

the old scale, acknowledged to be in great error, without adopting an approximate correction to a new scale. The author deals with such perennially thorny topics as the distribution of galaxies, the presence of intergalactic matter, and the luminosity function for galaxies. A subtitle might well be "Colliding theories of galaxies."

In addition to galaxies, the author discusses a wide variety of topics. As an illustration of the morphological approach he outlines a standardized system by which scientists can dispose of "Bothersome Inquiries." In view of the schedule-disrupting impact of sputniks I and II on the lives of many astronomers, this section is of particularly pertinent and timely interest. Although the morphological approach demands an "unprejudiced interest in all things" (page 283), the reader may wonder, from the author's decided opinions on various topics—for example, from his comments on the program for the 48-inch Schmidt telescope at Palomar (page 39) and his sweeping disparagement of observational astronomy in seven well-known countries (page 5)—whether Zwicky himself has been able to avoid prejudices.

Certainly anyone interested in galaxies should familiarize himself with the material in this book. In so doing he will doubtless become interested in pursuing his own lines of reasoning in the light of the morphological approach outlined by Zwicky.

HELEN SAWYER HOGG
University of Toronto

Recent Progress in Hormone Research. vol. XIII. *Proceedings of the Laurentian Hormone Conference 1956.* Gregory Pincus, Ed. Academic Press, New York, 1957. viii + 646 pp. Illus. \$12.80.

This book follows in the tradition of previous volumes of this series in providing lucid and provocative accounts of endocrinologic subjects of timely interest. An especially valuable feature of the book, as of the earlier volumes, consists of a complete coverage of the often spirited discussions following the formal presentations of the papers by recognized authorities in endocrinology.

The present volume is divided into five sections. Section I deals with "Neurohumoral-Endocrine Relationships." The first paper, by Udenfriend, Shore, Bogdanski, Weissbach, and Brodie, gives a cogent account of the "Biochemical, physiological and pharmacological aspects of serotonin." E. Anderson, Bates, Hawthorne, Haymaker, Knowlton, M. Rioch, Spencer, and H. Wilson report new experiments on "The effects of midbrain and spinal cord transection on

endocrine and metabolic functions with postulation of a midbrain hypothalamo-pituitary activating system." A succinct analysis of hypothalamic-hypophyseal interrelations is presented in the paper on "Studies on the influence of the central nervous system on anterior pituitary function," by Greer. C. P. Richter, in his paper on "Hormones and rhythms in man and animals," describes an interesting correlation of cycles of behavior and metabolism in psychiatric patients and the production of similar cycles in rats through interference with thyroid, pituitary, and brain function.

Section II deals with "Hormone Transport in Circulation." Recent concepts of the binding of thyroid hormone and of steroids to proteins in body fluids are provided in excellent studies on "The interaction of thyroid hormones and protein in biological fluids," by Robbins and Rall, and on "The binding of steroids and steroid conjugates to human plasma," by Sandberg, Slaunwhite, and Antoniades.

The assignment of section III to "Aspects of Reproduction" no doubt stems from the recent active interest in the effects of the newly synthesized steroidal derivatives on reproductive processes in man. A fundamental background to the problem is provided in the paper by Schlesnyak on "Some experimental studies on the mechanism of ova-implantation in the rat," which includes some interesting new data on the effects of histamine, epinephrine, and ergotamine on decidual cell development and nidation. Following this are two clinical papers, one dealing with "Synthetic progestins in the normal menstrual cycle," by Rock, Garcia, and Pincus, and the second with "The metabolism of progesterone and its clinical use in pregnancy," by Davis and Plotz. A discussion of the use of progestational steroids in inhibiting ovulation and in the treatment of infertility and habitual abortion in women is included in these papers. A note of caution is voiced in Carl Hartman's remarks (page 345) on the possible toxic effects with prolonged use of these agents. This section is concluded with an instructive paper by Junkmann on "Long-acting steroids in reproduction," dealing with the influence of esterified androgens, estrogens, and progestogens on reproductive organs and processes in rodents.

