

Book Review

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Mutants: On the Form, Varieties and Errors of the Human Body. A. M. Leroi Harper Collins Publishers. 2003. 431 pages. ISBN 0 00 257113 7. Price £30.00 (hardback).

Superficially, this book is an Alice in Blunderland account of the human body and the monsters, dwarfs and freaks caused by mutation. This voyeuristic aspect of the book is amplified by the many illustrations and can make the reader slightly uncomfortable, as in the Channel Four serialisation. This is unfortunate since it is a very good book. It is a carefully crafted account of the genetic instruction manual and the mutational errors that teach us about the making of the human body. Francis Bacon in *Novum Organum* (1620) was the first to appreciate the potential value of “aberrant nature” and William Harvey (1657) also appreciated the benefits to medicine when nature reveals “her innermost secrets ... where she shows faint traces of herself away from the beaten track”. This book follows this line of argument through to the molecules and morphogens that control development and ageing. It is wide ranging and informative, covering the changing attitudes to diversity and deformity, the search for the genes and proteins underlying deformity and the potential of genetic profiling in individualised health care. The topics range from key developmental events like gastrulation – the most critical event in our lives (Wolpert, 1998) – to the morphogens arising from the blastopore lip and the determinants of gender and skin colour. The section on ageing and longevity mutants was the least convincing. The idea of genes that *cause* ageing keeps appearing, and ageing is summarised as “the inability of natural selection to act against the mutations that cause disease in the old”. There seems to be a confusion between the

causes of ageing and the genetic variation influencing these processes. Eliminating the major non-communicable diseases of industrialised societies (ischaemic heart disease, stroke, cancer, diabetes) is only predicted to extend longevity by some 15 years (Olshansky *et al.*, 1990). However, this is an area of considerable debate and is a small quibble in an otherwise clear and accurate account. The book deservedly won the Guardian First Book Award and is now in paperback and, but for the off-putting cover picture of a girl with extreme facial hair (hypertrichosis lanuginosa), deserves to sell well. It finishes with a view of the future and the author’s wish to extend our understanding of mutation from deformity towards diversity and the underpinnings of commonplace individual differences, from height to beauty. He raises the intriguing idea that the symmetry and perfection of beauty could be the legacy of both wealth, reflecting the absence of malnutrition and infection, but also of fewer mutations, many of which affect facial and bodily appearance. There is a suggestion here of an idealised being lacking all mutation, which seems a far cry from the infinite permutations and combinations of variants that distinguish us all – but I suspect that he may have more to say on the subject of individual variation, hopefully in his next book.

Wolpert, L (1998) quoted by Purvis W. in *Life: the Science of Biology*. Sunderland, Massachusetts, p. 883.

Olshansky SJ *et al.* (1990) *Science* **250**, 634–640.

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