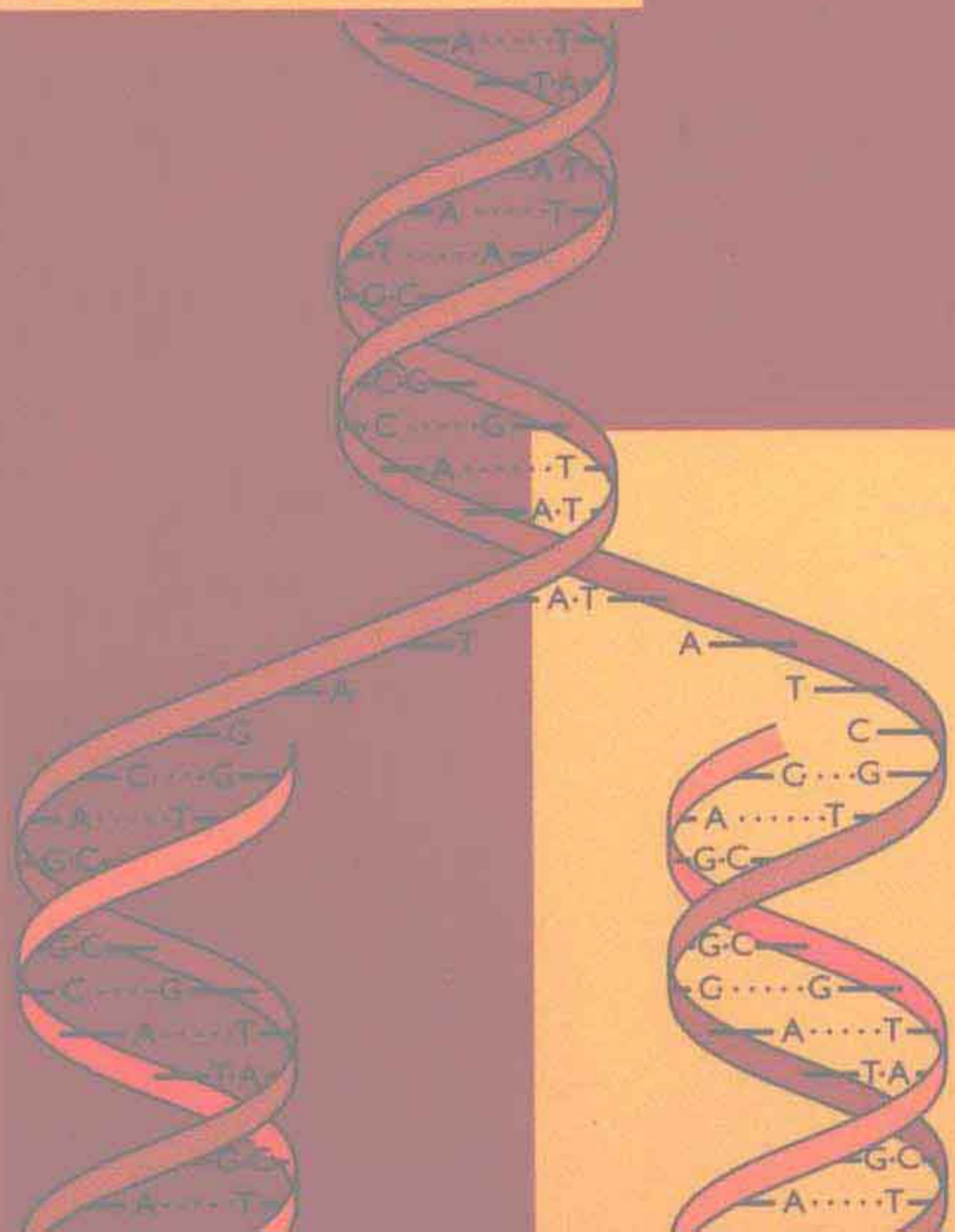


BIOLOGICAL ANTHROPOLOGY

Michael
Alan
Park





BIOLOGICAL ANTHROPOLOGY

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To the Instructor

Contemporary biological anthropology is a dauntingly broad field. It studies humans in the same way that zoologists study their subject species—from a perspective that includes *all* aspects of the species' biologies and that emphasizes the interrelationships among those aspects. In addition to the traditional topics of the human fossil record and human biological variation, bioanthropology includes primatology, modern technologies in molecular genetics, human demography, development of the individual, life histories, and such applications as forensic anthropology. Bioanthropology also appreciates that our cultural behavior is an integral part of our behavior as a species.

