

division, cell growth, differentiation of cells, and embryonic induction.

It seems unavoidable that in covering such a variety of rapidly expanding disciplines, the treatment should be uneven and often out of date. The coverage of the literature is often spotty, especially since 1950. The recent work on cell structure with the electron microscope is largely neglected and, as a result, the discussion of the "ground substance" of the cytoplasm is especially weak and based mainly on the speculations in the German literature before 1950. Sometimes different chapters come to contradictory conclusions: chromosome reproduction occurs in prophase on one page, but all the evidence for synthesis during interphase is presented in a later chapter. The expert in each of the fields covered will no doubt be annoyed by such discrepancies, by the omission of significant work, by the emphasis in some chapters on ancient speculations, and perhaps by the frequent misspelling of names. It is hoped that in a future edition the various chapters will be revised by experts in the respective areas.

Yet, despite these shortcomings, the book is a rich source of information, and it is unique in scope and conception. It deserves the attention of anyone who is interested in the activities of cells and the modern approaches to their investigation.

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Ergebnisse der Medizinischen Grundlagenforschung. K. Fr. Bauer. Thieme, Stuttgart, Germany, 1956 (order from Intercontinental Medical Book Corp., New York 16). 855 pp. Illus. \$30.75.

As the title indicates, this book is largely concerned with giving an account of the present state of the basic sciences that underlie medicine. The several chapters are "Structure of bacterial surfaces," by J. Tomcsik; "The present state of fundamental research in the field of tuberculosis from a dermatological viewpoint," by C. F. Funk; "The mitochondria," by G. Glimstedt and S. Lagerstedt; "The fine structure of nucleus and cytoplasm in relation to general cell functions," by F. E. Lehman; "Metabolites and antimetabolites," by J. C. Somogyi; "Kinetic and thermodynamic enzyme reactions in living cells and tissues," by H. Holzer; "Results of vitamin research from 1950 to 1954," by W. Stepp; "Fundamental processes of muscular contraction," by A. Fleckenstein; "The essential amino acids," by J. Kapfhammer, R. Bauer, and V. Kapfhammer; "Tissue and functional therapy,"

by S. Funaoka; "The mechanism of parenteral tissue and stimulus therapy," by K. O. Vorlaender; "The present state of research in allergies," by F. Sheiffarth; "Biophysics of radiation," by F. Wachsmann; "Hypothermy," by H. Laborit; "Recent results in neurohistology," by E. Landau; "The development of the human cerebral cortex," by G. von Bonin; "The external and internal functional relationship of the hypophyseal organs," by E. Collin; and "Embryology in relation to medical research," by G. Töndury.

There are both author and subject indexes.

International Review of Cytology. vol. IV. G. H. Bourne and J. F. Danielli, Eds. Academic Press, New York, 1955. xii + 419 pp. Illus. \$9.

The fourth volume of these reviews includes 12 articles assembled in accordance with the stated policy of the editors to survey the expanding field of cellular biology over a period of years. Selected topics range from a consideration of nucleic acids as ubiquitous cell components to examination of the properties of highly specialized cell types.

"The histochemistry of nucleic acids" is reviewed by N. B. Kurnick in a comprehensive manner. Emphasis is placed on the rigid requirements essential to critical analysis of these materials *in situ* by photometric, enzymatic, and staining procedures. Some of the same problems are examined by R. Vendrely in the "Histochemistry of bacteria," although constituents of bacterial cells other than nucleic acids are also considered. The short chapter by A. Marshak on "Bacterial cytology" sounds the precautionary note that students of the nuclear apparatus should rely on direct analysis and avoid the tendency "to seek in bacteria the morphological counterparts of intracellular structures seen in higher forms."

L. E. Wagge discusses in considerable detail the structure and function of "Amoebocytes," primarily as they occur in the Mollusca, but with reference to wandering cells in other phyla. This review, and the parallel study of Harald Moe on the mucus-secreting "goblet cells, especially of the intestine of some mammalian species," afford insight into the origin and structural modifications of cells concerned with transport and secretion.

Another outstanding review is D. P. Hackett's "Recent studies on plant mitochondria," in which morphological, biochemical, and physiological studies are evaluated, but which is devoid of illustrative material that could have en-

hanced its usefulness. R. Mühlethaler's consideration of the "Structure of chloroplasts" includes many of the more recent findings with respect to the ultra-fine structure afforded by electron microscopy. M. Wolman surveys "Problems of fixation in cytology, histology, and histochemistry," presenting a treatment of general principles and problems in which the choice of a fixing agent to meet individual requirements is stressed, although specific formulas are not provided.

