

8th Edition



HUMAN KIND EMERGING

BERNARD G. CAMPBELL

JAMES D. LOY

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EIGHTH EDITION

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JAMES D. CAMPBELL

University of Rhode Island



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PREFACE

Humankind Emerging, first published in 1976, is one of the longest-running anthropology texts. You hold in your hands the eighth edition of this book, which generations of students have found useful in introductory anthropology, physical anthropology, and human evolution courses. The product of the collaboration between a paleoanthropologist (Bernard G. Campbell) and a primatologist (James D. Loy), *Humankind Emerging*, treats all the subdisciplines of physical anthropology as well as several related fields but focuses mainly on paleoanthropology—the science concerned with the collection and interpretation of the fossil and cultural evidence of human evolution. Through the book's eighteen chapters, the reader learns what we know of how, when, and where humans came to exist. The investigation of our past is exciting, and *Humankind Emerging* conveys this excitement to students who are studying physical anthropology for the first time.

In this new edition, we have made every effort to remove outdated material and to add the latest discoveries and theories. The latter aspect of this revision has been a particular challenge, since reports of new fossils and new analyses appear constantly in scholarly journals and monographs. Nonetheless, we believe we have incorporated the main paleoanthropological developments through the early months of 1999. Significant additions and changes to the book include:

- Revision of the genetics chapters, with new material on natural selection, genetic drift, and the mechanisms of speciation.
- New information from primate field studies, especially those focused on the behavior and ecology of the various ape species.
- Updated speculations about the characteristics of humans' last ape ancestor.
- Descriptions of the latest discoveries of fossil primates, particularly as they pertain to the early apes' evolution of knuckle-walking and/or suspensory locomotion.
- A taxonomic revision of the Hominidae that sinks the taxon "archaic *Homo sapiens*" and recognizes or describes the following species for the first time: *Ardipithecus ramidus*, *Australopithecus anamensis*, *Australopithecus bahrelghazali*, *Homo heidelbergensis*, and *Homo neanderthalensis*.
- Detailed lists of technical diagnostic traits for each of the hominid species (this material is organized into an end-of-book appendix).
- Descriptions of the latest hominid fossil finds, including australopithecine material from Chad, *Homo erectus* specimens from Ceprano (Italy) and Venta Micena (Orce, Spain), and the oldest *Homo heidelbergensis* remains from Gran Dolina (Atapuerca, Spain).
- Expanded treatments of the various theories that account for the appearance of anatomically modern humans, including information on Neandertal mtDNA analyses, Y-chromosome studies, and the genetic ancestry of modern Chinese populations.
- A revised discussion of race and anthropologists' varying views on the applicability of this biological concept for humans.

As in previous editions, the extensive illustrations provide students with important visual supplements for learning physical anthropology. To this end,

more than fifty new photos, figures, drawings, and tables have been added. Of particular interest are the new tables that present data on the comparative anatomy of apes and humans. Also, a third color photo essay has been added that profiles a selection of current anthropologists, allowing students to “put a face” on the discipline.

Finally, we have tried to make the new edition of *Humankind Emerging* an improved teaching tool through the addition of several new pedagogical features. These include:

- A series of boxed items that describe the relevancy of physical anthropology for students’ everyday lives.
- “Mini-Timelines” in the Overview sections at the start of most chapters that alert students to significant fossil discoveries or other events and give their geologic age or date in history.
- An expanded running glossary and end-of-book definitions.
- Lists of pertinent Internet (WWW) sites and search terms at the end of each chapter.
- Supplementary reading lists at the end of each chapter.

Humankind Emerging was originally developed from material first published in Time-Life Books’ *Emergence of Man* series and *The Life Nature Library*. *Humankind Emerging*, Eighth Edition, continues to benefit from the use of certain aspects of this material. Our thanks go to the authors, editors, and consultants who worked on this edition. Teachers and students who used earlier editions of the text have provided constructive suggestions for change. Many friends and colleagues were generous with their time, comments, and materials, and among them special thanks go to Tim White and Mark Schmidt for providing color photographs. Several anthropologists helped especially by sharing their thoughts in careful and detailed reviews. These reviewers included:

George J. Bey III, *Millsaps College*
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Finally, we would like to thank our wives, Susan Campbell and Kent Loy, whose companionship and love sustain us, whose help is indispensable, and who have the humanity to pry us away periodically from our word processors.

Bernard G. Campbell
James D. Loy

INTRODUCTION

*Know then thyself, presume not God to scan;
The proper study of mankind is man.
Placed on this isthmus in a middle state,
A being darkly wise, and rudely great:
With too much knowledge for the skeptic side,
With too much weakness for the Stoic's pride,
He hangs between; in doubt to act or rest;
In doubt to deem himself a God, or beast;
In doubt his mind or body to prefer;
Born but to die; and reas'ning but to err;
Alike in ignorance, his reason such,
Whether he thinks too little or too much;
Chaos of Thought and Passion, all confused;
Still by himself abused, or disabused;
Created half to rise, and half to fall;
Great Lord of all things, yet a prey to all;
Sole judge of truth, in endless error hurled;
The glory, jest, and riddle of the world!*

ALEXANDER POPE, 1688–1744.

