

Contents

List of Articles by Major Topic Areas	x
Concordance	xiii

PART 1 BEING A BIOLOGICAL ANTHROPOLOGIST 1

- 1 **Finding Lucy** 3
Donald Johanson and Maitland Edey (from *Lucy: The Beginnings of Humankind*, 1980)
The paleoanthropologists whose team discovered the famous hominid fossil that changed our views on human evolution share their thoughts and experiences about the discovery.
- 2 **Monkey Business in Bali: Fieldwork and Teaching Among the Temple Macaques** 8
Agustín Fuentes (prepared for this volume)
In an undergraduate field school studying behavioral ecology of macaques in Indonesia, much was also learned about the interactions of the human primate with its nonhuman relatives.
- 3 **The Homegoing** 12
Michael Alan Park (from *Lessons from the Past: An Introductory Reader in Archaeology*, 1999)
A biological anthropologist is able to apply his knowledge and skills to a very special and moving endeavor.
- 4 **Bad Breath, Gangrene, and God's Angels** 16
Katherine A. Dettwyler (from *Dancing Skeletons: Life and Death in West Africa*, 1994)
Conducting a scientific study of living peoples in a distant land can also yield some insights closer to home, as this anthropologist discovered during her research in West Africa.

PART 2 THE NATURE OF SCIENCE 21

- 5 **Sex, Drugs, Disasters, and the Extinction of Dinosaurs** 23
Stephen Jay Gould (from *The Flamingo's Smile*, 1985)
Examining three different ideas that explain the demise of the dinosaurs, Gould finds that only one fulfills the criteria of a scientific hypothesis.
- 6 **Pittdown, Paradigms, and the Paranormal** 28
Kenneth L. Feder (*Skeptical Inquirer*, 1990)
The case of a long-standing hoax in paleoanthropology provides an example of the self-correcting nature of science and a model for how science deals with claims that challenge existing paradigms.
- 7 **Science as a Way of Knowing** 32
John A. Moore (from *Science as a Way of Knowing: The Foundations of Modern Biology*, 1993)
The scientific method is only one method of inquiry, and science itself is part of and limited by the cultural system within which it is practiced.

PART 3 THE EVOLUTION OF EVOLUTION 35

- 8 The Inheritance of Acquired Characteristics (1809) 37**
Jean Baptiste Pierre Antoine de Monet de Lamarck (from *Philosophie zoologique*, 1809)
 A now-discredited model for evolution—but with a currently accepted premise—provides an example of the scientific method in operation.
- 9 Natural Selection (1858) 40**
Charles R. Darwin and Alfred Russel Wallace (from “The Linnean Society Papers,” 1859)
 The co-discoverers of natural selection describe this process of evolutionary change in these excerpts from two classic papers.
- 10 The Laws of Inheritance (1866) 45**
Johann Gregor Mendel (from “Experiments in Plant Hybridization,” 1866)
 Mendel describes his experiments with pea plants that led him to discern the basic principles of genetics.
- 11 Evolution as Fact and Theory 48**
Stephen Jay Gould (from *Hen’s Teeth and Horse’s Toes*, 1983)
 In refuting the claims of scientific creationism, Gould shows how the idea of evolution is firmly rooted within science.
- 12 Darwin’s Rib 53**
Robert S. Root-Bernstein (*Discover*, 1995)
 A teacher is confronted with the challenge of explaining to his students the differences between science and belief—and the fact that they need not be mutually exclusive.
- 13 Devolution 57**
H. Allen Orr (*The New Yorker*, 2005)
 Why “intelligent design” isn’t science but simply another ideological attack on evolution.

