Book Reviews

Clinical versus Statistical Prediction. A theoretical analysis and a review of the evidence. Paul E. Meehl. Univ. of Minnesota Press, Minneapolis, 1954. x + 149 pp. $3.

As a clinical, as well as an experimental, psychologist, the author confines himself to an examination of the question posed by his title in the field of psychology. He defines statistical prediction as the mechanical combination of data for classification purposes and determination of a probability figure derived from empirical relative frequencies. Clinical prediction proceeds through the formulation of a psychological hypothesis about the individual, perhaps in a psychiatric staff conference. That is to say, clinical prediction is characterized by nonmechanical combination of given data. The author, in this volume, is not concerned with a comparison of the usefulness of psychometric and nonpsychometric data for predictive purposes.

Paul Meehl takes great care in examining, in principle, the special predictive activity of the clinician, particularly in the conduct of the clinical interview. He disagrees with the position of T. R. Sarbin that clinical prediction is fundamentally actuarial. Instead, he suggests that high-level clinical hypothesizing is akin to the psychological processes involved in the creation of scientific theory. However, Meehl is aware that his argument is not quite as solid as might be desired.

There is a chapter devoted to a thorough review of the surprisingly scant literature of empirical comparisons between clinical and statistical prediction. In the narrow range of problems studied, the statistical approach shows itself somewhat superior to the clinical, although optimum statistical weighting procedures frequently are not used. Much remains to be done to determine the proper domains of statistical prediction on the one hand and clinical prediction on the other. Meehl's present conclusion is that the statistical method is preferable, when socially defined outcomes, such as duration of disease or success in training, are to be predicted. In any case, although we may choose the nonactuarial approach under certain circumstances, it has to be validated by the use of statistical methods.

This book, although written in an informal, pleasant style, contains much technical material of primary interest to the psychologist; however, persons facing similar problems in other fields, as for instance in medicine, will also benefit from this fair-minded, stimulating clarification of a thorny issue.

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Pharmacology in Medicine. A collaborative textbook. Victor A. Drill, Ed. McGraw-Hill, New York–London, 1954. xii + 87 chapters + index. Illus. $19.50.

Pharmacology in Medicine is a collaborative textbook and reference edited by Victor A. Drill, lecturer in pharmacology, Northwestern University Medical School, formerly professor of pharmacology, Wayne University College of Medicine. It includes contributions and discussion presented by some 81 authorities in their respective fields of speciality.

It is presented in a uniformative and authoritative method for quick reference by students, physicians, and other members of the allied professions alike. The clinical approach is outstanding in offering to the students and members of the profession an opportunity to keep abreast of virtually the most recent advances in therapeutics and to acquire the basic principles and theories necessary for rational use of drugs in current use as well as a knowledge for the evaluation of those to be introduced later.

The system used for numbering pages is something relatively new. Each chapter is numbered as a separate entity by chapter and page, for example, 1/1, 1/2, 1/3, 2/1, 2/2, 3/1, 3/2, and so forth. This method of numbering has the advantage of grouping related material by page numbers, as well as by chapter heading, and facilitates reference.

It is closely correlated with the related medical sciences in scope. The most recent and important advances in medicine serve as a basis for the interpretation of action and uses of drugs. The application of pharmacodynamics to therapeutics is emphasized. Among the recent additions in books of this sort under chapter headings are "General anesthesia: intravenous agents," "Drugs in epilepsy and hyperkinetic states," "Veratrum alkaloids," "Insecticides, rodenticides and agricultural poisons," "Oral and intravenous feeding."

In addition to the specific chapters mentioned, ideas are expressed on anticarcinogenic agents and others that have not found extensive therapeutic use. Description of newer concepts and/or correlative data is presented under one heading in chapters on "Drug addictions," "Respiratory reflexes during anesthesia," "The role of the skeleton in pharmacological and toxicological responses."

The organization of the book, for the most part, is in the standard manner acceptable to students and practitioners. The chapter on prescripiton writing and drug preparation is well presented and, at the same time, presented in light of current trends and practice.

The contributors assembled by the editor are stimulating and informative and detailed in their outlook and their methods of presentation. All information is well documented and evaluated. This should easily become recognized as an important book, especially to the students of pharmacology, medicine, and dentistry.

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Standard Values in Nutrition and Metabolism. E. C. Albritton, Ed. Saunders, Philadelphia–London, 1954. xiii + 380 pp. Illus. Paper. $6.50.

Like the pockets of a typical healthy boy, this impressive monograph is packed full of a large variety of things, many of which may seem to be somewhat unrelated. Nevertheless it must be concluded that the monograph will serve a useful purpose through the concise assemblage of enormous amounts of information.

The work was compiled from the contributions of more than 800 specialists in widely varied fields of the biological sciences. There are 223 pages of tables and 16 pages of diagrams covering the nutrients necessary for plants, fungi, yeasts, bacteria, protozoans, invertebrates, vertebrates, and so forth; nutrients utilized by various animal forms and plant forms; daily nutrient allowances for man, dog, rat, and a host of other animal forms; diets and culture media for a great variety of animals; culture media and fertilizers for various plants; nutrient and energy values of foodstuffs and feedstuffs; signs of nutrient deficiencies and excesses; pathways of metabolism; end-products of metabolism; rates of respiration; and

various other topics. Moreover, there is an extraordinarily large number of references that are so successfully linked to the tables that the source of specific items in the tables can be readily identified.

