Book Reviews

The Hormones: Chemistry, Physiology, and Applications, Vol. II. Gregory Pincus and Kenneth V. Thimann, Eds. New York: Academic Press, 1950. 782 pp. $12.50.

A number of outstanding endocrinologists have collaborated in preparing this excellent treatise on endocrine physiology. Gregory Pincus discusses the physiology of ovarian hormones. This chapter contains a wealth of information presented in a lucid manner. Unfortunately the author has restricted his review to mammals, with occasional references to experiments on birds. The extremely interesting physiology of ovarian hormones in lower vertebrates is not discussed. R. I. Dorfman has contributed a most valuable chapter on the physiology of androgens. His statement that "head hair, facial hair and pubic hair make up the most striking group which appear to be related to the concentration of circulating androgens" is open to discussion. The growth of pubic and axillary hair is generally considered to be more closely correlated to the androgen level in the blood than the growth of hair on the scalp. The physiology of the adrenal cortex is brought up to date by R. L. Noble. The therapeutic action of cortisone is briefly but adequately discussed.

Two chapters on the physiology of the thyroid, by William T. Salter, give the reader a highly informative and thought-provoking review of this rapidly developing field, including a thorough discussion of the methodology. Both experimental and clinical work are discussed. In spite of the enormous amount of work done in this field, we must agree with the author that "As yet, there is no clear picture of the ultimate function of the thyroid hormone. . . . We know the thyroid hormone's function only by the manifold distortions of metabolism and body structure which characteristically accompany thyroid deficiency or excess of thyroid." Salter classifies the functions of the thyroid hormone under two main headings: the maturity function and the "spendthrift" function. This classification will go far to abolish the widespread misconception that the maturating and calorigenic actions of the thyroid hormone are inseparable.

H. M. Evans and his associates have written the chapters on the anterior pituitary hormones. The Berkeley group has made many important contributions to the physiology of the pituitary and is thus in a position to review the field authoritatively. The results both of clinical studies and of animal experimentation are the basis of this highly readable section. The Australian investigators H. Waring and F. W. Landgrebe have contributed a highly informative chapter on the hormones of the posterior pituitary. This beautifully illustrated chapter gives a complete presentation of the physiology, pharmacology, and biochemistry of posterior lobe extracts.

Chemical control of nervous activity is excellently discussed by D. Nachmansohn, H. Blaschko, and G. H. Parker. In a closing chapter H. Freeman gives a brief summary of the present status of clinical endocrinology. The usefulness of this book as a standard work of reference is enhanced by the excellent index.

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Cosmical Electrodynamics. H. Alfvén. New York: Oxford Univ. Press, 1950. 237 pp. $5.00.

This work is an exploration of the role of electric and magnetic fields in astrophysics and geophysics. It will be valued by all who wish to follow the progress of this recently opened province, as well as by those who are engaged in its study. Coming from Alfvén, whose imaginative investigations have done so much to stimulate thought on these problems, the volume is unquestionably authoritative. It presents both a concise and coherent survey of the requisite background physics and detailed discussions of the various cosmical problems to which the ideas have been applied.

The systematic exposition of Alfvén's theory of magneto-hydrodynamic waves is likely to be especially useful. Chief among the applications are those to solar physics, to magnetic storms and aurorae, and to the cosmic radiation. Ionospheric physics has been excluded. It must be said that some of the applications are decidedly speculative; indeed, the book itself is pioneering in tone. Its very appearance, however, will doubtless prove most influential in advancing knowledge of this potentially highly important field.

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Problems of Morphogenesis in Ciliates: The Kinetosomes in Development, Reproduction and Evolution. André Lwoff. New York: Wiley; London: Chapman & Hall, 1950. 103 pp. $2.50.

This small volume develops, in interesting fashion, the thesis that "morphogenesis of a ciliate is essentially the multiplication, distribution and organization of populations of kinetosomes and of organelles which are the result of their activity." The behavior of basal granules (kinetosomes), and also of the fibrils (kinetodesmas) to which they are joined, is traced through fission and other phases of the life cycle in such genera as *Gymnodinioides, Polyspira, Phoretophrya, Synophrya, Lichnophora,* and *Foettingeria.* As clearly shown in these and other ciliates, the basal granule is a self-reproducing element which characteristically gives rise to a cilium. In certain cases a basal granule also may divide into another basal granule and either a "trichocytosome" (trichocyst-granule),

which produces a trichocyst, or a "trichitosome," which gives rise to a trichite.

Both the trichitosome and the trichocytosome may, in at least certain species, reproduce themselves before forming their usual organelles. The basal granule is thus a visible cytoplasmic element which exhibits both polyvalency and genetic continuity, and can give rise to self-duplicating granules with different morphogenetic potencies. Furthermore, the basal granules of one region may differ in behavior from those in another area—an expression of regional differentiation within the body of the ciliate. The multiplication of basal granules, initiating the appearance of two new "morphogenetic fields" in the parental body, typically precedes the more obvious processes in fission. The subsequent organization of the anterior and posterior regions of the adult into two daughter organisms is accompanied by the disappearance of various specialized parental structures.

