methodology; there are three headings: cell-physiological trends; cytomorphological trends, and correlative effects. The cell-physiological methods comprise the determination of conditions and changes at the level of chemical and colloidal events, such as viscosity, osmotic value, permeability, vital staining, isoelectric point, and differences in resistance to chemical or physical attack between cells and tissues. Methods designed for the study of cytomorphological data deal with observations at the level of microscopic order in cytoplasm, nucleus, plastids, chondriosomes, vacuole, and other cell constituents. Correlative effects are chiefly defined as gradients, polarity phenomena, and intercellular patterns.

The results and the present state of protoplasmic anatomy are outlined in the second part of the book, which includes (i) discussions on metabolism, development, and polarity in the living cell, (ii) many histological data arranged under the headings of the Haberlandtian tissue systems, and (iii) a section dealing with organs such as algal thalli, mycelia, and prothalli and with the general body of mosses, ferns, and flowering plants. A brief discussion of some aspects of normal and abnormal development and of regeneration concludes the volume, the usefulness of which is increased by illustrations, bibliographies after each subject, and author and plant name indexes.

One certainly cannot lay aside this small monograph without being reminded of the fact that experiment and physiological criteria are now extensively used in anatomical research. Often the difference between protoplasmic anatomy and cellular physiology appears to be one of definition rather than of methodology. The overlapping of research fields and methods, a characteristic of present-day science, is now very evident in plant anatomical work.

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Principles of Renal Physiology. Homer W. Smith. Oxford University Press, New York, 1956. 237 pp. Illus. $5.

This book is to some extent an abridgment of Homer Smith's more extensive monograph entitled *The Kidney, Structure and Function in Health and Disease,* published in 1951. Thus, the first third of the book treats classical renal morphology, theories of renal function, and principles of measurement of glomerular filtration rate, renal blood flow, tubular reabsorption, and tubular secretion. In the chapters devoted to these latter topics, specific mechanisms are described for reabsorption of glucose, amino acids, urea, protein, and so forth, and for secretion of para-amino hippuric acid, diodrast, and phenol red. Such problems as competitive interference and self-depression of tubular transport are briefly, though lucidly, discussed.

The second third of the book is devoted to the regulation of the water and salt composition of the body. The treatment of excretion and tubular reabsorption of water and strong electrolytes is classically "Smithian." Osmolar clearance and free water clearance, concepts that trouble even renal physiologists, are simply explained. The treatment of acid-base regulation, including acid excretion and bicarbonate reabsorption, is typically "Pittsian."

The last third of the book, made up of a series of appendixes, is an extension of scope rather than an abridgment of the longer treatise. Appendix I is a moderately detailed, rather one-sided discussion of electron microscopy of the kidney. Appendix II deals with, but will scarcely serve to popularize, the Henderson-Hasselbalch equation. Other sections describe chemical and mechanical procedures involved in clearance determinations. The bibliography is selective.

A number of the chapters of the book are closed by problems and questions. I frequently found it necessary to look up the answers in the "pony"; hence, I would not recommend lifting these questions *in toto* for the examination of other than first-quality students. Medical students, practitioners, graduate students, and investigators, in fact anyone with a passing interest in the kidney, will find something of value in this book. For those of us in the bifocal age, the typography is not all that might be desired. However, a reasonable price and jacket-pocket size excuse this transgression.

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New Books

The Genus Achlya: Morphology and Taxonomy. University of Michigan Studies, Scientific Series vol. XX. Terry W. Johnson, Jr. University of Michigan Press, Ann Arbor; Geoffrey Cumberlege, Oxford University Press, London, 1956. 180 pp. $4.50.

Synthetic Ion-Exchangers. Recent developments in theory and application. G. H. Osborn. Macmillan, New York, 1956. 194 pp. $6.

Organic Chemistry. Louis F. Fieser and Mary Fieser. Reinhold, New York, ed. 3, 1956. 1112 pp. $10.

Solid State Physics. vol. II, *Advances in Research and Applications.* Frederick Seitz and David Turnbull, Eds. Academic Press, New York, 1956. 468 pp. $10.

Animal Nutrition. Leonard A. Maynard and John K. Loosli. McGraw-Hill, New York, 1956. 484 pp. $7.50.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Report of an International Conference on Operator Theory and Group Representations. 20–23 Oct. 1953, Arden House, Harriman, N.Y. Publ. 387. National Academy of Sciences–National Research Council, Washington, D.C., 1955. 37 pp.

Inventory and Price List of Electromagnetically Enriched and Other Stable Isotopes. Stable Isotopes Research and Production Div., Oak Ridge National Laboratory, Oak Ridge, Tenn., 1956. 17 pp.

Ohio State University, Health Physics Conference. 13–15 June 1955. Columbus, Ohio. Office of Radiation Safety, Ohio State University, Columbus; U.S. Atomic Energy Commission, Washington, D.C., 1956. 223 pp.

The Baccalaureate Origins of the Science Doctorates Awarded in the United States from 1936 to 1950 Inclusive. National Academy of Science–National Research Council, Washington, 1955. 158 pp. $2.

Composting. Sanitary disposal and reclamation of organic wastes. Harold B. Gotaas. WHO Monogr. Ser. No. 31. World Health Organization, Geneva, 1956. 205 pp. $5.

A Decade of Research: 1946–1956. Cornell Aeronautical Laboratory, Inc. of Cornell University, Buffalo 21, N.Y., 1956. 66 pp.

Joint Establishment for Nuclear Energy Research, 4th Annual Report. July 1954–June 1955. JENER, Kjeller, Norway, 1956. 34 pp.

Protein Malnutrition in Brazil. FAO Nutritional Studies No. 14. J. Waterlow and A. Vergara. Food and Agriculture Organization of the United Nations, Rome, Italy, 1956. 40 pp. $0.50.

Annotated Bibliography of Articles on Light Weight Ceramics. Bull. of the V.P.I. Engineering Expt. Sta. Ser. No. 110. A. J. Metzger, Ed. Virginia Polytechnic Institute, Blacksburg, 1956. 42 pp. $0.25.

Comptes rendus des travaux du Laboratoire Carlsberg. Serie Physiologique. vol. 26, No. 1–25, *Volume Jubilaire en l'honneur du Professeur Ojvind Winge pour son 70th Anniversaire.* Luno, Copenhagen, Denmark, 1956. 443 pp. Kr. 40.

Nuclear Science and Engineering Training in the United States. A summary listing of facilities at selected colleges and universities and at the National Laboratories of the United States Atomic Energy Commission. Fund for Peaceful Atomic Development, Detroit 26, Mich., 1956. 57 pp.

Regional Comparison of Radiosondes. Brussels, 4–19 Nov. 1954. vol. 1, *Data relative to the Standard and Significant Levels of the P.T.U. Soundings.* L. M. Malet. Institut Royal Météorologique de Belgique, Uccle, 1955. 95 pp.

Current Expenditures per Pupil in Public School Systems: Small and Medium-Sized Cities, 1954–55. Circ. No. 473. Lester B. Herlihy and Emery M. Foster. U.S. Office of Education, Washington, 1956 (order from Supt. of Documents, GPO, Washington 25). $0.30.