Section IV is devoted to "Hormone Chemistry and Metabolism." Mirsky gives a clear description of his more recent work in "Insulinase, insulinase-inhibitors and diabetes mellitus." Evidence is presented that a variety of compounds of the plant growth hormone structure are insulinase inhibitors and display hypoglycemic actions in animals.

The question is raised in the ensuing discussion whether some forms of diabetes mellitus might not have a nonendocrine origin. The second paper in this section is concerned with a survey of the chemical properties and actions of "Glucagon, a second pancreatic hormone," by Foa, Galansino, and Pozza. Some parts of the discussion that follows this paper debate the validity of including glucagon as a legitimate member of the endocrine system.

Section V includes two comprehensive papers on problems relating to "Hormones and Stress." The first, by Moore, on "Endocrine changes after anesthesia, surgery and unanesthetized trauma in man," reports the adrenal cortical response to traumatic experiences in man and the possible teleological significance of these adrenal alterations. The second paper, by Gray and Ramsey, on "Adrenal influences upon the stomach and gastric responses to stress," reviews the evidence for an adrenal-gastric relation in animals and man and concludes with a consideration of the relation of the adrenal and stress to the production of gastric ulcers.

The program organizing committee of the Laurentian Hormone Conference, the participants, and the publishers deserve praise for their efforts in making the present volume one of the best in this valuable series.

ALBERT S. GORDON
New York University

The American Economy. Alvin H. Hansen. McGraw-Hill, New York, 1957. xv + 199 pp. \$5.

The essential part of this short book originated in six lectures sponsored by the Charles R. Walgreen Foundation at the University of Chicago during 1956. The lectures are concerned broadly with the role of government in the growth and progress of the U.S. economy. Hansen gives his interpretation of the recent course of economic events in the United States and Western Europe. He devotes much attention to the purposes of the Employment Act of 1946 and the way in which it was implemented by both the Truman and the Eisenhower administrations. He treats of monetary policy and of standards and values in a rich society. The book ends with an essay on Keynesian economic thinking and has an appendix on Woodrow Wilson as an economic reformer.

Hansen argues that economic stagnation followed World War I, while expansion and growth followed World War II, and that this was due to a transition from "low pressure economics" to

"high pressure economics." Although these phrases—coined by Wallich—are not precisely defined by Hansen, they seem to be euphemisms for "noninflationary" and "inflationary" policies. Hansen prefers the second type of economic policy. He summarily dismisses the remarkable revival of West Germany under "low pressure" (noninflationary) policies—a fact not convenient to his thesis—as being due to extensive state enterprise, to a large governmental budget, and to inflationary policies in other countries which created export markets for German goods. However, Hansen has the facts wrong. On the basis of the percentages of total product produced in the public and in the private sectors, next to the United States, West Germany has the most individualistic economy of the Western nations.

If "high pressure" economic measures are continuously taken by government, inflation of the price level must inevitably result. However, Hansen assures us we need fear only "pure inflation," which he defines as a situation in which the price level rises without any appreciable increase in output. So long as the percentage increase in output exceeds the percentage rise in the price level, all is well. "It is not probable that we can achieve in the next twenty years anything like the growth of which we are capable, without some moderate increases in wholesale and consumer prices," writes Hansen (page 45). However, he does not advocate a monetary policy to produce price inflation, and he expresses the hope that full economic growth can be achieved with stable prices (page 49). There is a curious inconsistency here. If price inflation is, indeed, necessary to call forth maximum output, then why should one "hope" that price inflation can be avoided?

This whole line of reasoning ignores (as I have pointed out elsewhere) the fact that continual price level increases over a long enough time generate public expectations which alter public behavior in ways that curtail real output and accelerate the rate of price increase. In other words, an inflationary policy must in the end *reduce* real output under its full potential. However, maximum growth of real output is consistent with a stable price level only when there is adequate mobility of economic resources and adequate two-way flexibility of individual prices. The attack on the inflation problem must rely not only upon monetary and fiscal measures but also upon antimonopoly, tax, international trade, and other policies to increase resource mobility and price flexibility.