This general body of facts, to which the author has made extensive contributions, has tempted him into various speculations concerning the significance of basal granules in ontogeny and phylogeny of ciliates. The result is a stimulating series of unanswered questions that will interest protozoologists in general and students of the ciliates in particular.

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Scientific Book Register

An Atlas of Human Anatomy. Barry J. Anson. Philadelphia: Saunders, 1950. 518 pp. $11.50.

Morphology and Taxonomy of Fungi. Ernst Athearn Bessey. Philadelphia: Blakiston, 1950. 791 pp. $7.00.

The Private Life of the Protozoa—And of Their Neighbors, the Metazoa and the Insect Larvae. Winifred Duncan. New York: Ronald, 1950. 141 pp. $3.00.

Halloween through Twenty Centuries. Ralph and Adelin Linton. New York: Schuman, 1950. 108 pp. $2.50.

George David Birkhoff: Collected Mathematical Papers, 3 vols. New York: American Mathematical Society, 1950. 2,634 pp. $18.00 the set.

Chemical Embryology. Jean Brachet. Translated from 2nd ed. of "Embryologie Chimique" by Lester G. Barth. New York: Interscience, 1950. 533 pp. $8.00.

Thoracic Surgery. Richard H. Sweet. Philadelphia: Saunders, 1950. 345 pp. $10.00.

Advanced Organic Chemistry. Reynold C. Fuson. New York: Wiley; London: Chapman & Hall, 1950. 669 pp. $8.00.

Response of Physical Systems. John Dezendorf Trimmer. New York: Wiley; London: Chapman & Hall, 1950. 268 pp. $5.00.

Manual of Rice Diseases. G. Watts Padwick. Kew, Surrey, Engl.: Commonwealth Mycological Institute, 1950. 198 pp. $4.50.

Dirichlet's Principle, Conformal Mapping, and Minimal Surfaces. R. Courant. New York: Interscience, 1950. 330 pp. $4.50.

Immortal Magyar: Semmelweis, Conquerer of Childbed Fever. Frank G. Slaughter. New York: Schuman, 1950. 211 pp. $3.50.

Paiute Sorcery. Beatrice Blyth Whiting. New York: Viking Fund, 1950. 110 pp. $1.50.

A Theory of Cross-Spaces. Robert Schatten. Princeton, N. J.: Princeton Univ. Press, 1950. 153 pp. $2.50.

Physiology and Anatomy. 6th ed. Esther M. Greisheimer. Philadelphia: Lippincott, 1950. 841 pp. $4.00.

Nuclear Data: A Collection of Experimental Values of Half-lives, Radiation Energies, Relative Isotopic Abundances, Nuclear Moments, and Cross Sections. Compiled by the National Bureau of Standards Nuclear Data Group. Washington, D. C.: U. S. Government Printing Office, 1950. 309 pp. $4.25 including future supplements.

The Birds of Greenland, Part I. Finn Salomonsen; illustrated by Gitz-Johansen. Copenhagen, Denmark: Einar Munksgaard, 1950. 157 pp. and 17 plates. $9.00.

Introduction to Textile Chemistry. Bruce E. Hartsuch. New York: Wiley, 1950. 413 pp. $4.75.

Giordano Bruno: His Life and Thought. With annotated translation of "On the Infinite Universe and Worlds." Dorothea Waley Singer. New York: Schuman, 1950. 389 pp. $6.00.

A Textbook of Biochemistry. 2nd ed. Philip H. Mitchell. New York: McGraw-Hill, 1950. 695 pp. $6.00.

Linear Integral Equations. Reprint. William Vernon Lovitt. New York: Dover, 1950. 253 pp. $3.50.

TV Installation Techniques. Samuel L. Marshall. New York: Rider, 1950. 330 pp. $3.60.

Plastic and Reconstructive Surgery: A Manual of Management. Ferris Smith. Philadelphia-London: Saunders, 1950. 895 pp. $15.00.

Bertrand Russell: A Pictorial Biography. H. W. Leggett. New York: Philosophical Library, 1950. 78 pp. $3.75.

Techniques in British Surgery. Rodney Maingot, Ed. Philadelphia-London: Saunders, 1950. 733 pp. $15.00.

Swine Production. W. E. Carroll and J. L. Krider. New York: McGraw-Hill, 1950. 498 pp. $5.00.

The Urinary Function of the Kidney. A. V. Wolf. New York: Grune & Stratton, 1950. 363 pp. $7.50.

Annual Reports on the Progress of Chemistry for 1949, Vol. XLVI. R. S. Cahn, Ed. London, Engl.: The Chemical Society, 1950. 333 pp. 25/–.

Industrial Chemicals. W. L. Faith, Donald B. Keyes, and Ronald L. Clark. New York: Wiley; London: Chapman & Hall, 1950. 652 pp. $8.00.