No wonder, then, that I (and others I have spoken to) have had difficulty in covering the entire field in a one-semester course. We have ended up leaving out important aspects (or paying them little more than lip service), or we have sacrificed a sense of bioanthropology as an integrated whole to a rushed and encyclopedic inventory of all the field's current topics.

As modern bioanthropology increased in breadth and complexity over the past several decades, so, too, did the size and detail of introductory texts. Several are now more than 600 pages long. To date, attempts to produce shorter introductory texts have consisted of simply cutting out parts of these existing tomes, resulting in rather uneven, sometimes oddly organized presentations of the field.

I wrote this text in order to present a diverse scientific field to beginning students. Here are the major assumptions that guided my writing:

- Because this is a text for introductory courses, I have tried to reduce the field to its most basic information. No part of the discipline has been left out; instead I have achieved brevity by managing the amount of detail and including only the information necessary to clearly and accurately convey the basic themes, theories, methods, and facts of bioanthropology.
- The text assumes that students have limited background knowledge of the material and little understanding of what science is and how it works. The text *explains* rather than simply itemizes facts and ideas,

and it does so, as much as possible, in a narrative format. A lesson from the study of folklore is that a story is far more easily understood and retained than is a list of facts.

- I want students to feel that they are reading a text written by a real person who has participated in the field. I have tried to achieve a balance between an informal and formal style, and I have not shied away from the occasional colloquialism or personal comment.

FEATURES

I've included a number of features which I hope will make this text a more useful learning tool for students.

- *I've used the scientific method as a theme throughout the book to demonstrate the integrity and nature of bioanthropology.* I describe the scientific method and then, because this is anthropology, compare science to knowledge garnered from belief systems, discussing the relationship of these two spheres of inquiry and knowledge within cultures. I try to show specifically how scientific reasoning has provided us with the knowledge we have about the topics in bioanthropology. For example, I've presented an extended discussion of the origin and importance of bipedalism in hominid evolution by posing questions, suggesting answers, and then testing the logic of and evidence for those answers.
- *The text is organized to help students navigate their way through what is still a fairly hefty amount of information.* To help students feel a little less at sea in the midst of new facts and ideas, I regularly refer back to previous topics and ahead to topics that will be covered. The headings I use as signposts are as descriptive as possible (for example, "Natural Selection: The Prime Mover of Evolution"). The text is not cluttered with boxes, appendixes, or inserts; if it's important, it's in the body of the text.
- *Within chapters, a consistent format helps students better understand material new to them.* Each chapter starts with an **introduction** that sets the stage and context for what's to come, which is followed by a series of **questions** that the chapter will answer. Because science proceeds by asking and answering questions, this format is also used within the body of the text. Important **terms** are in boldface and are defined in the margins at their first appearance. Each chapter concludes with a **summary** that not only recaps the important points of the chapter but also provides some new ideas and thoughts that help put the chapter into context within the whole discipline. A list of **suggested readings**,

made up mostly of nontechnical works, tells students where to find more information about the chapter topics.

- *Two glossaries, a bibliography, and a comprehensive index make information more accessible.* A Glossary of Human and Nonhuman Primates with a pronunciation guide defines taxonomic names for species discussed in the text. In addition to the running glossary within chapters, a comprehensive glossary appears at the back of the book. The bibliography gives complete references for the suggested readings and also lists technical works referred to within the text. The index helps students access information quickly.
- *The text's visual appeal enhances its readability.* Detailed, colorful charts and drawings, as well as full color photographs, underscore significant points in the text. Captions for the artwork add information rather than simply label the pictures.

