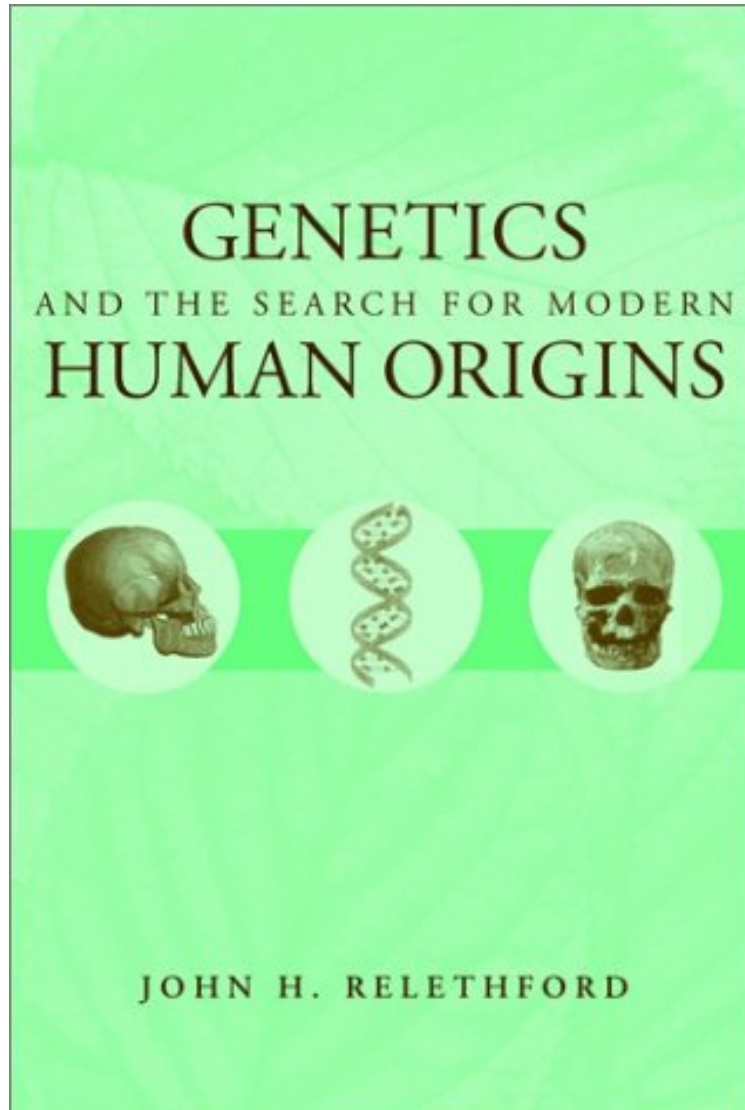


(Free and download) Genetics and the Search for Modern Human Origins

Genetics and the Search for Modern Human Origins

John H. Relethford

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John H. Relethford : Genetics and the Search for Modern Human Origins before purchasing it in order to gauge whether or not it would be worth my time, and all praised Genetics and the Search for Modern Human Origins:

0 of 0 people found the following review helpful. Excellent summary of current state of the science of human origins By Bernard Lavalée Excellent, concise summary of the current science of human origins from a molecular genetics perspective. Some basic knowledge of genetics will help a great deal in deciphering the details of some of the alternatives discussed but the conclusions are well worth the effort. In the end it's a dismal, confused depiction of the biases between various disciplines which he does a good job of navigating. A very good read for anyone interested in

