

Book Reviews

Rodriguez, G.: Assessing the Availability of Fertility Regulation Methods: Report on a Methodological Study. WFS Scientific reports, no. 1. London: WFS Central Staff, International Statistical Institute 1977. 56 pp., 32 tabs.

The study reported here represents a collaborative effort from the world fertility survey staff (WFS) and advisory agencies in three countries: Turkey, Panama and India. The main purpose of this survey was to determine the validity of answers given in a pilot study and if the questionnaire had been understood, particularly by people of low socio-economic status. In this sense questions concerning four methods of fertility regulation are included in the questionnaire: Pregnancy termination, menstrual regulation, household availability of birth-control devices, general availability of such devices within the community. The term pregnancy termination was mostly misunderstood and therefore this method was underestimated as a birth-control method in the pilot study. Birth control by menstrual regulation was confused by people in all three countries with pharmaceutical products or folk methods which regulate menstruation, but only when the woman is not pregnant. The relationship of household availability to current use is a complex one. Many women, particularly in Turkey, have pills or condoms in the house but do not use them. In Panama on the contrary, many women report themselves as frequent users of birth-control devices, but did not have any in the house. Although many women report themselves as frequent users, they often fail to take the pill in time.

The methods used in the inquiry are described in detail with some examples as to how the interviewers word their questions and what sort of answers they receive. The report can be a good example for similar work of others and for the pitfalls and errors resulting from misinterpretation of available data.

A. Knapp, Greifswald

Kranz, J., Schmutterer, H., Koch, W.: Diseases, Pests and Weeds in Tropical Crops. 1. Ed. Berlin-Hamburg: P. Parey 1977. 682 pp., 238 figs., 6 tabs. and 64 plates. Hard bound DM 98,-

The limited size of this book suits its basic purpose as a reference book for the field pathologist rather than an academic volume dealing in detail with specific pests and diseases. In this it is supported by a compact, but comprehensive section of up to date literature references. The large number of authors (1521) indicates a thorough preparation although the various contributors give their personal emphasis to the various sections, making it difficult to comment in general on all parts of this compendium.

Chemical control measures, biological and integrated controls, as well as mechanical and cultural measures are referred to. The author discusses the successes and the limitations of breeding crops for resistance. It seems apparent that there is some necessity and scope for change in the present-practice of crop protection of sub-tropical and tropical crops considering the number of references to the use of chlorinated hydrocarbons.

The comprehensive illustrations, both drawings and photographs, are of a good quality while a useful crop index makes it easy to locate relevant information. A list of the most important common names for pests, diseases and weeds is a valuable asset.

Because of a space limitation (70 pp.), the section on weed control is comprehensive but not complete.

The book will appeal not only to the applied pathologist but also to students and those wishing to extend the horizons of their own specialist fields by referring to crop protection problems in sub-tropical and tropical crops.

R. Waeckers, Arnhem

Human Genetics. Section 22 of the *Excerpta Medica*. The International Abstracting Service. Amsterdam: ASP. US \$ 82.00 per volume

Section 22 of *Excerpta Medica*, Human Genetics, contains not only publications related to human genetics but also other publications dealing with microbiological genetics, genetics of drosophila and genetics of mammals. The unit on cytology, cytogenetics, and somatic cell genetics includes related discussions of man, animals, plants and techniques; the section on biochemical genetics covers topics on microorganisms, higher organisms, and man; the section on population genetics covers man, natural populations, experimental populations and heterosis. Thus the whole field of genetics is covered, with particular reference to the needs of the human geneticist. Some general applications of the book include counseling, eugenics, paternity and prenatal diagnosis. The subject index is a good guide for the reader and the abstracts are presented in such a manner that the main problems and results are clearly described. The section, Human Genetics, of *Excerpta Medica* is not only essential for Human geneticists, geneticists in biological sciences, pediatricians and medical biochemists, but also to physicians working in research.

A. Knapp, Greifswald

Thompson, E.A.: Human Evolutionary Trees.

Cambridge: Cambridge University Press 1975. 158 pp. Bound £ 4.25

This book comprises the author's research on a problem of human phylogeny during the period 1971/74, i.e. 'the statistical assessment of the phylogenetic relationships between various ethnic groups within the human species, on the basis of genetic data currently available in present-day populations'. In contrast to other, more heuristic approaches, the author constructs a statistical model: The realizations of a well-defined random process are the possible phylogenies. A maximum-likelihood procedure determines one of these as the optimal choice, i.e., phylogeny is chosen for which the present-day data are most probable. This work continues earlier ideas by A.W.F. Edwards and L.L. Cavalli-Sforza and with new mathematical derivations, it leads to a justified procedure and tractable computational algorithms.

Of course the assumptions of the model cannot be discussed within the framework of the model. These assumptions are the following:

1) Evolution follows a pattern where new populations arise by binary splitting and following random genetic drift. In each time interval, Δt , there is a probability, $\lambda \Delta t$, of splitting, and all populations have the same size. The role of selection is neglected, as is also the role of migration and hybridization (which are claimed to be rather recent phenomena in human populations). Thus, each phylogeny is a 'tree'.

2) Whereas differences between species are 'differences in

amino acid sequences' (better to say DNA-sequences), differences between populations within a species are differences between gene frequencies within a polymorphic system. Such a sharp distinction seems to be unjustified, and for the present study may be considered a matter of opinion. Human populations indeed form a single polymorphic system, but in a given population many loci may be fixated. The author's assumption reflects the fact that his investigations use data like the blood group system, where loci can be compared through all populations. In fact, zero gene frequencies produce crucial difficulties in the mathematical procedure.