PART 4 THE PROCESSES OF EVOLUTION 63

- 14 Curse and Blessing of the Ghetto 65**
Jared Diamond (*Discover*, 1991)
 Explaining the high incidence of a fatal disease among Eastern European Jews provides an example of natural selection at work in a human population.
- 15 Unfortunate Drift 71**
Josie Glausiusz (*Discover*, 1995)
 With an interpretation of common diseases among Eastern European Jews different from that offered in Selection 14, Glausiusz shows the operation of other evolutionary processes on human populations and provides another example of science in action.
- 16 What Is a Species? 74**
Stephen Jay Gould (*Discover*, 1992)
 Gould defines the term *species*, explains how new species evolve, and indicates why such knowledge is important for our view of life on earth.

PART 5 THE PRIMATES AND PRIMATE BEHAVIOR 79

- 17 98% Alike? (What Our Similarity to Apes Tells Us About Our Understanding of Genetics) 81**
Jonathan Marks (*The Chronicle of Higher Education*, 2000)
 Looking at the amazing genetic similarity between humans and chimpanzees from different perspectives, we see that the meaning of that similarity depends on one's point of view.
- 18 Dance of the Sexes 84**
Sharon T. Pochron and Patricia C. Wright (*Natural History*, 2005)
 The behavioral flexibility and variation among some lemurs on Madagascar exemplify the primates' ability to adapt to unpredictable environments.
- 19 Close Encounters 89**
Craig Stanford (*Natural History*, 2003)
 How chimpanzees and gorillas coexist in a Uganda forest may shed light on the relations of early hominid groups.
- 20 Chimps in the Wild Show Stirrings of Culture 93**
Gretchen Vogel (*Science*, 1999)
 New information about behavioral traditions among our closest relatives argues for the presence of a rudimentary form of culture.
- 21 Exploring Our Basic Human Nature: Are Humans Inherently Violent? 98**
Robert W. Sussman (*AnthroNotes*, 1997)
 Have we inherited our violent behavior from our evolutionary past, and how much have studies of our closest primate relatives helped us address this question?

PART 6 HOMINID EVOLUTION 105

- 22 Born to Run 107**
Adam Summers (*Natural History*, 2005)
 A new analysis shows that endurance running (as opposed to sprinting) may have been another selective factor in the evolution of human bipedalism.
- 23 Food for Thought 109**
William R. Leonard (*Scientific American*, 2002)
 A focus on food helps explain some major events in hominid evolution, from bipedalism to big brains to migrations to aspects of the modern human condition.
- 24 "Hobbits" from Indonesia 116**
The Littlest Human by Kate Wong (*Scientific American*, 2005) 116
How the Hobbit Shrugged: Tiny Hominid's Story Takes New Turn by Elizabeth Culotta (*Science*, 2006) 121
 A still-controversial find from Indonesia of a diminutive hominid hints that our evolution may be more complex than we thought, and that science is always an ongoing, self-correcting process.
- 25 The Morning of the Modern Mind 124**
Kate Wong (*Scientific American*, 2005)
 Some new finds suggest that behavior we attribute to modern humans may be traced much farther back in time and be exhibited by hominids not always considered members of our species.

PART 7 THE BIOANTHROPOLOGY OF MODERN HUMAN POPULATIONS

- 26 Differential Mortality and the Donner Party Disaster 133**
Donald K. Grayson (Evolutionary Anthropology, 1993)
 A real-life Western drama of pioneers, death, and cannibalism becomes an example of demographic description and a study of natural selection.
- 27 Skin Deep 144**
Nina G. Jablonski and George Chaplin (Scientific American, 2002)
 New research revises some of our long-held views on the variation in human skin color, and helps us better understand this often misunderstood and misinterpreted human trait.
- 28 Evolution and the Origins of Disease 149**
Randolph M. Nesse and George C. Williams (Scientific American, 1998)
 The processes of evolution, particularly natural selection, provide new dimensions in the study of human disease beyond those of traditional medical science.

