The bibliography in Dales's volume is highly selective, which no doubt has its advantages. I was surprised, however, to find that Hyman, G. E. Gates, Bookhout, Hartman, Hubl, and Moment were missing. This seemed all the more surprising since all have published extensively in the field and the work of the last named investigator was presented in some detail in at least three different places! There is a good index and a useful table of annelid classification through families.

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Plant Anatomy

Vegetative Anatomy of Plants. H. G. Burström and Camilla Odhnoff. Svenska Bokförlaget, Stockholm, 1963. viii + 149 pp. Illus.

Although no book of this size could possibly be more than an outline of the vast field of plant anatomy, the authors specifically claim it is a textbook on the undergraduate level, intended to serve as an introduction of plant anatomy to plant physiologists. A preface and a brief introduction precede the four subdivisions in which the subject is treated: the plant cell; cell forms and their origin; ontogeny of the plant; and, ecologic anatomy. In the first subdivision, the authors include recent information on submicroscopic anatomy and on cell chemistry. Aside from this and their emphasis on ecology anatomy, their approach is conventional.

Although a treatise of this scope may be needed, brevity is about all these authors have achieved. Their English is often quaint or awkward, their terminology unusual or erroneous. Furthermore, their generalizations and conclusions, if not patently wrong, are all too often questionable. Only a few of the many infelicitous terms and expressions can be cited. The authors frequently employ "localized or located to" instead of "localized or located in" and "concentrated to" instead of "concentrated in." In referring to the rolling of grass leaves in dry weather, they say, "It is especially common in grasses as a cohesion movement on a water deficit . . ." (p. 106). Readers will also ponder the meaning of the following statements about sun and shade leaves, "Like xeromorphic modifications these leaf types have been supposed to be induced by the salt status more than directly by the light conditions. This is, nevertheless, undoubtedly a phenomenon parallel to that of true hygromorphic plants" (p. 113).

The following statements and uses of terms will seem strange to many plant anatomists: ". . . the content of the vacuoles has an unlimited capacity of expansion" (p. 10); "Attempts to find a workable classification of the cell types have failed, because only certain *trends of differentiation* can be distinguished" (p. 33); "Sclereids are formed from idioblasts" (p. 35); collenchyma cells are described as having "square end walls" (p. 36); a petiole bundle is called a "stele" (Fig. 15); nut shells are called "organs" (p. 40); in referring to trichomes, "The variation is so great that a classification of them is meaningless." (p. 42); throughtout the book, xylem and phloem rays are called "cambial rays."

It might also be useful to point out a few of the more blatant errors. In Fig. 10, a diagram of the shoot apex of a dicotyledonous plant, the central initial cells are said to "give off cells to the tunica." In Fig. 28, the sieve areas in pine are portrayed on the tangential walls of the sieve cells. In Fig. 47, the cotyledons of *Linum* are labeled "plumule." On page 75 the following surprising statement is made in referring to the food reserves of seed—"Carbohydrate and fat seem to exclude each other and do not occur in the same species."

The most merciful thing one can say about this book is that it may have suffered considerably in translation. On the surface it is only an egregious example of inaccuracy, over-generalization, and poor writing.

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Textbook on Computation

Methods in Numerical Analysis. Kaj. L. Nielsen. Macmillan, New York, ed. 2, 1964. xviii + 408 pp. Illus. $9.

This book was written to meet the demand for a textbook in numerical analysis "for a basic, one-semester course at the undergraduate level." In the second edition the author attempts to preserve "the theme of the original book in the development of the classical numerical analysis with a minimum of mathematical background."

The major changes from the first edition consist of the addition of a chapter on linear programming and a reorganization of the material in chapters 8 and 9 (on the analysis of empirical data) into a single chapter. However, those familiar with the first edition will notice immediately that the greatest change has been made by the publisher. Improvements in typography, page format, and the layout of tables, graphs, and the like demonstrate how important these items are in presenting material to the reader.

The author has included additional footnotes and references to the literature, as well as 86 new exercises, in the second edition. However, it appears that basically the book has not been updated sufficiently to enable it to compete with more recent books in the field.

The author still discusses computation from the standpoint of the desk calculator. In chapter 1, section 5, entitled "Calculating machines," and section 6 entitled "Programming," the material in the second edition has been repeated verbatim from the 1956 edition, despite the developments in electronic calculators and programming techniques since that time.

