

# *Fundamentals of Forensic Anthropology*<sup>1</sup>

By Linda L. Klepinger<sup>2</sup>

Reviewed by Jeri DeYoung<sup>3</sup>

As an archeologist and cultural resource manager in the National Park Service, I have participated in a number of cases involving inadvertent discoveries of prehistoric human remains, mostly involving violations of the Archeological Resource Protection Act of 1979, and I have interacted with the concomitant sheriffs, magistrates, and medical examiners. But I have no formal education in physical or forensic anthropology, so I am, a "less specifically prepared reader" (p. 6) as Linda Klepinger defines one of the targeted audiences for her book, *Fundamentals of Forensic Anthropology*. Klepinger's primary audience is "advanced undergraduates, graduate students, and post graduates" (p. 7) who have some knowledge of skeletal anatomy and statistics. While her book is focused more towards the practitioner, those of us who dabble on the fringes of forensic anthropology gain, by reading this text, a better understanding of the discipline, where and when it can be useful with its limitations and strengths, as we glimpse into the culture of death, crime, and anthropological forensics.

Klepinger's goal is to present the fundamental information needed for practicing forensic anthropology. She focuses on the identification of skeletal remains, and the anthropologist's role in civil and/or criminal investigations. The author is careful to point out that *Fundamentals of Forensic Anthropology* is not a "cookbook" (p. 7) for identifying human remains. More importantly, it is a guide for assessing and employing the methods and techniques of the discipline.

Klepinger uses primary source materials to demonstrate the accuracy and inadequacy of techniques used in forensic anthropology. She evaluates and analyzes the strengths and weaknesses of methods used to assess skeletal remains, assign sex, estimate age from the degree of epiphyseal union of the ends of long bones, decipher ethnic ancestry, estimate stature from long bones, and estimate the post-mortem interval (time elapsed since death). She demonstrates how models and formulas, biased by sample size and population(s) tested, can limit the applicability of

a technique. Klepinger notes, too, that personal bias can influence interpretation of remains leading to incorrect analyses and conclusions. And she reminds us of the "inherent variability in human biology" (p. 7) that makes forensic anthropology inexact. She, in effect, issues a caveat to practitioners, which is to be cautious, know and understand the test(s) you are applying, cross test, and evaluate. Klepinger's review of the literature, in these chapters, is not exhaustive, nor is it meant to be. She provides references for additional research and encourages readers to consult and examine other sources.

Klepinger traces the history and context of forensic anthropology from the late nineteenth century to the present day. She credits Dr. George A. Dorsey (1868-1931), who was awarded a Ph.D. in anthropology from Harvard in 1894 (p. 8), as "the first *anthropologist* [author's emphasis] to testify in an American criminal trial" (p. 11). Dorsey was called upon as an expert witness to give testimony in the Adolph Luetgert case – a case involving Luetgert's missing wife, Louisa, his sausage factory, and a boiling vat. Klepinger notes that although Dorsey's conclusions about the scant bone remains recovered during the investigation (p. 12) were highly controversial, a relationship was born between anthropology and the medical-legal world. The work of Dr. Wilton Marion Krogman (1903-1987) in the late 1930s solidified this relationship. Krogman informed law enforcement of the capabilities of physical anthropologists in personal skeletal identification (1939), and he later wrote the first text on forensic anthropology (1962).

The author chronicles the role of physical anthropologists during World War II and the Korean War, and the development of the U.S. Army Central Identification Laboratory. Remains recovered following these, and other, military actions provided researchers an opportunity to develop and test new techniques for identification, albeit, on specific populations, and paved the way for anthropologists to participate in recovery efforts of mass disasters and in investigations of human-rights abuses.

