

## BOOK REVIEW

Mark E. Goodson,<sup>1</sup> P.E.

# Handbook of Electrical Hazards and Accidents

---

**REFERENCE:** Geddes, L. A., *Handbook of Electrical Hazards and Accidents*, CRC Press, 1995.

This reviewer was very excited when news of the upcoming book by Mr. Geddes was released. There has been a need in the forensic community for a good treatise on electrical accidents and deaths, and certainly the author is qualified to write in this area. After reading this text, this reviewer is of the opinion that this book will have some value to the forensic practitioner, but that it is not the ideal text for either the pathologist or the engineer investigating electrical injuries or deaths.

The book is divided into six chapters, covering electrical accidents, stimulation of tissue, low frequency AC, lightning injuries, high frequency AC, and electrical properties of living tissues. What this book excels at is providing numerous references to much of what is known about electricity and its effects on living beings. If there is a single reason to purchase this book, it is because the author cites about 250 useful references.

With respect to the pathologist or engineer investigating an electrical death, the book is lacking. This book contains no photographs of electrical burns, while verbal descriptions of electrical burns are inadequate. The concept of nucleic streaming is not presented. Also, no statistical data is given regarding the incidence of burns on low or high voltage decedents. The possible value of CPK and LDH levels in the diagnosis of an electrical death is not mentioned. From an engineering standpoint, the concepts of double insulation and polyphase power are not presented. Likewise, the importance of measuring suspect appliances with both high and low impedance instruments is not detailed.

The author states that he has aimed the book towards 'attorneys, physicians, and investigators.' In an attempt to serve this varied audience, the author has at times overgeneralized material. To wit,

fence charger currents are listed at about 4 mA, when in actuality they can reach several amperes, depending upon duty cycle and voltage. It is stated that a stun gun delivers a 90,000 volt pulse train; the non-electrical readers will see such a statement and incorrectly conclude that the recipient receives a 90,000 volt shock. With regards to the TASER, comments are made that lead the reader to believe that the TASER is harmless and that 'response is not affected by prior use of drugs.' What would be more accurate to state is that the loss of voluntarily muscle use on the TASER victim is not affected by drugs, but that it is possible for death to be occur in persons who are electrically stimulated while intoxicated on drugs such as cocaine.

The author mentions only briefly the controversy regarding power lines and effects of ELF, and cites just three references; this is the one instance where the author fails to adequately reference a topic. One would think that the Wertheimer-Leeper studies, and all of the work these researchers have fostered, would be referenced.

The biomedical background of the author is obvious, and he goes into great detail in describing electrosurgery. The author also describes pacemakers, MRI, EST, and diathermy, but not to the same depth. For those weak in physiology, the author does a good job in relating electrical shock with susceptibility to ventricular fibrillation. In the final chapter, an immense amount of tabular data regarding conductivities of various organs is presented.

This reviewer feels that the book is a useful addition to the bookshelf, but not as a primary manual for the forensic practitioner. The book is a good source of data, and the reference listings are quite extensive. This is the kind of book that the pathologist or engineer will refer to on rare occasions; in these rare instances, particularly where medical appliances are involved, the book will be an asset.

<sup>1</sup>3370 Forest Glen, Denton, Texas 76205