

Book Review

The Great Human Diasporas: The History of Diversity and Evolution. By LUIGI LUCA CAVALLI-SFORZA and FRANCESCO CAVALLI-SFORZA. Addison-Wesley, 1995. 300+xiii pages. Price £12.95. ISBN 0 201 44231 0.

The book synthesises the life long research interests of Luca Cavalli-Sforza. It is unusual in that, although there is joint father and son authorship, much of the text is written in the first person singular. Luca Cavalli-Sforza recounts the development of his concern in tracing the evolutionary history of humans. This is an extremely readable book. It is aimed at the non-specialist reader, but it contains much to appeal to geneticists who wish to maintain contact with developments outside their immediate specialisation.

The book surveys archaeological evidence for the origins of man and traces the development of tool-making and the spread of agriculture. The tool-making abilities of *Homo habilis* some two and a half million years ago, the further development of this ability in *Homo erectus* and the emergence of *H. sapiens* are recounted in some detail in the early chapters. There is an interesting speculation on the extent to which diversification in tool-making coincides with the development of language and the extent to which these cultural developments followed rapidly [and comparatively recently] once the necessary biological evolution had occurred. Thus the most dramatic changes are confined to the last 100 000 years.

Examination of the present day structure of populations leads, through principal components analysis, to another way of reconstructing mankind's evolutionary history. A principal theme of the book is the way this genetic reconstruction is supported by analysis of languages. Darwin had originally suggested that there would be strong similarity between an evolutionary tree based on genetics and one based on language. The Cavalli-Sforzas bring the debate on the development and evolution of language very much alive and contend that the expected relationship is, in fact, borne out. The present day estimate of 5000 languages are classified by one school of language analysts (the 'lumpers') into 17 families. This type of classification leads, for example, to the conclusion that the original languages of the Americas can be classified into just three families, although some

linguists (the 'splitters') had put the number as high as sixty. The independent evidence that there were three distinct migrations from Siberia into America is an obvious reason for preferring the lower estimate.

The book contains many interesting nuggets of information. One of the consequences of the increased power of molecular genetics is the pronounced swing towards the acceptance that genes influence many characters. I personally do not need much persuading that genes influence most characteristics, but, at least initially, my credulity was stretched to learn of the Canadian family in which there are, over several generations, members who are defective for the 'rules for pluralising nouns'. The affected members are apparently unable to generalise the grammatical rules for forming plural nouns or conjugate verbs. Subsequently, conversations with colleagues led me on to Steven Pinker's *The Language Instinct* and the fascinating possibility of discovering genes for grammar. The Cavalli-Sforzas speculate on the possibility of isolating such genes by cloning. If this could be done the precise molecular differences between chimpanzee and humans which have enabled the evolution of language may well be soon at hand.

The final chapters are concerned with the analysis of racial differences and the evil of racism. The recent episodes of ethnic cleansing are a timely reminder that there cannot be too many attempts to explain and understand the origins of differences between human populations. The Cavalli-Sforzas stress both the importance of education, as a long term effort to prevent the spread of racism, and the need for political strength-of-will of governments to resist it wherever it rears its head.

I was disappointed by the number of typographical errors in the text. Several are quite large, for example duplicated lines, but most are trivial. The reader must accept too some inaccuracies in a text written principally for the layman. For example, the assertion that the prion disease kuru is due to a virus either results from sloppiness during translation or from a wish to avoid going into the unusual nature of prion diseases. None of this however detracts from a stimulating and enjoyable tour through human evolutionary history.

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