this fascinating, blossoming field. 0 of 0 people found the following review helpful. Five Stars
By Dyan " Cuevas"
Barrett
love it
3 of 3 people found the following review helpful. Within and Between: Evolution of the Study of Human Origins
By Jon A. Sefcek
Coming from a perspective outside the field of biological anthropology I am always struck by a certain level of hesitation upon embarking on a document written by someone from within this technical field. While evolutionary theory is the main tenant of both this field as well as my field of study, evolutionary psychology, the approaches, suppositions, and terminologies are often perceived as being different and very distinctive. Likewise, the conflict within the field itself, the various approaches, and contrasting interpretations utilizing the same evidence can easily leave an outsider (not to mention insiders!) feeling overwhelmed and confused. After reading Relethford's *Genetics and the Search for Modern Human Origins*, some of this hesitation, and some of the seeming non-overlap between scientific groups, has been lifted. Relethford offers a clear, well-constructed argument on the modern human origins debate that has been volleyed back and forth between (and within!) the different areas of anthropology. He presents a basic background in the area of evolutionary theory, genetics, and the archeological evidence; an in-depth review of the various genetic studies and a strong argument for the application for the various computer-modeling techniques currently used. What is especially refreshing is that rather than relying on one technique (i.e. computer models or archeological evidence) and by not taking a definitive stance on one model alone to explain the time and place of human origins, he presents the perspectives of the central models of human evolution as a moderator, rather than a competitor. This manner allows the evidence itself to engage the reader into developing their own interpretation, rather than forcing them to accept the authors' own biases. The evidence presented throughout the book is used mainly to pit the African replacement model and the Multiregional evolution model against each other, in what Chamberlin (1897) called "the method of multiple working hypotheses" and Platt (1964) called "strong inference". By comparing the evidence to each model, rather than trying to fit it all within one chosen framework, Relethford arrives at the conclusion that modern humans arose from a "Mostly Out of Africa" scenario. This suggests that humans did indeed first arise in Africa, with subsequent evolutionary forces (mutation, natural selection, genetic drift, gene flow, and the interaction of) mediated by inter and intra-continental migrations, affecting their evolution both within this continent of origin and throughout the world. Overall, the genetic patterns elucidated by human DNA studies (mtDNA, Y-chromosome, and nuclear) suggest that Africa was the point of origin, with an initial migration toward the Middle East, branching off to Europe, Asia and Oceania, with a smaller (yet still substantial) return migration back home to Africa. Likewise, Relethford examines some of the controversy surrounding the placement of Neandertal's in relation to human lineage's. Were Neandertal's a distinct sub-species of archaic human which contributed genetic material to modern humans, or are we completely free of Neandertal genes? This issue is explored within the context of the archeological evidence which suggests that there are certain Neandertal characteristics in human bone structure, and the genetic evidence which supports the latter proposition. Again by careful expression he explains the evidence in the light of each model, and suggests that the best fit is still up in the air. Overall, the issues this book explores are well articulated and are examined in a style that doesn't necessitate substantial background knowledge in the study of human genetic variation or modeling formulas. However, Relethford also doesn't ignore those who are well-versed in such areas. Genetics are discussed in a technical manner and mathematics are explained at the end of the book in "Chapter Notes". A few notes of caution must be expressed upon opening this book. First, this book should be read while attempting to leave your preconceived biases behind. This book is aimed at giving an unbiased presentation of the current evidence for the origins of modern humans. As such, it should be read with an open mind. Second, there are some minor editorial, and factual mistakes made within the book. These mistakes are, for the most part, unnoticed by individuals without a background in either genetics or genetic theory as applied to modern human origins. For individuals who wish to use this book as a tool for learning the basics of genetics this may be a detriment. Third, because new evidence within this and other fields utilizing evolutionary theory are changing daily, some of the evidence offered here may quickly become dated. However, the main approach of this book, the overarching perspective, and the engaging manner in which it is written, should make it a must read for anyone interested in gaining at least a rudimentary understanding of this area of scientific scrutiny. By assimilation of bones and stones, genes, memes, and models, Relethford sifts through the various forms of evidence for the emergence and subsequent existence of *Homo sapiens*. He accomplishes this feat in a calming integrated manner that makes sense to those who may think that the techniques and approaches common within the field are inherently different from their own. As such he has showed, at least to this reader, that once again the within group variation may be more prevalent than between group variation.