By the 1970s, the ranks of those practicing forensic anthropology was large enough that the Physical Anthropology Section of the American Academy of Forensic Sciences was established, and in 1977, the American Board of Forensic Anthropology (ABFA) was created. The ABFA conducts formal examination and certification of anthropologists and designates qualified practitioners as Forensic Anthropologists. Klepinger concludes this chapter by noting the current, but not impossible, challenges facing the discipline, which are a lack of licensure for practitioners, increased need for forensic anthropologists coupled with shrinking budgets, fewer skeletal collections for hands-on learning, and an overall lack of recognition of case work as an integral component of academia.

Beyond personal identification, forensic anthropologists play an essential role in the courtroom as expert witnesses. Klepinger reviews the qualifications required for experts to testify, and the procedures used in direct or cross examination. She contemplates society's interest in the forensic sciences, and considers how the fanciful impacts the real, that is, how the media, and forensics-focused television shows can create a false reality where identification is always certain. An unfortunate, but actual, consequence can be that a jury's expectations of the discipline, and the expert witness, are impracticable. Klepinger also notes that expert witnesses can present false realities through biased testimony. She provides the example of Dr. Louise Robbins, a professor of anthropology at the University of North Carolina at Greensboro, whose biased testimony and lapse in ethical behavior (p. 142), led to the convictions for rape and murder of two innocent men. For Klepinger, expert testimony, professional conduct, and ethical behavior are integral to each other; they are the fundamental components for practicing forensic anthropology.

The author concludes with a brief review of genetics and DNA (deoxyribonucleic acid). She tells of their history, applicability, and limitations for purposes of identification, as well as the responsibilities of expert witnesses, when interpreting results of DNA analyses. Klepinger's skill as a writer and her wit make this book and the discipline of forensic anthropology accessible. Quips about scavenging pets and "bugs on drugs"

(p. 119), and quotes from Shakespeare highlight Klepinger's sense of humor, offer insight into the world view of forensic anthropologists, and make this book a pleasure to read. The author accomplishes her goals of providing (1) the essential information needed to practice forensic anthropology and (2) the fundamental information needed to be a forensic anthropologist. Along the way, she sets the standard for how textbooks should be engagingly written with clarity and humor. ○

## Notes

1. Hoboken, New Jersey: John Wiley and Sons, Incorporated. 2006. 199 pages, three parts, 12 chapters, illustrations, bibliography, index. Cloth \$94.95 U.S.

2. Linda L. Klepinger's Ph.D. in anthropology is from the University of Kansas. She is a professor emerita in the Department of Anthropology, University of Illinois at Urbana-Champaign. She may be reached at 109 Davenport Hall, Department of Anthropology, University of Illinois at Urbana-Champaign, 607 South Mathews Street, Urbana, Illinois (IL) 61801 USA. She is reachable by e-mail at [klepinger@uiuc.edu](mailto:klepinger@uiuc.edu) and by telephone at 217-333-1301.

3. Jeri DeYoung's M.A. in anthropology is from Northern Arizona University. She is a cultural resource specialist at the Denver Service Center of the National Park Service, U.S. Department of the Interior. She may be contacted via the U. S. Postal Service at the Division of Transportation, Denver Service Center, National Park Service, 12795 West Alameda Parkway, Post Office Box 25287, Denver, Colorado (CO) 80225-0287 USA, by e-mail at [jeri\\_deyoung@nps.gov](mailto:jeri_deyoung@nps.gov) and by telephone at 303-969-2576. The views expressed do not necessarily represent those of the National Park Service, the Department of the Interior, or the United States Government.

## References Cited

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1939 "A Guide to the Identification of Human Skeletal Material." *FBI* [U. S. Federal Bureau of Investigation] *Law Enforcement Bulletin* 8: 3-31.  
1962 *The Human Skeleton in Forensic Medicine*. Springfield, Illinois: Charles C. Thomas Publisher. Updated in 1986 as the second edition with M. Y. Iscan as co-author.

