

BOOK REVIEWS

SERVICE AND EDUCATION IN MEDICAL GENETICS. I. H. Porter and E. B. Hook (Eds.). Academic Press, Inc., New York, 1979. Pp. xiv+425. Price: \$24.

This book is the result of a conference held at Albany, N.Y., in November 1977. In twenty-eight presentations the authors applied themselves to such questions as how the demand from the community for genetic services (counselling, prenatal diagnosis, screening) might develop, who should provide these services, from what sort of administrative setting, and who should pay for them. Although contributions have been updated in matters of detail to the end of 1978, the book's main fault is that in the time taken to produce it, many of these questions have been at least partially answered. A second drawback for British readers is that many of the issues and conclusions apply only to the U.S.A.

Some contributions can be recommended. These include a crisp account of carrier testing in *X* linked disorders by Lubs, a thoughtful review of medical and human genetics training requirements by Motulsky, an exposé of the deficient human genetics content of North American School biology teaching by Clow and colleagues, and a penetrating analysis by Sorensen of what genetic counsellors think they are doing. In addition the contributions by Murphy and Fraser are worth reading for their literary style—a quality that is elsewhere in very short supply.

Most of the remainder of the book is a humdrum collection of local experience and surveys with predictable results—acceptable for a meeting in 1977 but not in a weighty book two years later. Many of the authors retrace ground by way of introduction that will already be familiar to anyone working in the field of medical genetics. To someone outside the field who wants to get the flavour of some of the major issues surrounding genetic services, the book may be of use.

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EVOLUTION AND THE GENETICS OF POPULATIONS, VOLUME IV: VARIABILITY WITHIN AND AMONG NATURAL POPULATIONS. S. Wright, The University of Chicago Press, London, 1978. Pp. x+580. Price: £26.25

This volume completes Sewall Wright's *Evolution and the Genetics of Populations*. Volume I, *Genetic and Biometric Foundations* appeared in 1968, at a time when Wright was planning three volumes in all, but, as he explains in the preface to the new volume, it became necessary to split the projected third volume into two, *Experimental Results and Evolutionary Deductions* (Volume III), and the present *Variability within and among Natural Populations* (Volume IV). Volume II was *The Theory of Gene Frequencies*, in my view at the time (Edwards, 1971)—which I see no reason to change—a rather unsatisfactory book. But Wright is pre-eminently a natural historian, and in Volume IV demonstrates the great breadth of his

knowledge, covering a very wide range with a clarity of thought and expression which may serve as an example to students a quarter his age.

After an initial chapter on speciation, two chapters are devoted to methodology, including sections on Genetic Distance and Human Blood Group Frequencies. I mention these because they report work with which I have been associated, and I can therefore give an opinion of the adequacy of Wright's treatment which will serve as an indication, I believe fair, of the nature of his treatment of other topics. For three pages Wright gives a good description of measures of genetic distance that have been proposed, and makes the interesting observation that Nei's measure is a standardized version of one proposed by Sneath in 1963; but he then devotes nine pages, including three tables and twenty line drawings, to evaluating five of the proposed measures using data from four human populations scored for five blood group loci (given by Cavalli-Sforza and me in 1967 when demonstrating one of the measures, suggested to us by R. A. Fisher). These pages are characterized by careful calculation, analysis and presentation; the conclusion is given in the separate summary at the end of the chapter, to the effect that one of the five measures is best, but the differences between them are not great. One is bound to ask, is that really worth nine pages? The same thought recurs as one reads other parts of the book. Wright has given us a quarter of a million words and eight hundred references, a truly remarkable achievement; may it not be too much?

The next seven chapters survey genetic variability in countless different species, the last two covering man. \bar{w} -topographies appear in connexion with chromosome polymorphisms, as might be expected, and on page 137 we read that, with two variables p and q ,

$$\frac{\partial \bar{w}}{\partial p} = 0 \quad \text{and} \quad \frac{\partial \bar{w}}{\partial q} = 0$$

give the loci of "vertical" and "horizontal" trajectories respectively, that is, trajectories parallel to the p and q axes. "Their intersection locates a point of equilibrium". I believe the first statement is false almost always, and the second statement false unless the viability matrix is additive over loci. It is simply not true that populations will climb trajectories of steepest ascent; it is an old criticism now, but it would be a failing if I did not repeat it, though I shall not labour it.

The first of the chapters on man deals with variability within populations, using path analysis, and the second with racial differentiation, using genetic distances. Wright here argues that the human data support his "shifting balance" theory of evolution.

In chapters 11 and 12 Wright returns to speciation and the evolution of higher groupings, and the volume ends with a chapter "General Conclusions", in which one sentence encapsulates the rest: "The conclusion arrived at here, however, is that selection, largely of the shifting balance type involving peak-shifts with respect to interaction systems, has played the major role".

Fifty years ago and more the young Sewall Wright introduced F-statistics, path coefficients, and the imagery of adaptive topographies. It is a measure of the influence he has had that he can now hold our attention with a volume which relies so heavily on these ideas in seeking to substantiate the

view of evolution he has espoused all along. His constancy, indeed, gives the book a timeless quality. It might almost have been written fifty years ago; it might still be read fifty years hence. Whatever the ultimate fate of his view, we must be grateful to Professor Wright for so carefully and eloquently stating it; there can be few such influential scientists about whom so little doubt exists as to how they thought and what they meant. If the work of Wright is ever misjudged, it will not be his own fault.

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HUMAN GROWTH, VOLUME 1: PRINCIPLES AND PRE-NATAL GROWTH, VOLUME 2: POST NATAL GROWTH. F. Falkner and J. M. Tanner (Eds.) Plenum Press, New York and London. Price: \$42 per Vol.

Over the last ten years there has been a significant interest shown by many disciplines in the subject of human growth. While of prime importance to paediatricians, the subject is of increasing relevance to the physiologist, bio-physicist, anatomist, endocrinologist and, hopefully, many adult physicians. The editors have filled a much needed gap with these three volumes. Professor F. Falkner is Director of the Fels Research Institute, Yellow Springs, Ohio and Professor J. Tanner is Professor of Child Health and Growth at the Institute of Child Health, London. These two are old colleagues and Frank Falkner was one of the first people to be involved with the Child Study Centre at the Institute of Child Health, London. His work was followed and the department expanded by Professor Tanner a few years later. They have brought together nearly seventy authors contributing to 57 chapters of a three volume book. The first is divided into developmental biology, biometrical methods of human growth, genetics and growth and pre-natal growth. The second volume deals with post natal growth. The third volume, which is not to be reviewed, considers the neuro-biology of growth, nutrition and a history of growth studies.

Volume 1. The first section of Volume 1 is introduced by a short chapter on the adaptive mechanisms of growth control. This is followed by a mammoth chapter on human biochemical development, which will be of particular interest to the physiologist and those interested in human metabolism. It is backed up by seventeen pages of references, a significant feature in itself. One of the attractions of these volumes is that most chapters contain a long list of references which is of tremendous importance to anyone using the book as a guide to further reading. A further good feature is that many chapters end with a summary of their significant points. A chapter on developmental pharmacology follows giving a brief summary of this vast and expanding field concerning the action and disposition of drugs in the foetus, newborn and older child. As is stated it is clear there is still much to be learnt and I look forward to expanded chapters in later editions of this book. No book on human growth would be complete without a chapter by McCance and Widdowson. They title theirs: *Glimpses of Comparative Growth and Development*. This is a most interesting contribution and it is sad that the whole chapter only lasts a mere seventeen pages.

The second section of this volume is on biometrical methods of human growth with chapters on statistics and sampling for growth studies. Here is