A major debate in anthropology concerns the relationship between anatomically modern humans and earlier "archaic" humans including the Neandertals. What was the origin of modern humans? Did we arise as a new species in Africa 200,000 years ago and then replace archaic human populations outside of Africa, or are our origins part of a single evolving lineage extending back over the past two million years? In addition to fossil and archaeological evidence, anthropologists have increasingly turned to using genetic data on living populations to address this question. Patterns of genetic variation within and between living human populations are felt to contain clues as to our species'

evolutionary history, and provide a reflection of the past. This book reviews the modern human origins debate focusing on the genetic evidence relating to our origins, including genetic variation in living humans and recent discoveries of ancient DNA from fossil specimens. Following a brief introduction to the problem and a review of evolutionary genetics, the book focuses on gene trees and the search for a common ancestor, genetic diversity within populations, genetic distances between populations, the use of genetic data to reconstruct ancient demography, and Neandertal DNA. The main point of the text is that although the genetic data are often compatible with a replacement model, they are also compatible with some multiregional models. The concluding chapter makes the case that modern human origins are mostly, but not exclusively, out of Africa.

"This textbook provides a good introduction to the field of human populations genetics for people lacking a genetics background.... I hope that his book will ultimately encourage more students to enter this exciting field." (Trends in Genetics, Vol. 17, No. 9, September 2001) "...controversies...grounded in a solid college-level introduction to how the genetic code and evolution account for genetic diversity." (SciTech Book News, Vol. 25, No. 3, September 2001) "I found Relethford's discussion of the recent Neanderthal mitochondrial DNA findings to be the most cogent explanation I have read to date.... I recommend his book to anyone interested in modern human origins." (Linda Wolfe, Anthropology News) "Relethford writes...in a lucid and engaging manner. He dispassionately examines the major controversies surrounding modern human origins and clearly identifies the ways in which the genetic data impinge on the predictions of the explanatory models....[T]his book will appeal to the general science reader, as well as being suitable for upper-level undergraduate and graduate courses in Biological Anthropology." (American Journal of Human Biology) "...lucid and engaging...enjoyable to read...will appeal to the general science reader...suitable for upper-level undergraduate and graduate courses..." (American Journal of Human Biology, Vol. 14, No. 4, July/August 2002) "...an accessible guide through the models and the data...will be a popular recommended text..." (Heredity) The modern human origins debate is finally illuminated with the first clear and understandable discussion of the genetic arguments on both sides. Relethford is a key player in this debate, and he brings to it a sorely needed perspective, placing the exciting laboratory results in the theoretical frame that explains them, and doing it in manner that the rest of us can grasp. It's good writing, because it's good thinking, and Relethford is to be congratulated for his efforts in clarifying and explaining the complex issues that underlie the conflict between Multiregional evolution and the Eve Theory.--Milford H. Wolpoff, Paleoanthropology Laboratory, Department of Anthropology, University of Michigan, Ann Arbor, Michigan "[The author] has presented a deeply thoughtful and provocative assessment of our understanding of modern human origins. I think it takes the whole debate forward by a quantum leap." --Rosalind Harding, University of Oxford From the Publisher The modern human origins debate is finally illuminated with the first clear and understandable discussion of the genetic arguments on both sides. Relethford is a key player in this debate, and he brings to it a sorely needed perspective, placing the exciting laboratory results in the theoretical frame that explains them, and doing it in manner that the rest of us can grasp. It's good writing, because it's good thinking, and Relethford is to be congratulated for his efforts in clarifying and explaining the complex issues that underlie the conflict between Multiregional evolution and the Eve Theory. (Milford H. Wolpoff, Paleoanthropology Laboratory, Department of Anthropology, University of Michigan, Ann Arbor, Michigan) "[The author] has presented a deeply thoughtful and provocative assessment of our understanding of modern human origins. I think it takes the whole debate forward by a quantum leap." (Rosalind Harding, University of Oxford)