It appears that a similar criticism can be made relative to his discussion of numerical methods for solving algebraic equations and differential equations. Important contributions since 1956 are not discussed. For example, no reference is made to Muller's method for finding the roots of polynomial equations, to Wilkinson's papers describing "pivoting" techniques when solving large systems of linear algebraic equations, or to Henrici's classical book on the numerical solution of ordinary differential equations.

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Note

Plant Physiology

"Do not judge a book by its cover," or, one might add, "by its title." If you expect to find in this volume an assemblage of facts on plants as folk

medicine, food, or fiber, you may be surprised to find instead an up-to-date, inexpensive, paperback primer on plant physiology.

The Lore of Living Plants (National Science Teachers Association, Washington, D.C., 1964. 160 pp. 50¢), by Johannes van Overbeek and Harry K. Wong, allegedly written for junior and senior high school students, is eminently readable and well illustrated, but no amount of editorial magic could transform the complexities of plant physiology so that all portions could be grasped by the avowed audience. If the sights were set too high to hit its stated target, the book still scores a bull's-eye on another—the high school biology teacher. He and his students in advanced placement biology programs will find in this volume useful supplementary reading, complete with suggested activities. The book could serve some college biology courses equally well. Even the high-flying research professor could profitably note how difficult concepts have been translated from journal gobbledygook to simple declarative sentences.

The facts of plant physiology are presented with credit to their discoverers, methodology, and institutions. This communicates the spirit and excitement of inquiry of many workers on the frontier of science. The technique identifies science with human beings, not textbook dogma.

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New Books

Biological and Medical Sciences

Adaptation. Bruce Wallace and Adrian M. Srb. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1964. 127 pp. Illus. Paper, $1.75; cloth, $3.95.

Advances in Enzymology. And related subjects of biochemistry. vol. 26. F. F. Nord, Ed. Interscience (Wiley), New York, 1964. 459 pp. Illus. $12.50. Seven papers: "Phytochrome and its control of plant growth and development," H. W. Siegelman and S. B. Hendricks; "Sugar nucleotides and the synthesis of carbohydrates," Ginsburg; "Formation of the secondary and tertiary structure of enzymes," F. B. Straub; "Die wasserstoffübertragung mit pyridinnucleotiden," H. Sund, H. Diekmann, and K. Wallenfels; "Bagshaped macromolecules—A new outlook on bacterial cell walls," W. Weidel and H. Pelzer; "Fortschritte auf dem vitamin B_{12}-Gebiet," K. Bernhauer, O. Müller, and F. Wagner; and "The metabolism of propionic acid," Y. Kaziro and S. Ochoa.

Advances in Fluorine Research and Dental Caries Prevention. Proceedings of a congress (Geneva), July 1963. vol. 2. J. L. Hardwick, J.-P. Dustin, and Hans R. Held, Eds. Pergamon, London; Macmillan, New York, 1964. 226 pp. Illus. $17.

Allgemeine Botanik. Kurzes Lehrbuch für Mediziner und Naturwissenschaftler. Wilhelm Nultsch. Thieme, Stuttgart, Germany, 1964. 284 pp. Illus. Paper, DM. 980.

Annual Review of Medicine. vol. 15. Arthur C. DeGraff and William P. Creger, Eds. Annual Reviews, Palo Alto, Calif., 1964. 484 pp. Illus. $8.50.

Annual Review of Plant Physiology. vol. 15. Leonard Machlis and Winslow R. Briggs, Eds. Annual Reviews, Palo Alto, Calif., 1964. 525 pp. Illus. $8.50. 21 papers: "Plant membrane lipids," A. A. Benson; "RNA in developing plant cells," Y. Oota; "Nutrition of algae," S. H. Hutner and L. Provasoli; "Nitrate assimilation by plants," E. Kessler; "Bacterial photosynthesis," L. P. Vernon; "Kinetic studies of the photosynthetic carbon reduction cycle," J. A. Bassham; "Respiratory mechanisms in plants including organic acid metabolism," I. Zelitch; "Alkaloid biogenesis," E. Ramstad and S. Agurell; "The genetic basis of selective ion transport in plants," E. Epstein and R. L. Jeffries; "Dormancy in higher plants," A. Vegis; "Shoot morphogenesis," A. Alsopp; "Pollen physiology," H. F. Linskens; "Physiology of growth retarding chemicals," H. M. Cathey; "Growth substances in fruit setting and development," J. C. Crane; "Biochemical aspects of morphogenesis in algae and fungi," W. J. Nickerson and S. Bartnicki-Garcia; "The physiology of plants at high altitudes," W. Tranquillini; "Physiology of plants under drought," P. A. Henckel; "Role of plants in closed systems," C. G. Golueke and W. J. Oswald; "Interaction of factors affecting yield," H. F. Clements; "Physiological aspects of curing plant products," W. G. C. Forsyth; "Absorption spectroscopy *in vivo*: Theory and application," W. L. Butler. Indexes include subject, author, and cumulative indexes of contributing authors titles for vols. 6–15.

