principles and Practice of Criminalistics*

**REFERENCE:** Inman K, Rudin N. *Principles and practice of criminalistics: the profession of forensic science*. CRC Press, Boca Raton, FL, 33431, 372 pp., \$69.95

An old parable says that the Zen Master Fa-Yen, was once asked by an initiate, "What is the First Principle?" Fa-Yen replied, "If I should tell you, it would become the Second Principle." This terse rejoinder describes how most forensic scientists approach the philosophic basis of their discipline: If I should tell you, it would no longer be what it is. Many in the field are of the opinion that we have been applying our methods for too long without sufficient consideration for the underlying principles of what we do. What are "class characteristics"? What is an "association"? We *assume* we know what these mean but in an open discussion between forensic scientists about our individual assumptions, disagreement would invariably ensue.

*Principles and Practice of Criminalistics* attempts to fill this conceptual and philosophic void in the profession of forensic science. The authors should be commended for the effort. They make some very brave and accurate points in the course of the book. "Forensic science seeks to establish connections (or lack thereof) between evidence and its source, and secondarily, between items that may be associated by the evidence" (p. 16). Too often, forensic science is, a la Kirk, defined as "the science of individualization," which, as this book points out, may have done more harm than good over the years. "For in declaring *individualization* as the primary function of criminalistics, (Kirk) placed the focus squarely on the . . . analysis of objects, and shifted the emphasis away from interpretation of data in the context of the crime. By focusing on individualization, the field was doomed to (advancements) that Kirk describes as 'technical rather than fundamental, practical rather than theoretical, transient rather than permanent.'" (p. 169) "Any discussion of 'association' generally defaults to a plea for better methods of individualization, completely missing the conceptual point" of the relationship between people, places, and things involved in a crime (p. 167). By breaking away from this traditional mindset, so widely reinforced by the predominance of DNA technology in our discipline and culture, the groundwork could be laid for a strong contextual basis for the interpretation of evidence and a "unified field theory" of forensic science.

The book's numerous flaws, however, prevent *Principles and Practice* from being the vehicle for that worthy endeavor. A subtle generalist/criminalist mentality will sour the book for much of the discipline. The authors obviously object to what they call a "specialist" approach, noting, for example, "the age of specialization in criminalistics has decreased the number of criminalists that are both competent and willing to undertake a **true** reconstruction" (emphasis added, p. 177). In this day and age, considering the complexity of science and its methods, the generalist argument sounds quaint. No one would argue that a comprehensive understanding of the capabilities of their native discipline is important; a botanist should have an appreciation of zoology, entomology, and even chemistry. But that botanist is not about to march into a chemistry laboratory and rearrange isotactically bonded polymers. Science has progressed, specialized (for the better, in general), and fractionated; forensic science must, perforce, follow suit. It is not the fault of the discipline that we forget our roots, it is the fault of those who train us.

The authors display a disturbing attitude toward trace evidence. Inaccuracies about aspects of trace abound. Take glass, for instance. "The disintegration of physical boundaries containing both people and things means that any individual will perennially bathe in a wide variety of materials that are ubiquitous in the world, such as white cotton, sugar, salt, and glass" (p. 85). As has been shown in published studies (1,2), glass is hardly ubiquitous. Then there is: "(i)n the absence of a physical match or some extremely unusual characteristic, glass can only be assigned to a relatively large class" (p. 122). Again, numerous publications have shown that glass can be fairly discriminating class evidence (3–6).

And hairs. "Hairs, as examined microscopically, make for some of the weakest class evidence. In fact many analysts believe that hairs should only be used as exclusionary evidence" (p. 122). If hairs are weak class evidence, how can they be useful for *exclusionary* evidence, that is, to place someone absolutely outside of a set of people? This statement, more importantly, ignores the utility of hairs as shown over the past several decades (7–14). As this book is apparently targeted at practicing forensic scientists, these examples and others show a discouraging lack of understanding of non-DNA evidence on the part of the authors, both of whom are DNA practitioners. Moreover, the authors gloss over one of the most important yet overlooked concepts of the last two decades, subclass characteristics (15,16), with a couple of sentences.

The authors attempt to set precedents by coining terms that are intended to become the new currency of the realm, such as "divis-

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ible matter,” the phrase they use to describe the process where “matter divides into smaller component parts when sufficient force is applied.” This, in combination with their efforts to combine entropy, information theory, set theory, and the work of E.O. Wilson, create a muddle of smart-sounding but ultimately empty science-speak. Some of these areas of study certainly have relevance to the teasing out of the philosophy from the forensic science; however, their programmatic application is absent from this book. The authors do not attempt to knit the concepts together into a cohesive whole but rather freely seed the book with short definitions and jargon, leaving the reader to wonder where it all fits. This is not what I would expect from a book containing the words “principles” and “practice” in the title.

Several constant minor annoyances in the book also detract from the few benefits. A pervasive flippant tone, culminating in a children’s story as a cautionary tale of assumption and a footnote quoting a (presumably one of the author’s) high school band director, discredits the book’s professionalism. Odd vocabulary words are distracting and overblown. For example, the authors state, “A concrete definition of the profession that we call criminalistics remains both elusive and morphotic” (p. 12). Webster’s New Third International Dictionary defines “morphotic” as “of or relating to the development of an organism from one of its parts; a nonadaptive structural adaptation,” so I’m not sure of their intended meaning. One hopes they don’t mean that a definition of criminalistics is nonadaptive. Other examples are “abiotic” (which doesn’t show up in Webster’s), “physicochemical” (their favorite) and “undergird” (my favorite). Spelling errors (my co-author’s name is Siegel not “Siegal”) and other notable inaccuracies (the FBI Laboratory is in Washington, D.C., not Virginia; our training academy and research facility is in Quantico, Virginia) measurably distract the reader from the content. None of the many, many quotes had page numbers, so the reader is left to read the entirety of the references to find the statement of interest. Lastly, because the subtitle of the book is “The Profession of Forensic Science,” I expected disciplines such as pathology, anthropology, and toxicology to be included. They were not.

One of *Principles*’ most cited authors said it best: “It is unfortunate that the great body of knowledge which exists in (forensic science) is largely uncoordinated and has not yet been codified in clear and simple terms . . . (i)t should be developed so as to achieve full recognition as a separate scientific discipline” (17, p. 237). And

while *The Principles and Practice of Criminalistics* attains its self-stated goal of “contribut(ing) to the ongoing efforts to provide a rational framework within which the results of forensic comparisons and analyses may be thoughtfully interpreted” (p. 65), that contribution falls far short of what it should have been.

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