Populations and Variation

The Biology of Human Adaptability. Based on a Wenner-Gren conference held at Burg-Wartenstein, Austria, in 1964. PAUL T. BAKER and J. S. WEINER, Eds. Oxford University Press, New York, 1966. 549 pp., illus. $16.80.

This volume, the outcome of a conference at which anthropologists gathered to discuss "the biology of populations of anthropological importance," provides an excellent summary of current knowledge of human variation and a prolegomenon to research forthcoming under the International Biological Program (IBP). Topical and geographic divisions are covered, with particular attention to American Indians and to populations of Africa, New Guinea, the Arctic, and southwest Asia. Urgent research needs are discussed for each of these areas, and attention is drawn to rapidly disappearing populations. Adaptation to cold stress and high altitude, nutritional problems, and adaptation to temperature and exercise are all covered, and the usefulness of Israel as a genetic laboratory composed of highly varied subpopulations is pointed out.

In the introduction Weiner outlines major problems in human population biology. These include worldwide genetic polymorphic systems, worldwide data collection on growth and physique, intrapopulation adaptation to environmental stress, comparisons between urban and nonurban groups, disease as a selecting agent, and biological factors in population dynamics. In addition, Weiner covers medical geographic surveys related to current projects of the World Health Organization. The book continually stresses the need for a worldwide cooperative effort to unravel the history and future direction of human adaptation. The concept of adaptation is taken to include both physiological plasticity and transgenerational evolutionary change. The reader of this work will be struck not only by its thoroughness, but also by the way it points up the ignorance which man displays toward his own biological heritage. The book points the way toward new and exciting research and demonstrates quite clearly that not all useful biological research lies within the domain of molecular biology.

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Mammalian Cytogenetics

An Atlas of Mammalian Chromosomes. Vol. 1. T. C. HSU and KURT BENIRSCHKE. Springer-Verlag, New York, 1967. 50 folios. Without binder, $9.40.

Cytogeneticists who have searched for information on the chromosomal constitution of some mammal, only to find that it was unpublished or presented in some unaccessible publication and perhaps inadequate in any case, will surely welcome this volume. Hsu and Benirschke have undertaken the monumental task of collecting karyotypes of mammalian species in one publication and in a complete and fairly standardized format. The first volume of their atlas covers 50 species, chosen more or less at random but including many common domestic and laboratory animals. The authors' intention is to issue a new volume containing approximately 50 additional species each year. The atlas employs a loose-leaf format with each species appearing as a separate "folio," a neat solution to the problem of organizing the collection as new species are added. Each folio gives scientific and common names, taxonomic position, and diploid chromosome number for the species, descriptions of the autosomes and sex chromosomes, notes on the sources of material, the number of specimens examined, the technique used, any peculiarities such as possible chromosomal polymorphism, and a list of references. Male and female karyotypes make up a full-page plate for each species. The 50 folios comprising volume 1 come boxed together with a brief introduction, table of contents, and an index of both scientific and common names. A new index covering all the species in previous volumes is to be provided with each succeeding volume. The publishers offer a special ring-folder for an additional $2.00, but the atlas fits a standard three-ring binder.

Most of the karyotypes in volume 1 were made by the authors, and the format used reflects their personal preferences, which may not be shared by all cytogeneticists. Subsequent volumes are to use a higher proportion of karyotypes prepared in other laboratories. One hopes that the authors will nevertheless succeed in preserving the relative uniformity of format which makes volume 1 so convenient. The quality of the reproductions in the atlas is generally only adequate, and I was able to find a few minor typographical errors. Nevertheless, the volume is attractive, and its price is certainly not high, considering that it does contain 50 half-tone plates. Incomplete as it is at present, the atlas seems sure to become the standard reference on mammalian chromosomal constitutions.

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Statistical Analysis

Sequential Methods in Statistics. G. BARRIE WETHERILL. Methuen, London; Wiley, New York, 1966. 228 pp., illus. $5.50.

This book provides a brief survey of sequential statistical methods, with an emphasis "on methods which are of importance for making practical applications." As a rule proofs are not presented, but "the logical basis of the methods" is discussed. It seems doubtful that the applied statistician will find in this book solutions waiting to be applied. He will, however, find brief, lucid discussions of a variety of approaches to a large number of problems, which together with a detailed study of the relevant references should prove quite helpful. Likewise the theoretician or theoretically minded student should find in this book easy access to a broad perspective on sequential analysis. He must, however, be on guard. Proofs and derivations, when presented, must be scrutinized, and even statements of important theorems cannot be accepted unquestioningly (for example, the statement of the optimality of the sequential probability ratio test, SPRT, on page 22 is incorrect). Unfortunately the bibliography does not seem adequate for the needs of the theoretically inclined. For example, the failure to include references to other than the original paper of Wald and Wolfowitz on the optimality of the SPRT has, it seems to me, imposed an unnecessary burden on the student trying to fill in the gaps. This result, as well as most of the material in chapter 7 (on decision theory), would be more accessible to the reader familiar with the excellent paper of Arrow, Blackwell, and Girshick (*Econometrica*, 1949), which is not mentioned in the book.

The author has, it seems to me, been successful in arranging the presentation so that topics fit neatly into place with-