Anxiety and Tension Control. A physiologic approach. Edmund Jacobson. Lippincott, Philadelphia, 1964. 264 pp. Illus. $9.

Atlantide Report, No. 7. Scientific Results of the Danish Expedition to the Coasts of Tropical West Africa, 1945–1946. Jørgen Knudsen and Torben Wolff. Published for Univ. of Copenhagen and the British Museum (Natural History), London, by Danish Science Press, Copenhagen, 1963. 213 pp. Illus. Paper, $8. Five papers: "Soleoidea," by Jørgen G. Nielsen; "Poissons marins de l'Est Atlantique Tropical." II, pt. 2, "Percoidei (Teleosteens Perciformes)," by M. L. Bauchot and M. Blanc; "Alcyonacea et Pennatulacea de l'Afrique occidentale," by A. Tixier-Durivault; "Pelagic Copepoda, I. Copepoda Calanoida of the Families Calanidae up to and Including Euchaetidae," by W. Vervoort; and "Brotulidae (Pisces) from Tropical West Africa," by Jørgen G. Nielsen and O. Nybelin.

Bailey's Textbook of Histology. Revised by Wilfred M. Copenhaver. Williams and Wilkins, Baltimore, ed. 15, 1964. 693 pp. Illus. $13.50.

Biochemical Disorders in Human Disease. R. H. S. Thompson and E. J. King, Eds. Academic Press, New York, ed. 2, 1964. 1086 pp. Illus. $22.

Biologie Antarctique. A symposium (Paris), September 1962. Robert Carrick, Martin Holdgate, and Jean Prévost, Eds. Hermann, Paris, 1964. 651 pp. Illus. F. 54.

Bones, Bodies, and Disease. Evidence of disease and abnormality in early man. Calvin Wells. Praeger, New York, 1964. 288 pp. Illus. $6.95.

Botany: An Introduction to Plant Science. Wilfred W. Robbins, T. Elliott Weier, and C. Ralph Stocking. Wiley, New York, ed. 3, 1964. 624 pp. Illus. $8.95.

Cardiac Pacemakers (*Ann. N.Y. Acad. Sci.* **111**, art. 3). Harold E. Whipple, Ed. New York Acad. of Sciences, New York, 1964. 308 pp. Illus. Paper, $7. 27 papers and panel discussions presented at a conference in September 1963.

Cell Culture and Somatic Variation. Morgan Harris. Holt, Rinehart, and Winston, New York, 1964. 557 pp. Illus. $15.

Le Champ Unitaire en Biologie. Henri Prat. Presses Universitaires de France, Paris, 1964. 166 pp. Illus. Paper.

Chelating Agents and Metal Chelates. F. P. Dwyer and D. P. Mellor, Eds. Academic Press, New York, 1964. 546 pp. Illus. $17.

Chemical Background for the Biological Sciences. Emil H. White. Prentice-Hall, Englewood Cliffs, N.J., 1964. 160 pp. Illus. Paper, $1.95; cloth, $4.95.

College Physiology. Donald M. Pace and Benjamin W. McCashland. Crowell, New York, ed. 2, 1964. 688 pp. Illus. $7.25.

Columbia-Presbyterian Therapeutic Talks. Topics in medicine for the internist and general physician. vol. 2. Hamilton Southworth and Frederick G. Hofmann, Eds. Macmillan, New York, 1964. 230 pp. $7.

Comparative Nutrition of Man and Domestic Animals. vol. 2. H. H. Mitchell. Academic Press, New York, 1964. 862 pp. Illus. $28.

Cytology and Cell Physiology. Geoffrey H. Bourne, Ed. Academic Press, New York, ed. 3, 1964. 798 pp. Illus. $20.

Elements of Comparative Vertebrate Embryology. Harold W. Manner. Macmillan, New York, 1964. 266 pp. Illus. $5.95.

Estudio Edafologico y Agrobiologico de la Huerta de Murcia. Centro de Edafologia y Biologia Aplicada del Segura, Murcia, Spain, 1963. 197 pp. Illus. Paper.

Extrachromosomal Inheritance. John L. Jinks. Prentice-Hall, Englewood Cliffs, N.J., 1964. 191 pp. Illus. Paper, $2.95; cloth, $4.95.

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