# *Fundamentals of Forensic Anthropology*<sup>1</sup>

By Linda L. Klepinger<sup>2</sup>

Reviewed by Gabrielle Jones<sup>3</sup>

**F**undamentals of Forensic Anthropology by Linda L. Klepinger first provides a background of forensics as the application of scientific knowledge to legal questions, followed by a history of the evolution of forensic anthropology. An extensive overview of forensic anthropology is summarized in approximately 150 pages. Klepinger discusses methods of personal identification, including initial assessments of skeletal remains, the assignment of sex as gender identification, age estimation, criteria for deciphering ancestral background, stature estimation and skeletal markers of activity and life history. The role anthropologists play in medical and legal investigations is discussed, as is professionalism and ethics. Additionally, there are sections describing aspects of the postmortem period, genetics and deoxyribonucleic acid (DNA), which, of course, comprises the organic chemical coding of biological information distinctive to individuals for the manifestation and transmission of inherited traits. It is amazing how many topics are thoroughly summarized in so few pages in this book.

In Klepinger's overview of her book, she describes the emphasis of *Fundamentals of Forensic Anthropology* as following two areas of forensic anthropological work: (1) the quest for personal identification from skeletal remains and (2) the role of the anthropologist in broader medical-legal investigation. She accomplishes this juxtaposition beautifully. She also discusses quality control and the importance of specific training in forensic anthropology to do such work. She offers a disclaimer that this book alone will not make one an expert. This caution shows her dedication to the discipline and her commitment to the proper education and training of individuals seeking careers in this field.

Klepinger also describes the target audience as advanced undergraduate and graduate students, as well as post-graduate students who are familiar with skeletal anatomy and have had some introduction to statistics. I agree. In my opinion, this is not a classic textbook. To fully

understand this book in its entirety and for it to be truly beneficial readers must have some background in forensics and/or forensic anthropology. An osteology course is a must, as well as some type of forensics laboratory or statistics course applied to criminal investigation. She mentions introductory statistics as well. This is important as she uses a few formulas and utilizes tables and charts in describing data throughout this book. Additionally, because no definitions are provided and this book is really an overview of the above mentioned topics, a background in forensic anthropology is an important prerequisite in appreciating this book. If the desire exists at all in expanding the target audience, perhaps some type of index or glossary could be included.

*Fundamentals of Forensic Anthropology* is very good reference material. For every aspect and method of skeletal identification, Klepinger provides an example including data and its conclusions. She cites research from numerous forensic anthropologists and infamous projects and cases. Despite the plethora of research and case studies documented, she states that the references are far from a comprehensive survey of the published literature in this field. She is also extremely forthright in describing the limitations of forensic anthropology and provides discussions regarding areas of uncertainty and disagreement.

The one drawback that I can see regarding this book is that parts of the first section are difficult to read. Some sentences are long and verbose. I only bring this up because when reading a description of data analysis or regarding any scientific material in general, uncomplicated sentences are more comprehensible. Conversely, short, concise sentences are not necessarily required, as this is not a textbook, nor claims to be so.

In conclusion, I enthusiastically recommend *Fundamentals of Forensic Anthropology* as a reading in upper level forensic anthropology courses. It is the only book with which I am familiar in this

subject that is both strongly theoretical and practical. I also recommend it to all forensic-science professionals as a helpful reference to have at hand. ○

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ment of Anthropology, University of Illinois at Urbana-Champaign, 607 South Mathews Street, Urbana, Illinois (IL) 61801 USA. She is reachable by e-mail at [klepinger@uiuc.edu](mailto:klepinger@uiuc.edu) and by telephone at 217-333-1301.

3. The M. A. in anthropology of Gabrielle Jones is from the University of Memphis. She is a graduate student working for her M.P.H. (master's degree in public health) in the School of Medicine at the University of Pennsylvania. Her address via the U. S. Postal Service is 640 North Broad Street, Philadelphia, Pennsylvania (PA) 19130-3441 USA, 323-326-4833 is her cell telephone number, and her e-mail address is [jonesga@mail.med.upenn.edu](mailto:jonesga@mail.med.upenn.edu).