3) It is assumed that data samples are sufficiently large such that sampling errors are negligible.

§ 2 contains the derivation of the model. Several transformations and simplifications are necessary to interpret genetic drift as Brownian motion in some state space. The justification of these steps is checked. In § 3, the splitting model (Yule process) and the likelihood function are derived, in § 4 an iteration procedure for maximization is designed. In § 5 we find details on the algorithm such as flow-charts and the definition of various parameters. § 6 is devoted to the Icelandic (Celtic-Norse) admixture problem.

In the reviewers opinion this is an interesting book on a basic approach towards problems of the theory of evolution. It is hoped that geneticists do overcome (or neglect) the mathematical derivations.

K.P. Haderler, Tübingen

van Lancker, J.L.: Molecules, Cells, and Disease. An introduction to the biology of disease. 1. Ed. Berlin-Heidelberg-New York: Springer 1977. 311 pp., 60 figs. Soft bound DM 33,60

'Molecules, Cells and Disease' is a condensed version of the two-volume set 'Molecular and Cellular Mechanisms in Disease' and gives 'An introduction to the biology of disease'. The purpose of this book is to present the undergraduate student in the biochemical sciences with examples of modern concepts in disease mechanisms'.

By beginning with 'the concept of disease and its history', the author provides an introduction to the molecular and structural organization of the cell and characterizes defense mechanisms. Causes of diseases, summarized in chapter 4, include inherited defects and congenital anomalies, diseases caused by conflicts between the individual and the environment (trauma, toxins, infections by viruses, bacteria, fungi, protozoa, worms, arthropods), defective nutrition, hormonal and electrolyte imbalances and defective defense mechanisms. The primary damage to DNA, DNA repair and the effects of several antimetabolites (folic acid derivatives, glutamine analogues, purine and pyrimidine analogues) and alkylating agents are described in chapter 5. The following chapters deal with the molecular basis of inborn errors of metabolisms, the pathology of hormonal diseases and cell membranes. Arteriosclerosis and cancer are discussed in chapter 10. The last chapter deals with aging.

The author takes great pains to give undergraduates an introduction to the biology of disease. Unfortunately this gives rise to some oversimplifications and omissions in the text and figures (e.g. the basic knowledge of genetics, meiosis and mitosis in chapter 2; figures 2-3, 2-9, 4-2, 9-1) and also to some errors in the figures (e.g. figures 2-1, 5-8). In some cases it would have been better to replace schematic representations (figures 2-3, 4-2b, 4-3) with photographs. Several figures are unnecessary (figure 3-12;

schematic representation of fractures of the neck, femur and humerus). On the other hand, the illustration of the detailed description of protein synthesis (p. 159) and of the banded normal karyotype of man is desirable for future editions. Excision and recombination repair is discussed in detail while photoreactivation and the role of misrepair have been omitted. The parts concerned with atoms, molecules (with electronic orbitals of sodium and π bonding in the molecule of ethylene) and chemical reactions seem to be irrelevant to an 'introduction to the biology of disease'. The text does contain many clear and summarizing tables (alkylating agents, different causes of diseases, damages to DNA, RNA and translation).

This book is a good source of information on cellular and molecular pathology and the biology of diseases. It may be considered a useful introduction into the subject, especially at the undergraduate level.

M. Herrmann, Erfurt

Moore, A.W., Bie, S.W. (Eds.): Uses of Soil Information Systems, Proceedings of the Australian Meeting of the ISSS Working Group on Soil Information Systems, Canberra, Australia, March 2-4, 1976. 1. Ed.

Wageningen (the Netherlands): Centre for Agricultural Publ. and Documentation 1977. 103 pp., 25 figs., 2 tabs. Soft bound f 17,50.

This book presents results from the meeting of the Working Group on Soil Information Systems of the International Soil Science Society in Australia in 1976. It contains 11 chapters written by 15 authors, and gives a survey of the possibilities and problems connected with handling a data bank.

The authors drew from long and wide experiences and they wrote a book that is useful to the wide range of scientists who have to handle large data sets. For the reader with some experience in handling computers, the contents of this book will be readily accessible.

Following a general discussion on data collecting and storage, the possibilities to keep this kind of information system operational and up to date are discussed. In a following chapter, some examples of computer programs are shown and it is here that one needs some knowledge of a computer language. Several techniques of display are explained and it is shown that between these techniques and the way of collecting, there is a strong interdependency.

A number of chapters give examples of the possibilities for applications of the soil information systems. These include the situation when a data bank is made initially for a certain project, as well as the case in which an information system is established to make data already collected accessible. Examples of various statistical calculations are also shown and programs and output lists on microfiche are added separately inside the book's cover. There are also commercial applications: Usage of a data bank to provide a fertilizer investment program, to which a survey of costs is added. In such a system, input, program and output are fixed.

Opposite to this is the more open system with accessibility for programs written for the actual problem. The final chapter gives an estimate of costs and it appears that the use of a computer is, in general, a money saving investment because of its great efficiency.

It is a pity that some disturbing misprints remained in the text (for example 'model sampling' should be 'modal sampling' on page 12) of this useful practical book. J.M.W. Louppen, Nijmegen