The title for this most fascinating and well-written book comes from the title of Gauguin’s last great masterpiece, *D’où Venons-Nous? Que Sommes-Nous? Où Allons-Nous?*, painted in Tahiti in 1897, six years before his tragic death. [One of the few typographical errors in this long book (on page 3) cites the date as 1987!]. The painting, which is reproduced in the book, as well as being incorporated into its hard cover, depicts the myth of creation, in particular that of the Judeo-Christian tradition, but with elements of Polynesian, Peruvian Indian, Eastern and African traditions included.

The book is lavishly produced, is over 450 pages long and includes dozens of tables, graphs, maps and other figures. There are even bars of music, used to illustrate certain features of DNA, and also because they are considered to reflect the mood of some feature of the evolution of life; the transience of human existence, captured by a Chinese poet some centuries ago, and translated into German by Hans Bethge, inspired Gustav Mahler to write *Das Lied von der Erde* (“The song of the earth”) (p 212), for example.

It is, perhaps, surprising that two scientists should be able to produce such a unique book – popularizing one aspect of human biology. It is a very appropriate subject to choose, because all human beings must be captivated by the question, “Where do we come from?” Although Charles Darwin and Alfred Russel Wallace, in 1858, were the first to offer a rational answer in their enunciation of mechanisms responsible for the origin of species by selection, for the next hundred years it was left to paleoanthropologists to produce the only evidence for such a process leading to the origin of humans.

Aware of the fact that most of the popular books on human evolution have concentrated on the evidence of the fossils, while largely ignoring the molecular evidence, the present authors unashamedly reverse the emphasis. Their avowed intention, according to their Preface, is to provide “a picture of human evolution for those who want to be informed rather than be entertained”. When some mathematics is needed for grasping the principles involved in molecular evolutionary genetics, the reader is expected to grapple with the math and the statistics. Readers may be encouraged by the revelation in the Preface that the mathematical sections have been written not by the author who has had solid mathematical training, namely, Takahata, but by Klein, the one who is a molecular geneticist. There are five appendices, totaling 30 pages, devoted to the mathematical and statistical aspects of relevance to the subject matter.

Klein and Takahata acknowledge that the evidence of the fossils in the study of human evolution is important, but are forthright in their criticisms of the methods employed. Their recalling of the story of *Ramapithecus* (pp 236–240) is effective in demonstrating that paleontology alone is no more reliable than molecular methods alone in the reconstruction of human evolution. As they write: “only when the two disciplines join forces can there be hope of achieving greater reliability and sharper precision than with each operating independently” (p 240).

*Where do we come from?* ought to be read by all molecular biologists who are tempted to exploit the data they generate when studying the distribution of certain DNA polymorphisms in a handful of individuals from two or more populations in order to write a quick paper supportive of one or another of the theses of human origins. The salutary message that is clear from this book, particularly in the chapters eight (*Our Place in Nature*), nine (*Of Time and the Tree*), ten (*The Narrow Road to the Deep North*), and 11 (*Through the Neck of a Bottle*), is that, although the “out of Africa” or uniregional theory for the origin of modern humans is the most aesthetically satisfying and is the one most compatible with the molecular data, it cannot yet be considered proven. There is an outstandingly
clear account of the studies by Savante Pääbo and his group on the mtDNA obtained from Neanderthal fossil material.

The attempt by Takahata and colleagues in 2000 (Mol Biol Evol 18:172–183) to marshal the genetic data to test the multiregional origin hypothesis of modern humans is amplified in this book (chapter ten, pp 294–308) and, perhaps, made more accessible to the general reader than the original paper. The same might be said for Jan Klein et al.’s 1990 paper (Trends Genet 6:7–11) on MHC and evolution, which is also simplified and presented in the present book (chapter 11, pp 352–366).

Lamenting the fact that whereas books popularizing science used to be written by practicing scientists, the authors claim that this is no longer the case. They are critical of the science writers of today who, they allege, are usually journalists with little or no expertise in the science they choose to write about; they inject sensationalism into their books and their goal is entertainment rather than education. There is some truth in this assertion, of course, but, in my opinion, the public is well served by the scientists who are providing popular accounts of the developments in their particular fields of research. The names of Jared Diamond, Steve Jones, the late Peter Medawar and Stephen Jay Gould come to mind.

