

## BOOK REVIEW

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### Review of: *Bloodstain Pattern Analysis with an Introduction to Crime Scene Reconstruction*, 3rd edition

**REFERENCE:** Bevel T, Gardner RM. **Bloodstain pattern analysis with an introduction to crime scene reconstruction**, 3rd edn. Boca Raton, FL: CRC Press (Taylor & Francis Group), 2008, 402 pp.

Bloodstain pattern analysis (BPA) is a scientific sub-discipline of criminalistics frequently used to assist the reconstruction of incidents that have warranted legal attention. The formation of blood droplets, the dynamics of blood droplets in flight, and the interaction of liquid blood with other materials, including discrete sources of liquid blood, are complex processes. Although there is a wealth of published scientific studies regarding fluid dynamics, few have researched blood. Several BPA books have been written; however, many have been unsatisfactory. Regrettably, the present text falls far short of a description proffered as the “most complete and comprehensive handbook to date.”

This book consists of an introduction, 17 chapters (15 written by the authors), and two appendices. A forensic pathologist and a chemist separately composed the remaining two chapters. Excluding the chapters written by the guest authors, the text is unequivocally nonscientific in substance and style with a multitude of grammatical, typographical, and scientific errors. Persistent poor syntax and use of colloquialisms lie in stark contrast to the linguistic competence and professional manner of the pathologist. The chapter entitled “Understanding and Applying Characteristic Patterns of Blood” is a patent example of inappropriate parlance. In most cases, the language errors are simply nuisances that may produce confusion for some readers. Most perturbing are the scientific errors, which could mislead those lacking an education in science.

A perfunctory treatment of BPA history is provided in the first chapter. Though it is stated that BPA has a “rich history,” only 25 references are cited in this chapter; of these, less than five are from refereed scientific sources. In fact, excluding the invited authors’ chapters, less than 185 references are cited with fewer than 15 originating from refereed scientific journals. Most of the sources are unpublished presentations or articles published in nonscientific periodicals; no bibliography is provided. Despite the availability of countless scientific textbooks, the definition of *fluid* was obtained from a CliffsNotes™ publication. As presented, there is little evidence to convince readers that bloodstain pattern analysis is a science.

Interestingly, the word *science* has been dropped from the term *forensic science* throughout the text. Either *forensics* or *forensic*

*discipline* is used instead, effectively emasculating forensic science. A distinct deficiency of any discourse pertaining to science is apparent. Remarkably, several pages in one chapter attempt to convince the reader that the layman can achieve accurate and reliable results if the scientific method is utilized. Science, however, is not merely the “scientific method” taught in secondary school. The attainment of scientific knowledge cannot be gained posthaste and requires tertiary education and training in science and mathematics, particularly statistics.

Although the scientific method, conservatism, and objectivity are stressed periodically, examples of poor science and practice abound. A deficit of these essentials is particularly evident in many of the described cases. Some notable scientific errors include the frequent substitution of *accelerate* and its derivatives and inflections for *velocity* and the incorrect assertions that blood is a colloidal fluid and surface tension is the “force holding the blood mass to the object.” Despite awareness concerning contamination and safety issues, one figure depicts an ungloved hand positioning a scale near a bloodstain pattern. The data and conclusions of the unpublished research are questionable at best and the possibility that nonscientific readers may interpret the information as factual is cause for concern.

While well-intentioned, the creation of new terminology, construction of a taxonomy, and comparison of archaeology to crime scene reconstruction produces a degree of hauteur marginally reminiscent of “the West phenomena.” Scientists have previously described terminology associated with drop formation and droplet impact; thus, new terms are unnecessary. The taxonomic scheme is nonsensical at points and several of the descriptors are subjective. The declared resemblance of archaeology to crime scene reconstruction is overstated. Although some archaeologists may be concerned with “reconstructing” aspects of history, their true objective is the appraisal of past cultures, not discrete events.

There is no doubt that bloodstain pattern analysis is a science. Unfortunately, the authors have failed to capture its essence. Instead, the present text can best be described as “Cargo Cult Science,” a phrase coined by Richard Feynman in his commencement address to the Caltech class of 1974. As used, Feynman was describing a particular manifestation of pseudoscience, one in which someone believes he or she has correctly harnessed all of the trappings and rituals of science but is missing a critical component: scientific integrity. Alas, much more is missing from this text; science itself is absent.

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