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BOOK REVIEW

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Review of: *Bone Histology: An Anthropological Perspective*

REFERENCE: Crowder CM, Stout SD, editors. Bone histology: an anthropological perspective. Boca Raton, FL: CRC Press, 2012, 385 pp (401 pp with front matter included).

The use of histological techniques to assess information about bones and teeth is not a new application, nor is it a recent addition to the field of physical anthropology. However, in the age of technological advances, microstructural analysis of skeletal tissues has become an increasingly useful tool by which bioarcheologists, paleoanthropologists, and forensic anthropologists may be able to glean additional information about these remains.

Drs. Crowder and Stout have compiled a detailed text regarding the current utilization of the histological examination of bones and teeth within the field of anthropology. The text begins with the basic biological foundation of bone histology. This section provides a comprehensive discussion of bone growth, development, modeling, and remodeling and relates each of these processes to their individual histomorphological signature in skeletal tissues. This discussion plays an important role in setting the theoretical framework for the rest of the text to build upon.

From this discussion of the normal biological processes of bone and teeth, the volume continues with a detailed explanation of the various uses of the histological signatures of skeletal tissues. In particular, there are individual chapters describing the use of histomorphological analyses to determine the species origin of skeletal material and to determine the age-at-death of human skeletal remains. Several additional chapters focus on the use of histomorphological analysis to assess biomechanical loading on long bones and fracture risk assessment.

The text further describes the use of histomorphological analysis to assess the taphonomic processes acting upon a particular assemblage as well as its use in the classification of bone pathology using a histomorphological signature.

The volume provides a detailed account of the use of light microscopic analysis for the assessment of archeological remains. This chapter underscores how valuable histomorphological evaluation of remains can be for both bioarcheologists and paleoanthropologists working with these skeletal remains.

Additionally, the volume details several large caches of curated study material that can be used for research purposes. These collections provide a wealth of data for those researchers interested in both human and nonhuman histological material.

Finally, the volume concludes with two chapters that provide an explanation of current technologies used in the histological analysis of bone. This includes a chapter that elucidates the requirements for histological laboratory setup for those who may not have access to these facilities or for those interested in histological research. The final chapter of the text provides a review of three-dimensional methodology and a discussion of high-resolution imaging advances that may provide a nondestructive avenue for the histological analysis of remains.

The editors indicate that this text was developed through conversations with colleagues and encouragement from a 2009 Forensic Histology Workshop. They suggest that "[t]hrough detailed discussions at this workshop the authors fully appreciated the need for a comprehensive volume covering theoretical and applied aspects in histological analysis on skeletal tissue" (p. VII). It is my opinion that this volume succeeds at providing the theoretical background as well as the practical application of histological analysis of bones and teeth. Additionally, the text branches out to include burgeoning research that may provide future methods for less destructive analysis of the microstructural signature. I would recommend this text to anyone interested in a complete discussion of bone growth, development, and remodeling at the cellular level as well as those interested in conducting research using skeletal tissue histology. This text is also a wonderful reference for those interested in alternative analytic methods for bones and teeth.

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