A review by W. S. Vincent of the "Structure and chemistry of nucleoli" includes results that he obtained in the study of nucleoli isolated from starfish oocytes; this article emphasizes the uncertain state of current knowledge despite the considerable progress that has been made in recent years toward an understanding of nucleolar structure and function. Localization of "Cholinesterases at neuromuscular junctions" is discussed by R. Coutaux and illustrated with photographs and diagrams. E. J. Conway contributes the second part of a discussion that was initiated in volume II of this series entitled "Evidence for a redox pump in the active transport of cations." The introductory chapter by M. J. Kopac on "Cytochemical micurgy" lists some of the technical developments that facilitate quantitative study of small parts of cells.

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Yearbook of Anthropology, 1955. vol. I. William L. Thomas, Jr., Ed. Wenner-Gren Foundation for Anthropological Research, New York, 1955. xv + 836 pp.

The increasing importance of anthropology and the growing volume of its literature were appropriately marked in 1953 by the publication of an encyclopedic appraisal, *Anthropology Today* (edited by A. L. Kroeber *et al.*). The present *Yearbook of Anthropology*, benefiting from the experience of its predecessor, inaugurates a new series of annual publications and marks anthropology's full coming of age.

Although it focuses on the significant achievements and trends in the field of anthropology during 1952-54, the first volume of the *Yearbook* is truly a synthesis of heroic proportions. Excluding the editor and his staff, more than 40 contributors are involved; these include, to mention only a few, Birket-Smith, Eiseley, Firth, Haury, Koppers, Kroeber, Schultz, and Tax.

This book is divided into six sections. Part one is devoted to a "Guest editorial" by Julian Huxley on evolution.

Part two ("Man's past: environments, relics, ancestors") addresses itself to the anthropological problems, methods, and theories that emphasize time-depth. Part three ("Other considerations of theory") touches on supplementary questions of method and theory, with the primary emphasis on process rather than time. Part four ("Practical affairs") discusses the practical achievements of anthropology and its influences both on the general public and in the fields of education, art, industry, and government. Part five ("Regional round-up: Europe and southwest Asia"), the first of an annual series of areal round-ups, contains reports on anthropological activities in various countries as seen by scholars who are active in the countries or regions under discussion. Part six is devoted to "Reference data" and includes a listing of medals, awards, and memorial lectures in anthropology; of professional associations; and of doctoral dissertations in anthropology submitted to the various universities of the world. The admitted gaps in reference information will be filled in future issues, but the magnitude of the task is indicated by the fact that the lists go back to the turn of the century and run through the end of 1954.

It is difficult to do justice to such an important (and handsome) book in a brief review. It is *not* a collection of abstracts, although these may appear in future issues; and it is possible that certain papers are too wide in scope. However, the *Yearbook's* format is fluid and, quite apart from the cyclical nature of the regional round-ups, different contributors and new developments will lend a special flavor to each succeeding volume.

This book is addressed to anthropological specialists, to scholars and students in other disciplines, and to the educated public. It is a measure of the *Yearbook's* worth that it can be read with pleasure and profit by such a diversified group. However, it must be noted with regret that this book, being frankly experimental, was not intended for commercial sale. Text and trade editions, comprising parts one through three, will be published this year by the University of Chicago Press.

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Books Reviewed in

The Scientific Monthly, June

Niels Bohr and the Development of Physics, W. Pauli, Ed., assisted by L. Rosenfeld and V. Weisskopf (McGraw-Hill; Pergamon). Reviewed by B. T. Feld.

The Microbes' Contribution to Biology, A. J. Kluyver and C. B. Van Niel (Harvard University Press). Reviewed by M. H. Adams.

The Caves Beyond, J. Lawrence, Jr., and R. W. Brucker (Funk & Wagnalls). Reviewed by A. C. McFarlan.

Biochemistry: an Introductory Textbook, F. Haurowitz (Wiley; Chapman & Hall). Reviewed by M. Korzenovsky.

Molecular Beams, K. F. Smith (ed. 2 of *Molecular Beams*, by R. Fraser), (Methuen; Wiley). Reviewed by I. Estermann.

Science and Freedom, a Symposium, Congress for Cultural Freedom (Beacon). Reviewed by N. Rashevsky.

The Secret of the Hittites, C. W. Ceram (American ed. 1, Knopf). Reviewed by G. W. Van Beek.

The Unleashing of Evolutionary Thought, O. Riddle (Vantage). Reviewed by P. B. Sears.

The Expression of the Emotions in Man and Animals, C. Darwin (authorized ed., Philosophical Library). Reviewed by A. Reissner.

Observational Astronomy for Amateurs, J. B. Sidgwick (Faber and Faber, distributed by Macmillan). Reviewed by J. Q. Stewart.

Wild America, R. T. Peterson and J. Fisher (Houghton Mifflin). Reviewed by A. E. Eynon.

New Books

Weather Analysis and Forecasting, vol. 1. *Motion and Motion Systems*. Sverre Petterssen. McGraw-Hill, New York, ed. 2, 1956. 428 pp. \$8.50.