# *Fundamentals of Forensic Anthropology*<sup>1</sup>

By Linda L. Klepinger<sup>2</sup>

Reviewed by Stephanie Matlock-Cooley<sup>3</sup> and Kimberly Spurr<sup>4</sup>

**F**undamentals of Forensic Anthropology is a book that is consistent with the times, considering the attention and popularity that *Crime Scene Investigation* (CSI) shows have had recently. It is also becoming a popular major for college students, and we even offer a minor in forensics at our college.

Please note that this book is reviewed (1) as a potential textbook for a college class that Stephanie Matlock-Cooley would be teaching and (2) as a reference book that Kimberly Spurr as co-reviewer would use as a consulting field anthropologist who specializes in human-remains identification.

In the introduction, the author does a great job of giving an overview of what the book will try to teach as well as her intent to provide, "the *core knowledge* [author's emphasis] that one needs to know in order to practice anthropological forensics" (p. 6). She also clearly emphasizes what the book will not contain or teach. It gives the reader a clear picture in what they are about to undertake. We also appreciate the sentence that warns the reader that the book will not make them an expert. This is a critical sentence with which Kimberly Spurr agrees, who has spent years in the field and is now quite comfortable identifying human remains, but would not have been, based on one book such as *Fundamentals of Forensic Anthropology*.

Chapter 2, "The Role of Forensic Anthropology in Historical Context," succeeds in capturing the audience. Students are often wary of a book that could be too technical or "boring" and will glance over the chapters. This chapter captivates its audience with the historical account of the German-immigrant sausage maker in Chicago and his wife's disappearance and the "first" anthropologist as forensic scientist, George A. Dorsey, who was called upon for his expertise at this murder trial in 1897 (pp. 11-12). This story helps to increase the student's desire to read more.

In Part II, "Towards Personal Identification," the analysis begins and continues in the chapters

that follow. Each chapter achieves a goal of clearly focusing on one topic at a time. Different topics essential in identifying human remains are presented with accompanying questions: Are the bones we have found even human? Do we have a female or male? What is their ancestry? As a reference it is quite handy to go to the desired chapter and focus on the specific topic needed. Other information the author imparts includes the important distinction that adult bones often look nothing like juvenile bones, as most field anthropologists can testify.

It is in Chapter 4 "Assignment of Sex," where there lies some difficulty. This chapter may be one of the most important aspects of forensic anthropology, along with the ageing of a skeleton. This chapter was relatively short and should have included more illustrations and photographs. We also noted that the photographs on pages 28 and 29 were not completely labeled. This is crucial for a student who would not necessarily know what the *pre-auricular surface* is, or where. Arrows would help this situation, and be more informative. More detailed photographs of this crucial distinction could have been included. The *pre-auricular sulcus* is a skeletal difference that many field anthropologists use and the details of this should have been addressed more extensively. Figure 4.2 is extremely vague and a student would have to look at other reference material to know what the author is trying to indicate. The next chapter, Chapter 5, "Age Estimation," which again is of great importance in the identification of the age of the skeletal remains, is covered in better detail. However, both reviewers feel more illustrations and or photographs would have been important in identifying some of these traits. As this field is so incredibly visual, certain visual aids are obviously lacking here.

The author is very much self-aware and quick to point out the sensitive issue of cultural identity/ethnicity and labels it "ancestry." Her attention to this potentially sensitive issue is apparent. Again, Chapter 6, "Deciphering Ancestral

Background," lacks detail in the illustrations and captions on the photographs, which would make them more useful. She often relies on the reader to figure out what is being addressed in each photo. The discussion in Chapter 8, on activity is a bit frustrating in two aspects. Here the author's language becomes highly technical and would lose the student. There are no real examples given of activity in life that would be exhibited in the skeleton, such as a mechanic having thickened finger bones. Such anecdotes can again help with the visual nature of this field. In addition, one point we do wish to emphasize is that the language throughout the book switches from easily read, colloquial expressions to technical, more difficult ones. An editor could have helped make this disparity flow better.