PART 8 HUMAN BIODIVERSITY 157

- 29 The Five Sexes: Why Male and Female Are Not Enough 159**
Anne Fausto-Sterling (The Sciences, 1993)
 A developmental geneticist argues that gradations among humans in biological maleness and femaleness require recognition of more than two categories on sex and gender.
- 30 An Early Racial Taxonomy from "Systema naturae" (10th ed., 1758) 164**
Carolus Linnaeus (from Systema naturae, 1758)
 The father of biological classification names and describes the human races as seen by eighteenth-century Europe.
- 31 Science and Race 166**
Jonathan Marks (American Behavioral Scientist, 1996)
 The concept of biological race and profound racial differences has been used to maintain and justify various social and political strategies, but race is not a useful concept within biology, nor is there evidence for proposed population differences in such things as mental potential.
- 32 The Third Man 173**
Matt Cartmill (Discover, 1997)
 Social and political concepts of race and racial equality can affect how we interpret scientific data about our evolutionary past.

PART 9 BIOANTHROPOLOGY AND THE HUMAN GENOME 179

- 33 The Mosaic That Is Our Genome 181**
Svante Pääbo (Nature, 2003)
 Looking at the human genome as a "mosaic of discrete segments" sheds light on our relationships among ourselves and with our primate cousins, and on our species' history.
- 34 The Chimpanzee and Us 186**
Wen-Hsiung Li and Matthew A. Saunders (Nature, 2005)
 The draft of the chimpanzee genome provides us with even more insight into the differences between our two species and the genetic definition of "human."

- 35 Genetic Ancestry Services 189**
 Trace Elements by *Sally Lehrman* (*Scientific American*, 2006) 189
 Some Comments on Genetic Ancestry Services by *Jonathan Marks*
 (from *Is Creationism Worse Than Genetic Essentialism?*, 2005) 190
 Several companies now offer to trace one's genetic roots through DNA markers. While the results are personally satisfying, there are serious limitations in the accuracy of such assessments, which speak to the nature of our genome.

PART 10 BIOLOGICAL ANTHROPOLOGY: APPLIED AND CONSIDERED 193

- 36 Babies Need Their Mothers Beside Them 195**
James J. McKenna (*World Health*, 1996)
 The controversy over the pros and cons of co-sleeping is subjected to a broad anthropological analysis, which argues in favor of the practice as a definite benefit to infants.
- 37 The Evolution of Human Birth 197**
Karen R. Rosenberg and Wenda R. Trevathan (*Scientific American*, 2001)
 The "difficult and risky nature" of human birth is placed in evolutionary perspective.
- 38 The Iceman Reconsidered 202**
James H. Dickson, Klaus Oegg, and Linda L. Handley (*Scientific American*, 2003)
 The latest research, in this classic example of the holism of anthropological method and theory, brings even further to life a 5,000-year-old mummy.
- 39 Recovery and Identification of Civilian Victims of War in Croatia 207**
Douglas W. Owsley, Davor Strinović, Mario Šlaus, Dana D. Kollmann, and Malcolm L. Richardson
 (Cultural Resource Management, 1996)
 The techniques of forensic anthropology provide a voice for victims of atrocities in the ongoing conflicts in the Balkans.
- 40 The Ethics of Research on Great Apes 211**
Pascal Gagneux, James J. Moore, and Ajit Varki (*Nature*, 2005)
 We now know more precisely than ever how similar we are to the great apes. How, then, do we treat those that we have bred for and use for the collection of scientific data? What ethical considerations take into the account the reality of captive apes' situations?
- 41 Saartje Baartman: Her Life, Her Remains, and the Negotiations for Their Repatriation from France to South Africa 215**
P. V. Tobias (*South African Journal of Science*, 2002)
 The history of scientific thinking on the subject of human racial variation is encapsulated in the story of the "Hottentot Venus," a story that finally has a good ending.
- 42 Are Humans Still Evolving? 222**
Michael Balter (*Science*, 2005)
 While we sometimes think that culture has brought a halt to evolution by natural selection in humans, the reality is quite different, and we know that natural selection has recently shaped and is still shaping our species.

Glossary G-1

Index I-1