The enormous effort that created this monograph was under the joint sponsorship of the U.S. Air Force, Army, Navy, and Atomic Energy Commission, but the direction of the enterprise was the responsibility of the Committee on the Handbook of Biological Data, a unit of the American Institute of Biological Sciences.

Because a tremendous amount of data were handled in the preparation of the monograph, it is little wonder that there are some errors and some contestable interpretation of knowledge as portrayed in some of the diagrams. For example, the summation of lipid digestion and absorption (p. 179) is at least slightly erroneous, and it is questionable that fat per se is needed only as a source of essential fatty acids (p. 67). There may be additional needs for fat. Some errors were noted in the references. On the whole, however, the monograph appears to be remarkably accurate.

Biological scientists in general may be expected to have occasional need for this handbook, and students will find that many of the diagrams are unusually illuminating.

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Human Heredity. James V. Neel and William J. Schull. Univ. of Chicago Press, Chicago, 1954. vii + 361 pp. Illus. $6.

This new textbook on the formal genetics of man has a refreshingly different approach. It does not replace the older books on this subject but supplements them by covering much ground not adequately reviewed elsewhere. It will very probably satisfy an important need in this field for many years.

The presentation of the principles of monofactorial inheritance departs from the traditional method by including sex-linked, partially sex-linked, and holandric genes along with the general discussions of autosomal dominant and recessive genes. This has the advantage of placing the emphasis on the physiologic action of the gene rather than on pedigree form. From the teaching viewpoint, there are also advantages to a separate discussion of sex linkage. Fortunately, the book is so organized that an instructor could use either approach by making appropriate assignments in the text.

Probably the best feature of the presentation is the constant attention given to the statistical problems that are essential to an understanding of the subject. The authors state that they wish to emphasize the methodology of human genetics, and this they do very well. They warn that the reader without preparation in the calculus and biometry may experience difficulty, but they offer no apology and insist that such knowledge is essential to the serious student of human genetics. Although this may place a part of the text beyond the reach of many students and restrict its use to advanced courses, it also makes it a much more valuable work for advanced students and investigators.

In view of the wide variety of special statistical tests that have been proposed to test genetic hypotheses under varying conditions of data collection and to estimate various useful parameters, the authors have done an admirable job of generalizing and choosing the most useful methods for discussion. Maximum likelihood methods of estimation are used wherever possible, often to the exclusion of less efficient procedures. Several procedures are described that are not widely known and are difficult to find elsewhere. For example, Penrose's ϕ-statistic is a useful tool whose potentialities are rarely recognized. Owing to limitations of space, the worked examples omit most of the computational steps; but, since the correct results are stated, this should serve as a challenge to the student. Well-selected problems are given at the ends of most chapters, and several abridged tables useful in computation are included.

The discussions of genetic principles as applied to man are clear and concise. Population genetics, mutation, physiologic genetics, and other topics are treated as adequately as would seem possible in the available space, with intelligent choice of topics. In a number of places the authors indicate their opinions on the probable value of various possible avenues of future research. It is of interest to contrast their enthusiastic evaluation of many of these with their rather pessimistic view of the possibilities in linkage studies and twin studies.

The practical applications of genetics to human problems are grouped in the last three chapters under the headings of genetic counseling, medicolegal applications, and eugenics. The chapter on advice to families is excellent, with a realistic and understanding view of the many complex factors that must enter into any genetic counseling problem. On the other hand, the chapter on eugenics discloses a surprisingly conservative approach, and the authors are apparently under some misapprehensions concerning the modern "eugenics movement."

In summary, this book is generally of excellent quality. It will be quite useful as a textbook to advanced students in human genetics and to investigators in this field. It should also be of particular interest to medical investigators whose research leads them into areas where genetic factors are of importance. The mathematical training required will limit its use as a textbook by medical students and beginning students of genetics. The book is well indexed and is bound and printed in an attractive format.

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An Introduction to Molluscan Ecology. Distribution and population studies of fresh-water molluscs. Alan Mozley. Lewis, London, 1954. x + 71 pp. Illus. 9s.

The title of this book is a little misleading, since it is more a brief and partial summary of the ecology of a very few species of mollusks rather than an introduction to this vast subject. In fact, most of the data given are limited to a few fresh-water pulmonate snails of northern latitudes and a somewhat more detailed account of a few African pulmonate snails responsible as vectors for bilharziosis (schistosomiasis). Although the book has a subtitle of "Distribution and population studies of fresh-water molluscs," there is hardly any mention of fresh-water bivalves or fresh-water Prosobranchs. These two groups together outnumber the pulmonates by 10 to 1. Nevertheless, there are many observations made by an experienced field man on the ecology of these animals and methods of control of the disease-carrying forms.

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Fishes of the Western North Atlantic. Sawfishes, guitarfishes, skates, rays, and chimaeroids. Henry B. Bigelow and William C. Schroeder. Sears Foundation for Marine Research, Yale Univ., New Haven, Conn., 1953. Memoir 1, pt. 2. xvi + 588 pp. Illus. $15.

This book, carefully and accurately prepared for the layman and the specialist, forms part two of an ambitious project supported by the Sears Foundation for Marine Research. The general treatment and format are the same as those for part one, which was published in 1948 and included lancelets, cyclostomes, and sharks. The printed date of publication "1953" is in error since part two was not distributed until 1 Dec. 1954, the date it was mailed from Denmark.

Under each species the following sections occur: study material, distinctive