Part III, "Principal Anthropological Roles in Medical-Legal Investigation," is a very important synopsis of the field of forensic anthropology today. Again the CSI television show makes the analyzing of evidence look easy and that it is done quickly overnight. I think the author does a good job of showing the complications that arise in this field. She also points out that "experts" in this field need to "interpret this as a warning to forensic anthropologists. Expert testimony based on experience and knowledge may no longer be sufficient." Most experts need to back up their statements with the science and the methodologies used.

Chapter 11, "Professionalism, Ethics, and the Expert Witness," comes back to providing useful anecdotes of court proceedings, again helping to captivate and interest the audience. The next and last chapter ends with DNA (deoxyribonucleic acid) analysis. This chapter appears rushed and, honestly, has a dizzying effect. To adequately embark on this topic would require more introducing. A student would need to have taken a solid genetics course to fully understand much of what the author is trying to impart. A more general synopsis with references to other illustrative materials would likely be more effective. Overall,

we think the book serves as an appropriate textbook for an advanced student; however, other reference materials would need to be close at hand to maximize the book's effectiveness. ○

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3. Stephanie Matlock-Cooley obtained her M.S. in biology from the Department of Biological Sciences at Montana State University at Bozeman with specialties in wildlife biology and anatomy. She has two B.A. degrees, one in anthropology and the other in biology, and was a faunal analyst in archaeology for several years before deciding to chase live animals instead. She teaches biology, including human anatomy, at Mesa State College in Colorado and can be reached there at 1100 North Avenue, Grand Junction, Colorado (CO) 81501-3122 USA. Her telephone number is 970-248-1941, and her e-mail address is [smatlock@mesastate.edu](mailto:smatlock@mesastate.edu).

4. Kimberly Spurr received her M.A. from the Department of Anthropology at Northern Arizona University, specializing in physical / biological anthropology, and has worked in the field of identifying human remains for some years. She is currently self employed and can be reached at [kimberly.spurr@nau.edu](mailto:kimberly.spurr@nau.edu), at 928-607-4619, and at 175 North Pawnee Street, Flagstaff, Arizona (AZ) 81601-9532 USA.

# *Fundamentals of Forensic Anthropology*<sup>1</sup>

By Linda L. Klepinger<sup>2</sup>

Counterpointed by Linda L. Klepinger

This is a response to an invitation to counterpoint three reviews, written by Gabrielle Jones, Stephanie Matlock-Cooley and Kimberly Spurr, and Jeri DeYoung of my book, *Fundamentals of Forensic Anthropology*. These reviewers have accurately and succinctly presented not only the content overview of the book, but have also captured its intended spirit. The book is an attempt to present the basics of the field while also serving as a caution that all techniques are not created with equal reliability, nor have many been properly evaluated. Moreover, it seeks to exemplify how to recognize and evaluate the lack of proper evaluation. None of the reviewers bemoan the absence of multitudinous published specialized tables and formulae into one handy reference volume—an approach that would have induced narcolepsy in both author and readers.

Nevertheless, as Jones and Matlock-Cooley and Spurr point out, inclusion of a glossary and more specifically labeled skeletal photographs pertaining to the personal identification section would have been helpful to many students. I confess that in describing the target audience I was inadvertently somewhat misleading. Familiarity with skeletal anatomy would include students with a good anatomical background, but in actuality I wrote the book addressing those with a specific anthropological osteology class under their belt. There is a difference, illustrated very well by the case of the pre-auricular sulcus. Although the pre-auricular sulcus is a major

anatomical landmark in the anthropology literature, it is likely not even mentioned in anatomy class. My recommendation is that serious readers without the osteology course invest in one of several handbooks or textbooks on human osteology from an anthropology perspective.

I do not deny that the writing may be uneven in style and technicality; this is due to both author idiosyncrasy and the level of technical detail demanded by the topic. I would hope that the non-technical sections would provide respite between heavier-going subjects. A more presumptuous wish would be that the lighter passages seduce the interested student into actually reading and cogitating on the parts that guide critical thinking.

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