

BOOK REVIEW

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Review of: *Bite Mark Evidence, A Color Atlas and Text, 2nd edn.*

REFERENCE: Dorion RBJ. *Bite mark evidence, a color atlas and text, 2nd edn.* Boca Raton, FL: CRC Press, 2011, 649 pp.

In editing the 2011 second edition of *Bite Mark Evidence, A Color Atlas and Text* (first edition released in 2005), Dr. Robert B. J. Dorion assembled a very qualified group of authors from several fields for the 35 chapters that cover all aspects of bite mark evaluation. Considering the controversies involving the comparative sciences spotlighted by the 2009 National Academy of Sciences report titled *Strengthening Forensic Science in the United States: A Path Forward*, Dr. Dorion's atlas style text represents a welcome departure, offering a rational, practical, comprehensive, and methodical look at bite mark evidence.

The text contains over 1500 photographs, 1300 in color, in the 649 pages divided into 13 sections, 35 chapters, and 6 appendices. Dr. Dorion assembled 27 contributors from odontology, pathology, molecular biology, criminalistics, and jurisprudence, all well known in their respective fields. He authored seven of the 35 chapters.

Section I contains a single (new) chapter entitled "History of Bite Mark Evidence." It chronicles the earliest known, and sometimes scientifically oblique, bite mark references gleaned from the Bible, Kama Sutra, old English Law, the Salem Witch trials, and 19th- and 20th-century cases of interest. The author briefly discusses bite mark evidence in the modern era and the cases that lead to the acceptance of bite mark evidence in courts of law. The chapter also introduces challenges to the legitimacy of bite mark evidence, which is more thoroughly covered in Chapters 33, 34, and 35.

Section II, *Bite Mark Recognition*, details the subject in three chapters, all updated from the first edition. Chapter 2, "The Role of Health Professional in Diagnosing Patterned Injuries from Birth to Death," deals with biting as it relates to domestic violence, including child abuse, intimate partner abuse, and the abuse of the elderly. Chapter 3, "Role of the Medical Examiner, Coroner, and Pathologist," describes the roles of each in the recognition of bite marks and discusses the importance of consulting with a qualified forensic odontologist when a bite mark is suspected. Chapter 4, "Team Approach in Bite Mark Investigation," discusses the benefits of the team concept and the role of each team member.

Section III deals with the description of bite marks in two chapters updated and expanded from the first edition. Chapter 5, "The Nature of Bite Marks," describes bite marks, their class and individual characteristics, anatomic considerations, variations, and

pathology. Chapter 6, "Reconstructive Bite Mark Analysis," discusses bite mark profiling and its limitations, as well as the importance of maintaining perspective when dealing with patterned injuries.

Section IV, *Collection of Bite Mark Evidence*, covers in nine chapters the collection of evidence by both noninvasive and invasive techniques. The updated Chapter 7, "Photography," chronicles the theory and use of visible, ultraviolet, infrared, and alternate light imaging. There are many images throughout the chapter providing graphic illustrations of the different techniques. Chapters 8 and 9 are both new to this edition. Titled "Practical Tips in Forensic Bite Mark Photography," and "Image Processing and Analysis for Evidentiary Purposes," they are important additions to the second edition. Chapter 10, "Bite Marks as Biological Evidence," is updated from the first edition. The authors make use of case examples to illustrate the recovery and identification of saliva and salivary DNA in bite mark evaluation. Chapter 11, "Bite Mark Impressions," is also updated and covers the creation and management of bite mark impressions. Chapter 12, "Microscopy Techniques," has been significantly updated and expanded. Stereomicroscopy, replication techniques, confocal laser microscopy, and scanning electron microscopy are discussed and ample images document the differing techniques. Chapter 13, "Bite Marks in Perishables and Nonperishable Items," is also updated. The remaining part of Section IV is a discussion of invasive analyses. Chapters 14 and 15 are updated and discuss the collection and preservation of specimens, histological analysis, and timing of injuries.

Section V, *Bite Mark Variables and Cases*, contains four updated chapters: Chapter 16, "Animal Bites"; Chapter 17, "Carnivore Bite Marks"; Chapter 18, "Human Bite Marks"; and Chapter 19, "Patterns, Lesions and Trauma Mimicking Bite Marks." Each of these chapters uses case reports and images to illustrate the features covered and the protocols for managing the analysis of these patterned injuries. Chapter 19 highlights the importance of gathering all related information to minimize the possibility of misdiagnosis of a patterned injury.

Section VI, *Research*, consists of four new or completely reworked chapters. Chapter 20, "Current Context of Bite Mark Analysis and Research"; Chapter 21, "Research, Emerging Technologies, and Recent Developments"; Chapter 22, "Experimental Bite Marks and Histology"; and Chapter 23, "Genotypic Comparison of Bacterial DNA Recovered from Bite Marks and Teeth" provide important updates to the first edition of the text. This section contains many photographs of bite marks apparently created mostly in porcine or cadaver skin. The clear identification of the bitten media in the captions for these images could prevent the assumption by readers that these images represent images observed in real-world dynamic bite mark cases involving human skin. As

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presented, these images may be misleading to casual observers or the inexperienced.

Sections VII, VIII, IX, and X each contain one updated chapter. They detail collection of evidence from suspects, methods of comparison, reports, and precautionary measures. Each of these sections provides a comprehensive discussion of those topics.

Section XI, *Legal Considerations and the Courtroom*, contains six chapters, two of which are new. Chapter 30 (new), "Contracting with the Expert Witness," introduces and explains expert contracts and discusses the components of a valid contract. Chapter 33 (new), "Wrongful Convictions and Erroneous Bitemark Opinions," offers historical information that, for those who practice bitemark analysis, should encourage sober introspection. There is also the important Chapter 32, "Legal Liability of an Expert Witness." An additional chapter detailing the appropriate application of bitemark analysis would have been a useful addition. For example, in some of the cases discussed in Chapter 33, alternate analyses by other forensic odontologists were presented in court that may have better represented the state of the art of bitemark analysis at the time. Discussion of those and other cases illustrating the appropriate use of bitemark analysis would add needed balance to reports in the media and elsewhere that are heavily weighted to the negative

aspects of the inappropriate application of bitemark analysis in those problem cases.

Section XII, *Contentious Issues*, contains two updated chapters: Chapter 34, "Reliability of Bitemark Analysis"; and Chapter 35, "Resolving Issues in Bitemark Analysis." Both chapters deal in part with the issues discussed in the previous paragraph and are thought provoking.

Section XIII contains the appendices, six in number, providing useful information for those interested in the field of bitemark analysis.

In summary, *Bitemark Evidence: A Color Atlas and Text, 2nd Edition* contains information useful for many: forensic odontologists, first responders, crime scene investigators, law enforcement personnel, judges, attorneys, medical examiners, coroners, dentists, physicians, and nurses. The material will be interesting to both the novice and the experienced. It should also be helpful to those charged with oversight of the forensic sciences. The second edition is more comprehensive than the first; it is well illustrated with high-quality grayscale and color images. The book details and documents the art, science, and complexities of bitemark analysis. *Bitemark Evidence, 2nd Edition* is an exemplary, comprehensive work, and as stated in the forward by Vale, it remains unchallenged in its field.