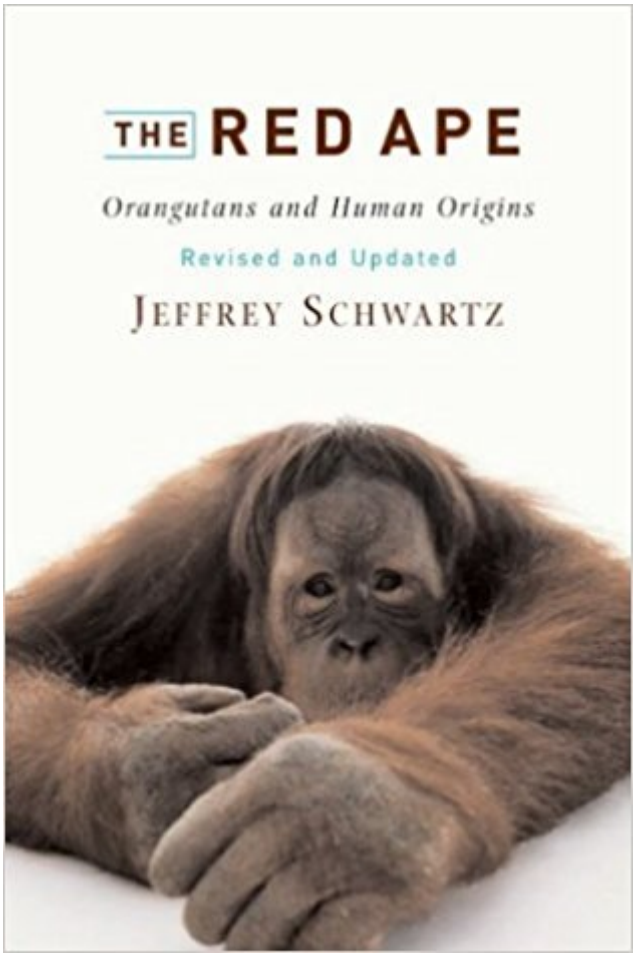
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The Red Ape: Orangutans And Human Origins, Revised And Updated



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Synopsis

We’ve all heard that chimpanzees are our closest relatives - that, in fact, they share 98% of their genes with us. But what evidence supports these often-repeated commonplaces? Very little, concludes physical anthropologist Jeffrey Schwartz. In his keenly insightful demolition of conventional wisdom on the family relationships between apes and humans, Schwartz provides a fresh examination of fossil evidence, modern anatomy and physiology, and DNA. He argues that it is not chimpanzees or other African apes that are humankind’s closest cousins, but Asian orangutans. The result is a compelling challenge to what we think we know about the origins of humans, and about the pursuit of science.In this thoroughly revised edition of The Red Ape, Schwartz analyzes the myriad fossil discoveries made since the publication of the first edition. He reveals the embarrassing fact that orangutan and human teeth are so similar that they have commonly been misidentified for each other in the fossil record, even by experts. New material provocatively addresses whether molecules (DNA) are more reliable than fossils and anatomy in assessing evolutionary relationships. Numerous new plates and drawings illustrate the text.

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Customer Reviews

Schwartz argues that it is not chimpanzees or other African apes that are humankind’s closest relatives, but Asian orangutans. His theory is controversial, to say the least, but the case he makes for it is compelling--and highly readable. Schwartz, a professor of physical anthropology at the University of Pittsburgh, has thoroughly revised this edition to give a new perspective on the latest

debates about the process of evolution, raising questions about scientific reasoning and the interpretation of biological data. He also reminds us of our responsibility to protect the large red apes who may turn out to be our closest evolutionary cousins. It is a fascinating and provocative read. Editors of Scientific American

Jeffrey Schwartz is professor of physical anthropology at the University of Pittsburgh and a research associate at the American Museum of Natural History. He is the author of The Red Ape, What Bones Tell Us, and Skeleton Keys.

