

Genetic reference

Dorothy A. Miller

Human Genetics: Problems and Approaches, 2nd Edn. By F. Vogel and A. G. Motulsky. Springer-Verlag:1987. Pp.807. DM 148.

Human Genetics was first published in 1979, and was a vast and no doubt daunting undertaking for Vogel and Motulsky. The success of the book, coupled with the many and often rapid changes that have taken place in the subject, have now induced them to carry out the no less daunting task of creating a revised edition. Those who liked the first edition will be pleased with the additions. Those who are not yet familiar with the volume have a treat in store.

The authors retain a scholarly approach. They cite more than 2,400 references, a sizeable proportion of them from 1980 or later. There are multiple tables covering such diverse subjects as the proportion of patients affected by new mutations in autosomal dominant diseases, the average stature of Scandinavian adult males from the Stone Age through to 1939, and the genetic diseases for which carrier detection is advisable. The text is particularly strong in dealing with the quantitative aspects of human genetics, and is studded with cautions regarding interpretation of data and suggestions for future research.

As well as giving the facts, the authors have not avoided commenting on controversial issues. For example, they present a stern view of the role of human geneticists in abetting the excesses of Nazi Germany, and they argue that therapy should not be used with fertilized human eggs. On the other hand they are optimistic regarding the prospects for somatic gene therapy.

As must be expected in a volume that covers so large an area, there are errors both of commission and omission. Some are minor, such as the interchange of R-banded chromosomes 4 and 5 in Fig. 2.9. Others are more serious because they mislead the reader. The typographical error which means that EpG (rather than CpG) is cited as the methylated dinucleotide is unfortunate, because this is the only reference to this important sequence. The elegant figure in which Cavanee *et al.* presented mechanisms for deriving homozygosity of a proposed retinoblastoma gene has been redrawn in such a way that now neither gene conversion nor mitotic recombination is illustrated. The subject of dermatoglyphics is virtually ignored. One exception is that a list of the main clinical features of trisomy 18 includes arches on "three or more finger tips"; the much more striking fact is that 80 per cent of these individuals have arches on seven or more finger tips,

whereas most normal individuals have no more than one. More generally, the index is inadequate. This is important because the treatment of subjects is fragmented and readers would be well advised to add their own annotation.

Molecular biology is not as well presented as one would like, considering the impact this discipline is having on genetics. The figure designed to illustrate the use of restriction fragment length polymorphisms (RFLPs) to distinguish between homozygote and heterozygote shows flow-sorted chromosomes as the starting material, whereas the strength of the method lies in the ability to use small amounts of genomic DNA from almost any source. *MspI* and *TaqI* are cited as

particularly useful enzymes for finding DNA variants, but there is no indication that this is so because the methylation of CpG in their recognition sequences can lead to mutation of C to T.

In my view *Human Genetics* is not so much a textbook as a wonderful reference source for teachers, researchers, genetic counsellors and students. As a bonus it is also a contemporary commentary on the state of the field by two expert practitioners. The bottom line is that, despite some imperfections, you will of course want a copy. □

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On the road

Joseph Palca

Flattened Fauna: A Field Guide to Common Animals of Roads, Streets, and Highways. By Roger M. Knutson. Ten Speed Press, PO Box 7123, Berkeley, California 94707:1987. Pp.88. Pbk \$4.95.

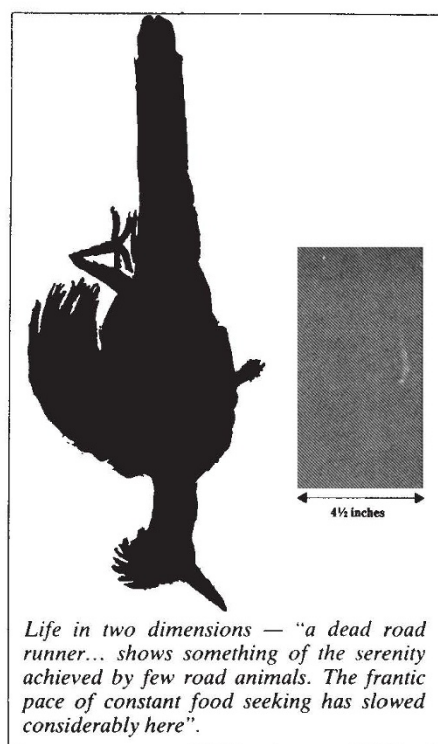
THE American love affair with the automobile has, for many, obscured an appreciation of the richness of fauna to be found in the United States. Although the interstate highway system has opened new vistas to the ever-growing number of urban dwellers, driving in a steel and glass capsule with air conditioner and stereo turned up high makes observing nature difficult.

But our notion of savouring the outdoors has been strongly determined by naturalists such as James Audubon and John Muir, whose views were shaped by the technology of a different era. A new approach could well help unite what the planet has to offer with what civilization has led us to expect.

In this regard, Roger Knutson has written what may be a seminal work. Without apologies, he offers a valuable reference work for both the casual vacationer and the serious student for making sense of the intersection between car and animal. Armed with *Flattened Fauna*, "a Sunday drive can become a safari into a new habitat populated with animals unlike those you have seen before".

There is a dichotomous key to help novices find their way through the complexities of observing animals that have died on the road. Silhouettes are provided throughout the book as an aid to identification, though in the case of snakes these are not much help.

Observing road fauna requires its own rules, and Knutson is not altogether successful when he tries to build on the principles of classical field zoology. First



Life in two dimensions — "a dead road runner... shows something of the serenity achieved by few road animals. The frantic pace of constant food seeking has slowed considerably here".

From *Flattened Fauna*

explaining the importance of mimicry for species survival, he then states "whether the flattened sod clump mimics the porcupine or vice versa is a moot point for the student of road animals, interesting though it may be for the evolutionary biologist". But he also tantalizes the reader by noting that "a rusted hubcap looks enough like a painted turtle to confuse even a longtime student of road artifacts". Can this really be a coincidence, or are there more subtle factors at work here?

Knutson gives due credit to James Simmons's *Feathers and Fur on the Turnpike* (1938) as a pioneering work in the study of road fauna. Fifty years on we must hope that his own book attracts renewed interest and funding to this fascinating but neglected area of the biological sciences. □

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