SUPPLEMENTARY MATERIAL

The **Instructor's Manual** includes a test bank of about 500 multiple choice and short answer/essay questions, as well as chapter overviews, suggested activities, and lists of key words.

A **Computerized Test Bank** is available free of charge to qualifying adopters. It is a powerful, easy-to-use test generation system that provides all test items on computer disk for IBM-compatible or Macintosh computers. Instructors can select, add, or edit questions, randomize them, and print tests appropriate to their individual classes.

A set of **Color Transparencies** is also available for use on an overhead projector. Included are charts and diagrams from the text as well as several diagrams created just for classroom use.

ACKNOWLEDGMENTS

Because this is an introductory text that covers an entire field, I must go back to the very beginning of my career and thank my first teachers in bioanthropology at Indiana University, Robert Meier and Paul Jamison, and the late Georg Neumann.

In the present, special thanks to my friend, colleague, and oftentimes co-author, Ken Feder. Not only has he been a help with this project—supplying addresses, references, and computer advice—but he has, over

the last nearly twenty years, been a catalyst, if not a major element in much of my professional activity, particularly my writing.

And thanks, as always, to the folks at Mayfield Publishing, particularly sponsoring editor Jan Beatty (always gentle with the bad news about some new deadline); production editor Melissa Kreischer (always adding a bit of whimsy to the same sort of bad news); art director Jeanne Schreiber (who ensured that my scribbles were turned into an attractive art program); copyeditor Sydney Baily-Gould (who fixed a sentence I wrote a dozen years ago and have always hated); and designer Anna George (who knows that design is indeed art).

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To the Reader

The broad field of biological (or physical) anthropology deals with everything from evolutionary theory to the human fossil record to the identification of human skeletal remains from crime scenes and accidents. A detailed account of this whole field would result in an unwieldy text that would be a tough assignment for a one-semester introductory course, especially if it were assigned in its entirety.

This text is intended to truly be an *introduction* to biological anthropology. It will tell you about the many different kinds of studies bioanthropologists participate in and how they conduct them; you'll also learn about the scientific theories and data they use. All the important aspects of bioanthropology are covered here but with just the essential amount of detail. When you understand an idea from this book, then you should be able to delve more deeply into the subject if you are interested and have the basis for an even more profound understanding.

A major theme of this book is the scientific method. Biological anthropology is a science, so an understanding of how science works is essential. Because the field of anthropology studies the human species in its entirety, however, the text will examine science as a human endeavor, seeing where it fits in the realm of human knowledge.

HOW TO USE THIS BOOK

Each chapter starts with an **introduction** that sets the stage and context for what's to come, followed by a series of **questions** that the chapter will answer. Because science proceeds by asking and answering questions, this format is also used within the body of the text. Important **terms** are in boldface and are defined in the margins at their first appearance. Each chapter ends with a **summary** that not only recaps the important points of the chapter, but also provides some new ideas and thoughts that help put what you have just learned into the context of the whole discipline of bioanthropology. A list of **suggested readings** made up mostly of non-

technical works tells you where to find more information if you are interested in a particular topic.

A Glossary of Human and Nonhuman Primates defines taxonomic (scientific) names for species discussed in the text—names like *Homo sapiens* and *Australopithecus afarensis*—and tells you how to pronounce them. In addition to the running glossary within chapters, a comprehensive main glossary appears at the back of the book. The bibliography gives complete references for the suggested readings and also lists technical works referred to within the text. The index will help you more quickly access information.

Observe always that everything is the result of change, and get used to thinking that there is nothing Nature loves so well as to change existing forms, and to make new ones like them.

—Marcus Aurelius

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CHAPTER

1

BIOLOGICAL ANTHROPOLOGY

Anthropologists study
spiders, right?
—Anonymous caller