

## BOOK REVIEW

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### Review of: *Forensic Entomology: An Introduction*

**REFERENCE: Gennard DE. Forensic entomology: an introduction. West Sussex, England: Wiley, 2007;224 pp.**

The purpose of the text as stated by the author is for the book to be used as a basic introductory text specifically for undergraduate students engaged in forensic science. These students are usually lacking knowledge of entomology. Therefore, Dr. Gennard, in an attempt to bring these students to a level of understanding of forensic entomology in her forensic course curricula, brought together some very basic elements of the study of entomology. She coupled that to simple and basic identification, insect behavior, and the biologic and ecologic interactions of these insects with carrion.

It is obvious that this book is not intended as a single reference for the practicing forensic entomologist conducting research and case investigations. It is for this reason that Dr. Gennard has kept the chapters simple but full of pertinent and useful information on the subject. Only a few weeks of a full semester course would be devoted to forensic entomology, so you must get to the point quickly. This text accomplishes that. It is easy for the reader to find tables, figures, and the Table of Contents is nicely outlined.

Regarding the figures throughout the book, most need pointers/arrows indicating what it is that the figure title is representing. Also, there are some corrections needing changes (e.g. pg. 21; Fig. 2.1a: postero-dorsal [bottom] should be ventral). It is not necessary to list these corrections in this review, but these will be pointed out to the author.

The cost of the book hardbound is \$145 with the paperback being \$50. This seems somewhat excessive because of the fact that it is to be used as a textbook and not simply as a reference.

Chapter 1 deals with what forensic entomology is and what it does, including time of death, stages of decomposition, indicators of death and abuse, and the use of toxicology from maggots. It also has a brief section of the common civil application of forensic entomology.

Chapter 2 moves directly into the forensically important flies (Diptera), beginning with the basic morphology that relate to the flies, with terminology and examples of variability of these structures. Dr. Gennard covers the different families of flies which interact with forensic case studies listing the names, their characteristics, and cites common species within these families. Means by which to identify the groups are provided with a section on DNA methods, which can be used for Diptera species identification.

In Chapter 3, a similar format used for the flies is applied to the beetles (Coleoptera).

The life cycles of flies and beetles are found in Chapter 4 along with discussions and identifications of the life stages for the two

Orders. Environmental influences are discussed regarding appearances of insect species. Insect succession is addressed in this chapter for remains buried and exposed to the air. At the end of the chapter, a short instruction is given on how to make slide mounts of structures relating to different life stages of the flies and clearing techniques for fly larvae.

Chapter 5 goes to the heart of forensic entomology investigations in detailing the protocols and procedures necessary to recover the evidence and data essential for a reliable entomologic analysis. Covered in this chapter is the equipment needed for insect evidence recovery, methods for collecting environmental data (temperatures and weather), and collection of flying and crawling insect evidence.

In Chapter 6 there is a discussion of what is done at the laboratory regarding live-collected evidence, how the evidence is maintained alive, and the format for preserving and maintaining the specimens once they have been reared from immatures to their adult stage. The flies are primarily addressed, but beetle rearing is also covered here.

Calculation of the postmortem interval is detailed in Chapter 7. Many specific variables are discussed in this chapter with implications of these variables and why they could be used to enhance the precision of the postmortem interval. A sample case is included in this chapter for the reader to follow through on a step-by-step basis.

Chapter 8 provides ecologic implications for the forensically important flies.

Chapter 9 follows Chapter 8 with ecologic inferences upon the beetle life histories. The beetle families' appearances within the progression of decomposition are outlined. An example of how the postmortem interval is calculated using a succession-based approach is provided as a case example. Payne did the first burial studies in 1968 (1), not VanLaerhoven and Anderson in 1995.

In Chapter 10, English law and the procedures, rules, and priorities necessary for an entomologist giving testimony in either criminal or civil courts is discussed.

The final chapter, Chapter 11, discusses the professional forensic entomologic organizations found world wide, their purposes, and their perceived future impacts on forensic entomology and the legal system. In this chapter is a section for further research in forensic entomology.

At the end of the chapters is a set of Appendices which add greatly to the relevance of the 11 chapters. Included is: A case study form for use at a crime scene; answers to the PMI exercise; a checklist of U.K. blow flies; a check list for U.K. beetles; a list of U.K. legal acts and orders; some sources of insect equipment; and information relative to giving testimony in the U.S.

These appendices are followed by a Glossary of entomologic and legal terms, a long Reference list, and a comprehensive Index.

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While this publication is not a “stand-alone” text and is basic in some aspects, there are sections in this textbook which are quite valuable to an experienced and practicing forensic entomologist. Chapter 7 provides a great understanding and practical testing of proper PMI analysis and calculation. Chapter 10 is another valuable chapter to practicing forensic entomologists for case work in the U.K. This is a fine introductory work for short and to the point

class presentations as well as another useful reference for a practicing forensic entomologist.

#### **Reference**

1. Payne JA, King W, Beinhart O. Arthropod succession and decomposition of buried pigs. *Nature* 1968;219:1180–81.