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second edition. Thirty new illustrations provide greater detail on various anatomical systems, and these additional plates are supplemented with new text. This atlas again combines the talents of medical illustrator Leon Schlossberg and the faculty of the Johns Hopkins University School of Medicine, under the editorial guidance of Dr. George D. Zuidema.

Clearly labeled illustrations are an integral part of the study of anatomy. Schlossberg's work gives new meaning to the word illustration. His finely detailed renderings of each anatomical system, organ, or body region are of excellent quality. Especially noteworthy is his ability to paint structures on opaque paper in such a manner as to make them appear transparent. It is possible to look through the body, not merely at it. This is a great advantage in seeing various organs in their relationship to one another. Color coding different systems/structures facilitates their identification.

Accompanying the 178 excellent, full-color illustrations is a concise, information-packed text. Each chapter is authored by one or more Johns Hopkins University faculty members, and covers an organ or system within that person's specialty. The text supplements the illustrations, and emphasizes the physiology and the interrelationship of body systems. It stresses the functional aspect of anatomy.

A glossary of anatomical terms, a general index, and a list of plates enhances use of this book. The *Atlas* is an excellent basic reference for functional anatomy. Contrary to the promotional flyer, this would not be a good book for beginning students (if it were their only source); the information is much too concentrated for beginners to digest. However, it should be an invaluable resource for anyone teaching human anatomy, and a handy reference volume for advanced students.

Nancy A. Andersen
Erie, Pennsylvania

VERTEBRATES: PHYSIOLOGY

Introductions by Norman K. Wessells. 1980. W.H. Freeman and Co. (660 Market Street, San Francisco, CA 94104). 256 p. \$19.95 hardback, \$9.95 softback.

Vertebrates: Physiology is an anthology of readings from *Scientific American* which, as Norman Wessells tells us in his preface, is designed to complement a standard textbook for an introductory biology, vertebrate biology, comparative anatomy, or physiology course. The book would be fine for the advanced subjects, but, because many of the articles assume that the reader already has a firm grasp of the fundamentals of biology and chemistry (including some biochemistry), I felt that the material was too advanced for an introductory course.

The book is divided into five sections, covering the cardiovascular system, gas exchange, osmoregulation (water balance), temperature adaptations, and the endocrine system. The nervous system is not given an explicit treatment, but the role of the nervous system in organizing and mediating physiological activities becomes clear in the text of many of the articles. Each section is introduced by Dr. Wessells; the introduction provides a brief overview of the section topic, and gives corrections where additional research has changed or clarified the understanding of a subject since the original publication of an article.

The writing throughout the book is clear and succinct, interesting as well as informative. Differences in writing style between articles are minor and not at all distracting. The illustrations are excellent, in typical *Scientific American* style, with extensive use of multi-color graphics and photomicrography. The book is particularly useful as an adjunct to a standard physiology textbook because many of the articles describe physiological mechanisms in light of their ecological and adaptive (i.e., evolutionary) context, something that physiology texts often

neglect. However, some of the articles are merely descriptive and do not add much to the treatment given by a typical physiology book (e.g., "The Heart" and "The Lungs"). Additionally, two of the older articles ("The Heart" and "The Microcirculation of the Blood") give measurements in English units in annoying contrast to modern textbooks, which give measurements exclusively in metric units. These are minor drawbacks, though, and otherwise the book warrants a strong recommendation. So pervasive is the evolutionary approach throughout most of the book that I feel it would make an admirable second textbook for an evolutionary biology course, as well as for the anatomy and physiology courses for which it is designed.

Michael J. Gilbrook
University of Central Florida
Orlando

Related Fields

PALEOBIOLOGY OF THE INVERTEBRATES: DATA RETRIEVAL FROM THE FOSSIL RECORD

by Paul Tasch. 2nd ed., 1980. John Wiley and Sons, Inc. (One Wiley Drive, Somerset, NJ 08873). 975 p. \$32.95.

The claims made by the author of this book are borne out in the arrangement of the chapters and the comprehensiveness of the material. In my opinion it is adaptable to a review as well as an in-depth study of paleobiology.

Although Dr. Tasch does not include other disciplines in his suggested uses of this book, a thorough review will show that it can serve as a useful reference to taxonomists, ecologists, and biogeographers.

While the illustrations are primarily of fossils, the author has also included diagrams and illustrations of the develop-

ment of certain animals and cross-sectional views of the habitats of many species. Range maps of the major groups are also very useful.

The only drawback to the book is the size and the cost. The comprehensive nature of the book lends itself very well to those who are majoring in paleontology, but the undergraduate would find it hard to justify such an expenditure for a reference book. It could easily be published in another version consisting of two or three volumes. In this way the material would probably receive wider usage.

For those majoring in the subject, it will serve as an extremely useful guide to both teacher and student. The list of references at the end of each chapter is comprehensive and can be an extremely useful tool to interested parties.

The revisions and the inclusion of new material in the second edition make it an excellent textbook for specific courses of study and I would hope that it will be recognized as such by major universities.

G. C. Corcoran
Gulf Coast Research Laboratory
Ocean Springs, Mississippi

STATISTICS AND EXPERIMENTAL DESIGN

by Geoffrey M. Clarke. 2nd ed., 1980.
University Park Press (233 East Redwood Street, Baltimore, MD 21202). 188 p. \$24.50.

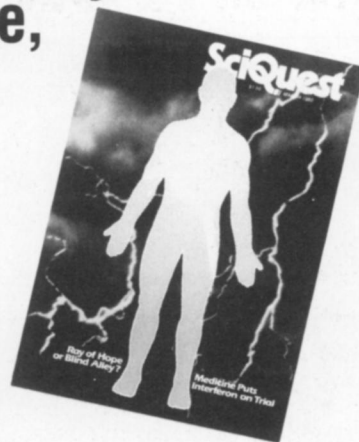
Today's scientists are relying more and more on computers and calculators for the collection and analysis of data. Because of these efficient data-manipulating devices there is a growing need for biologists to understand the basics of statistics. This textbook is designed to meet these needs by providing an excellent and well-written first course in statistics. The material is presented with many biological examples and exercises, thereby showing both the advantages of statistics to the biologist and also how easy it is for the biologist to utilize common statistical procedures.

The first six chapters deal with the parameters, shapes, and properties of the binomial, poisson, and normal distributions. The next five chapters provide today's biologists with the most commonly used statistical procedures (correlation, linear regressions, confidence limits, and tests of significance). The next four chapters illustrate the elements of statistical design with more clarity than is normally found in more advanced texts. Finally, the last two chapters show how to deal with missing data and illustrate a few non-parametric tests.

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