It is odd to describe a book of science, especially a book which is in good part a polemic, as "charming". I do this because the author is so likeable, his writing is good, and he is a believer in the kind of close observation which has characterized the history of science. I tend to trust his impatience with so many of his fellow paleontologists. The problem is that the DNA evidence supports the chimpanzee as man’s closest cousin, and Schwartz just does not know enough to discuss the DNA evidence in any satisfactory way. "The Ancestor’s Tale" by Richard Dawkins was copyrighted in 2004, a year before "The Red Ape". Dawkins discusses many of the difficulties in using DNA evidence, but there is no need to assume a priori who is related to whom, as Schwartz seems to say. Moreover, one can get some kind of probabilistic answer, so it would be nice to know whether DNA evidence assigns any significant chance of the orangutan being our closest cousin.

This is a tremendously thrilling, rewarding book to read. This book will make you think.We are told that chimpanzees are our closest relatives. We are not usually shown how the software that ’keeps confirming’ this conclusion sometimes generates alternative trees that split the great apes in three: the chimps, the gorillas, and then a particularly bright and flexible clade that split into humans and orangutans. These alternate interpretations are ’obviously wrong’, so the researcher finds the ’wrong assumptions’ that can be changed to make it come out right, with chimps and humans side by side.But when you look at the morphology, feature by feature humans and orangs either share some aspect that chimps and gorillas don’t, or we’re both the ’most derived’ members of the great apes. Fossil hominid teeth and skulls and fossil orang teeth and skulls are similar enough that many fossils now labeled as fossil orang were once labeled as fossil hominid.Humans and orangs are the only great apes that grow long body hair, albeit in different places.Gorillas and chimpanzees are obligate knuckle walkers. That means that they have a system of tendons and bone shapes that snaps the heavily callused knuckle to the ground when they walk on all fours (as they usually do).

Gorillas and chimpanzees are born with knuckles predisposed to callus.Humans and orangutans show no trace of this complex adaptation. We are not born with incipient calluses, we do not have tendons that snap our hands into a fist when we stretch.Schwartz argues that if we weren't talking about human relatives, any trained morphologist would say it's us and orangs over here, and knuckle walkers over there.

I read the earlier edition of this book, and have now read the update. The author's premise is that morphology (anatomical similarity) links people and orangutans, despite genetic and molecular studies that say that chimps (and, more specifically, bonobos) are our closest relatives. What to make of this? The most likely answer is that we are most closely related to bonobos and chimps, but Schwartz's arguments cannot be dismissed without consideration. The morphology is certainly relevant, and the question is how it competes with the molecular evidence.To argue Schwartz' point from a slightly different perspective, all genetic and molecular measures of relatedness are really tests of hypotheses against data. When you test hypotheses against data it is possible that none, one, or more than one hypothesis is consistent with the data. This is often lost in a claim that one hypothesis is the best match to the data. The best match needn't be the only hypothesis consistent with the data, and the difference between the best and the second (or third, or ...) best match need not be statistically significant. Further, the result can depend on the assumptions made.Suppose, for example, that a rigorous, molecular, test of relatedness between creatures says there is a 50% chance that critter a is the closest relative, a 30% chance that critter b is, a 15% chance that critter c is, and a 5% chance that some other critter is. The best bet would be on critter a, but there would only be even odds that that was the correct answer. If other evidence not considered in the statistics supported critter b, that should be a serious consideration.Schwartz objects that the approach taken in most studies is tainted because the molecular comparisons tend to assume that the orang is a more distant relative, and set up the molecular tests based on that assumption. He argues that molecular tests should be done with an assumption of an old world monkey as a known ancestor, and all ape/human relationships uncertain. To do otherwise biases the results against a orang-human link.A molecular survey done with a wider range of options, and a morphological overlay on that, might result in an answer different than the accepted story. The odds are currently against it, but the theory deserves fair consideration. Schwartz's argument is not trivial or silly. It is a serious argument of the sort that forces science to answer the right, hard questions before accepting a particular theory as likely to be true. The most likely result is vindication of the prevailing (chimp-human) theory. But there is still the possibility of an upset!And that's why I'm a scientist ...

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