It is, perhaps, surprising, that a long book like this one, devoted to human molecular evolution, and published in 2002, should have no distinct reference to the Human Genome Project (HGP). The HGP was completed, I suppose, as this volume was going to press and represents the culmination of an enormous amount of research effort into sequencing the genome of humans. It is significant that until 1998 the HGP had made no attempt to study human variation and those geneticists, who had seen the importance of studying this variation, received no public support from colleagues who were directing the HGP. All that it would have taken to launch the, so-called, HGDP (Human Genome Diversity Project) would have been about one percent of the funds allocated to the HGP. But there was concern that the opposition to the HGDP mounted by a small number of vocal representatives of minority groups in the Americas and Australasia would adversely affect the progress of the HGP. Although the HGP had a thriving Ethical, Legal and Social Issues (ELSI) programme, with a large budget, it seemed unable or unwilling to tackle the issues that were raised by the HGDP. Political and commercial sensitivities were undoubtedly involved. Sydney Brenner expressed his concern about this in 1998: “In my own subjects, genetics and molecular biology, research has become so directed towards medical problems and the needs of the pharmaceutical companies that most people do not recognise that the most challenging intellectual problem of all time, the reconstruction of our biological past, can now be tackled with some hope of success” (Science, November 20, 1998).

The final chapter, Who are we? Where are we going?, is an attempt to assess the present condition of Homo sapiens and to predict the future of our species. Our role in the destruction of so many species is discussed and our superior intelligence is considered to be the force likely to bring about the downfall of our species. We are already harming the biosphere – perhaps irreparably.

A clear message of this book is that it is the study of contemporary species, in particular their molecular archives, which provides invaluable information about the evolution of Homo sapiens. The loss of any of these species will result in the irreplaceable loss of ‘documents’ that could have assisted in the reconstruction of our evolutionary past. Pragmatic reasons for conserving all species include the preservation of information that may be indispensable for improvements in food production, medical advances and valuable industrial applications.

There are other implications, of course, for the study of human diversity which, perhaps, have more immediate relevance. Klein and Takahata present a fine, objective assessment of the meaning of race and take issue with those who, for political, rather than scientific, reasons would deny the very existence of human races. They point out that when L.L. Cavalli-Sforza in 1966 showed that of the total genetic variation in the human species, less than 15 percent accounts for differences between races, he made no comment on the relevance of this to the definition of races. Richard Lewontin’s 1972 study confirmed this finding and claimed that these observed differences between races were trivial and argued that “racial classification is now seen to be of no genetic or taxonomic significance .... (and) no justification can be offered for its continuance”. A less well known fact, related by Klein and Takahata (p 389), is that Sewall Wright “has stated emphatically that if differences of this magnitude were observed in any other species, the groups they distinguished would be called subspecies” (or races).

Human beings harbor prejudices against people belonging, not only to other races but also to other nations and religions. Klein and Takahata think that our species might be appropriately named Homo intolerans because of this. They predict that although the current human population is divided into races and local populations, the tendency is towards homogenization and loss of sub-divisions. In spite of the enormous size of the world’s population (a census population of over six billion, but a breeding population of only 34 percent of that, i.e. about two billion individuals), in order to attain global panmixia (or universal mingling) all that is necessary is the exchange of a few migrants per generation between local populations.

Have Klein and Takahata succeeded in writing a book that will popularize the subject of human evolution? Will it be read by the intelligent layperson? I’m afraid it will not; we live in an age when the reading public is dwindling and people increasingly turn to television for information. Perhaps the book is intellectually too demanding and doesn’t contain enough anecdotes to keep the attention of such readers.

In my opinion, Where do we come from? would be an excellent textbook for college/university students studying genetics. Population and evolutionary genetics have not had great appeal for such students in the past, but with the present interest in human evolution – even though the creationists in the US remain intransigent – and with the