Essay on Man, Ep. II, 1, 1–18.

These profound and brilliant lines by the English poet and satirist Alexander Pope describe the paradox of human nature. Throughout history, people have been puzzled and exasperated by humankind's strange duality—half animal, half angel—and much of religious and philosophical teaching has been an attempt to understand and integrate these two sides of our being. Neither priest nor philosopher has offered us an explanation that has proved either intellectually satisfactory or (in modern jargon) operationally effective. The writings of the wise throughout the ages have not enabled most of us to come to terms with our dual nature, however much we may have thought about these things or faced the moral dilemmas that are our inheritance. We carry the marks and needs of an animal, but we also find ourselves alienated and unsure in the natural world and in the face of our own biology. In our imagination, we travel far beyond the bounds of both our own environment and our biological nature, and yet we still feel rooted to them in a way that seems to constrict the highest reaches of our humanity. Our forces tend to be ranged opposite each other like the poles, and we find ourselves torn between them, caught in a conflict that has been cruelly sharpened by the demands of every culture in every age.

Humanity has, quite logically, looked to the past to explain the present and in so doing has developed numerous mythological accounts of human origins. In the Judeo-Christian tradition, for example, our duality is explained by the Biblical story of a stern God who placed a perfect man and a perfect woman in paradise and then expelled them when they disobeyed His commands. This story of

humankind's fall from perfection has been used in Western cultures to account for the darker side of human nature.

Today the sciences, particularly geology, biology, and anthropology, have a different and naturalistic explanation to help us understand our duality. This scientific account began to be written with the work of the Scottish geologist James Hutton, who demonstrated in 1795 that the world was vastly older than previously had been believed. As this remarkable scientific deduction became generally accepted, humanity's presumably short past was stretched a thousandfold, and to the future, present, and immediate past of the historical period was added prehistory. Understanding this new dimension of humanity's story has become a major requirement for understanding our present.

Humankind Emerging is about this relatively newly discovered prehistoric dimension. It recounts the extraordinary story of the discovery of, and the evidence for, humanity's long past. It reveals to us the nature of our distant ancestors, who began the long evolutionary journey from the African forests to today's modern cities. It brings prehistory to bear upon the present-day human condition and thus gives us an entirely new way of approaching and understanding ourselves. The evolutionary perspective, which we owe to the genius of Charles Darwin and Alfred Russel Wallace, illuminates not only the physical origin of humankind but also the light and dark sides of our behavior. But that is not all: This perspective also shows us the integrated and dynamic evolution of both psychological aspects and their essentially interlocking relationship. The evolutionary perspective gives us profound insights into humanness and shows us that our duality arises not from two warring halves but from two interdependent aspects of an integrated whole—or what should and could be an integrated whole if we saw ourselves as we truly are, instead of as we have mistakenly believed ourselves to be.

This new view of human nature is just one small part of the revolution in knowledge and understanding brought about by the work of Charles Darwin and his successors. Our past has created us and influences or determines every part of our lives. Our present condition is a consequence not just of our individual life histories, important though they may be, but of the whole history of the human species. We are, in this sense, a product both of our childhood and of our prehistory.

The theory of evolution by the Darwin/Wallace mechanism of natural selection has now been developed over more than a century as a result of an enormous amount of painstaking research. The evidence that living organisms have evolved over many millions of years is today very strong and convincing. Science builds up such hypotheses or theories on the basis of a vast range of accumulated evidence derived from experiment and observation. Each new piece of evidence has corroborated the central theory. No evidence currently known either falsifies or undermines the theory of organic evolution by natural selection.

This book applies the Darwin/Wallace evolutionary model to the development of humankind, and thus it advocates a *naturalistic* explanation for our physical and behavioral attributes. But does this mean that we are setting out to disprove the existence of God or any role one or more divine forces might have played in the production of modern human beings? No. It is simply that such *supernaturalistic* explanations of human origins are beyond the bounds of scientific investigation and testing, and physical anthropologists like to keep their feet on the ground. Our only real argument with religion is when it attempts to masquerade as science, as in the present-day "creation science" movement (more on this at the

end of Chapter 1). Science and religion may both be legitimate ways of “knowing” about the world, but they have very different modes of operation and thus should be neither confused nor mixed. Only evolution provides us with a truly scientific hypothesis about human origins.

Nonetheless, as we hope the following chapters will demonstrate, an evolutionary explanation of the origin of species, particularly our own, can be just as awe-inspiring and full of wonder as religious explanations. Indeed, this point was not lost on Charles Darwin who in 1859 ended his book *On the Origin of Species* with these words:

There is a grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.

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