Earth, Sky and Sea. Auguste Piccard. Translated by Christina Stead. Oxford University Press, New York, 1956. 192 pp. \$4.

Principles of Embryology. C. H. Waddington. Macmillan, New York, 1956. 510 pp. \$7.50.

Agricultural Ecology. Girolama Azzi. Constable, London, 1956 (order from Essential Books, Fair Lawn, N.J.). 424 pp. \$7.20.

What Makes a College? A History of Bryn Mawr. Cornelia Meigs. Macmillan, New York, 1956. 277 pp. \$5.

Perception and the Representative Design of Psychological Experiments. Egon Brunswik. University of California Press, Berkeley, 1956. 154 pp. \$5.

Biology. Relis B. Brown. Heath, Boston, 1956. 658 pp. \$6.50.

The Biochemistry and Physiology of Bone. Geoffrey H. Bourne, Ed. Academic Press, New York, 1956. 875 pp.

The Direction of Human Development. Biological and social bases. M. F. Ashley Montagu. Harper, New York, 1955. 404 pp. \$5.

Plane Trigonometry. E. Richard Heine-man. McGraw-Hill, New York, ed. 2, 1956. 239 pp. \$3.75.

New Concepts of Healing. Medical, psychological, and religious. A. Graham Ikin. Association Press, New York, 1956 (rev. American edition; printed in Great Britain by Hodder & Stoughton, 1955). 262 pp. \$3.50.

Modern Naval Architecture. W. Muckle. Philosophical Library, New York, 1956. 154 pp. \$4.75.

Modern Marine Engineering. D. W. Rudorff. Philosophical Library, New York, 1956. 154 pp. \$4.75.

Miscellaneous Publications

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

Taxonomic Appraisal and Occurrence of Fleas at the Hastings Reservation in Central California. Publ. in Zoology, vol. 54, No. 5. Jean M. Linsdale and Betty S. Davis. 78 pp. \$1.50. *The Frankliniella Occidentalis (Pergande) Complex in California (Acarina: Trombiculidae)*. Publ. in Entomology, vol. 10, No. 6. Douglas E. Bryan and Ray F. Smith. 52 pp. \$0.75. *The Larval Trombiculid Mites of California (Acarina: Trombiculidae)*. Publ. in Entomology, vol. 11, No. 1. Douglas J. Gould. 116 pp. \$2. University of California Press, Berkeley-Los Angeles, 1956.

International Scientific Radio Union, Proceedings of the XIth General Assembly. Held in The Hague from 23 August to 2 September 1954. vol. X, pt. 7, *Commission VII on Radioelectronics*. International Scientific Radio Union, Brussels, Belgium, 1954. 140 pp. \$3.

American Malacological Union and American Malacological Union Pacific Division, Annual Reports for 1955. With membership list revised 31 December 1955. Bull. 22. Buffalo Museum of Science, Buffalo, N.Y., 1956. 58 pp.

Copper Wire Tables. NBS Circular 31. U.S. National Bureau of Standards, Washington 25, ed. 4, 1956 (order from Supt. of Documents, GPO, Washington 25). 36 pp. \$0.30.

Laboratory Tests in Common Use. Solomon Garb. Springer, New York, 1956. 160 pp. \$2.

Fine Structure of Cells. Symposium held at the VIIIth Congress of Cell Biology, Leiden, Belgium, 1954. International Union of Biological Sciences, Ser. B, No. 21. Noordhoff, Groningen, Netherlands, 1955. 321 pp.

Secondary Elasticity. A general mathematical theory of elastic secondary stress in continuous media. Monogr. Ser. No. 1, vol. 1, No. 1. P. L. Sheng. Chinese Association for the Advancement of Science, Taiwan, 1955. 138 pp.

International Technical Conference on the Conservation of the Living Resources of the Sea, Papers Presented. Rome, 18 April-10 May 1955. United Nations, New York, 1956 (order from Columbia University Press, New York). 371 pp. \$3.

Statistical Analysis of Highway Accidents. Highway Research Bd. Bull. 117. 31 pp. \$0.75. *Effects of Chlorination and Microorganisms and Constituents of Asphalts*. Bull. 118. 48 pp. \$0.90. *Factors Influencing Travel Patterns*. Bull. 119. 94 pp. \$1.80. *The Use of Chemical Additives in Food Processing*. A report by the Food Protection Committee of the Food and Nutrition Board. Publ. 398. 91 pp. \$2. National Academy of Sciences-National Research Council, Washington, 1956.

L'Alimentation minérale du bétail au Congo Belge. Série Technique No. 48. L. Hennaux. Institut National pour l'Étude Agronomique du Congo Belge, Brussels, Belgium, 1956. 115 pp. F. 160.

Marine Polychaete Worms from Labrador. *Proceedings*, vol. 105, No. 3361. Marian H. Pettibone. U.S. National Museum, Washington, 1956. 54 pp.