

## BOOK REVIEW

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### Review of *Broken Bones, Anthropological Analysis of Blunt Force Trauma*

**REFERENCE:** Galloway A. *Broken Bones, Anthropological Analysis of Blunt Force Trauma*. Charles C. Thomas, Springfield, Illinois, 1999, 371 pp., \$66.95.

This volume should grace the shelves of all forensic anthropology and bioarchaeology laboratories. It serves well its dual goals: 1) to provide an overview of the principles for interpreting blunt force trauma; and 2) to illustrate through case studies the significance of the individual in assessing skeletal trauma. While overall there are 16 collaborators, they are visible only as coauthors of the initial chapter and in the case studies which make up approximately 20% of the text. Galloway thus plays a major role both as editor and author (Chapter 1–7 and Case Study C).

The volume begins with two useful, general chapters that place blunt force trauma within the broader realm of forensic anthropological endeavors (Chapter 1) and then examines the biomechanics of fracture production (Chapter 2). The following four chapters examine fracture patterns in the skull (Chapter 3); the axial skeleton (Chapter 4); the upper extremity (Chapter 5) and the lower extremity (Chapter 6). While depending upon rich clinical sources, these chapters are freed of the necessity of detailing treatment and prognosis and are therefore well-designed for an anthropological audience.

In Chapter 7, Galloway develops general perspectives on three forms of blunt force trauma: homicidal injuries, vehicular trauma, and falls. This discussion leads logically to eight case study examples (A–H) that range from aircraft crashes to focused investigations of healed craniofacial fractures. Through exquisite detail, they well illustrate some of the more difficult interpretations the forensic anthropologist faces when assessing blunt force trauma, for example, differentiating between antemortem, perimortem, and postmortem trauma. The first contribution is a collaborative case study (A), in which the differing lines of evidence drawn from anthropology (Marks), odontology (Hudson), and pathology (Elkins) are combined. This effort well illustrates the significance of forensic anthropology in cases where the subject of inquiry is recently deceased. Brief contributions by Rockhold and Herrmann (B), Galloway (C), Haglund (D), and Simmons (E) provide examples of biomechanical principles applied to vehicular trauma (B); the importance of developing detailed profiles prior to reviewing case details of confession (C); how distinctions between antemortem and

perimortem fracture assist in building and verifying medical histories (D); and the challenge of distinguishing perimortem from postmortem, taphonomic processes (E). A 19th century medical school collection of skulls is studied by Nelson and Thornburg (F) to investigate the survival of blunt force trauma to the neurocranium in relationship to soft tissue structures. Three examples are chosen for presentation here. Wienker and Wood (G) report an individual whose congenital asymmetries and healed blunt force trauma had been mistaken for a pathological condition (chronic torticollis). The final case study (H), by Fulginiti, Czuzak, and Taylor, compare and contrast fractures sustained in “head-on” (45–90°) aircraft-ground impacts and those of lower angles (0–45°). The former tend to produce multiple complex fractures that compromise body integrity, relatively unaffected by aircraft size. Massive internal injuries and multiple fractures, but not dismemberment, are typically associated with low angle impact.

This book is an excellent effort, rich in references, and with few exceptions (a metatarsal has migrated into the upper extremity on page 154) free of errors. Students of preindustrial and contemporary nonwestern contexts must recognize that age and sex-related risk factors, as reported here, are largely drawn from European and North American clinical contexts. It is clear that while they are occasionally reported, the author/editor eschews medical classification systems and instead advises the anthropologist to develop careful, detailed descriptions. While such detailed descriptions are, indeed, a crucial first step in forensic anthropological casework, medical classifications may help the anthropologist to link to clinical studies that explore alternative causes of fractures and their relative frequencies. While reference samples must be carefully chosen and the Western bias noted above considered, medically-based classification systems can be a significant part of the evaluative process. As Galloway emphasizes, however, they should not supplant carefully drawn descriptions. While the volume is fairly rich in illustrations, I might have wished for a few more in the section on distinguishing antemortem, perimortem, and postmortem changes. Such determinations are challenging and verbal descriptions without illustration are seldom effective.

Quibbles aside, this is a very good book which should rapidly become a standard source for those who study broken bones—ancient or modern. Galloway is to be commended for the depth of scholarship reflected here, which represents an in-depth appreciation of vast medical and anthropological literatures.

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