NEIL H. JACOBY

Graduate School of Business
Administration, University of
California, Los Angeles

New Books

National Science Foundation, Seventh Annual Report for the Fiscal Year Ended June 30, 1957. National Science Foundation, Washington, D.C., 1958 (order from Supt. of Documents, GPO, Washington 25). 279 pp. \$1.

Atoms, Energy and Machines, Jack McCormick, 224 pp.; *The Earth's Story*, Gerald Ames and Rose Wyler, 222 pp.; *Planets, Stars, and Space*, Joseph Miles Chamberlain and Thomas D. Nicholson, 223 pp.; *The Way of the Weather*, Jerome Spar, 224 pp. Published in cooperation with American Museum of Natural History, New York, by Creative Educational Society, Manakato, Wis., 1957.

System Engineering. An introduction to the design of large-scale systems. Harry H. Goode and Robert E. Machol. McGraw-Hill, New York, 1957. 563 pp. \$10.

Mineral Nutrition and the Balance of Life. Frank A. Gilbert. University of Oklahoma Press, Norman, 1957. 365 pp. \$5.95.

Emulsions: Theory and Practice. Paul Becher. Reinhold, New York; Chapman & Hall, London, 1957. 391 pp. \$12.50.

Thermodynamics of Heat-Power Systems. F. W. Hutchinson. Addison-Wesley, Reading, Mass., 1957. 501 pp. \$8.50.

Portrait of an American Labor Leader: William L. Hutcherson. Saga of the United Brotherhood of Carpenters and Joiners of America, 1881–1954. Maxwell C. Raddock. American Institute of Social Science, New York, 1955. 448 pp. \$5.

The Treatment of Trade-Waste Waters and the Prevention of River Pollution. Proceedings of a course held in the Department of Civil Engineering, King's College, Newcastle upon Tyne, 1–12 Apr. 1957. Peter C. G. Isaac, Ed. Public Health Engineering Section, University of Durham, King's College, in association with Contractors' Record Ltd., London, England, 1957. 326 pp. 45s.

Principles of Physical Chemistry. An introduction to their use in the biological sciences. Wallace S. Brey, Jr. Appleton-Century-Crofts, New York, 1957. 441 pp. \$7.

The Chemical Dynamics of Bone Mineral. William F. Neuman and Margaret W. Neuman. University of Chicago Press, Chicago, 1958. 220 pp. \$5.

The World Beneath the Waves. Gilbert Doukan. Translated by A. and R. M. Case. De Graff, New York, 1957. 356 pp. \$6.

Puzzle-Math. George Gamow and Marvin Stern. Viking, New York, 1958. 119 pp. \$2.50.

Differential Equations: Geometric Theory. Solomon Lefschetz. Interscience, New York, 1957. 374 pp. \$9.50.

Integral Equations. F. G. Tricomi. Interscience, New York, 1957. 246 pp. \$7.

Adventures in Medical Education. A personal narrative of the great advances of American medicine. G. Canby Robinson. Harvard University Press (for Commonwealth Fund), Cambridge, 1957. 350 pp. \$5.

The Mango. S. R. Gangolly, Ranjit Singh, S. L. Katyal, and Daljit Singh. Indian Council of Agricultural Research, New Delhi, 1957. 543 pp. \$12.

Miscellaneous Publications

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

The Lynn Index. A bibliography of phytochemistry. Monograph I, *Order, Centrospermae*. Organized and edited by John W. Schermerhorn and Maynard W. Quimby. Massachusetts College of Pharmacy, Boston, 1957. 46 pp.

Hanunóo Agriculture. A report on an integral system of shifting cultivation in the Philippines. FAO Forestry Development Paper No. 12. Harold C. Conklin. Food and Agriculture Organization of the United Nations, Rome, 1957. 209 pp. \$2.

Rubber and Resin Content. William H. Minshall. Canada Department of Agriculture, Ottawa, Ontario, 1957 (available from the Author, Science Service Laboratory, University Sub Post Office, London, Ontario, Canada). 53 pp.

The Sarawak Museum Journal. vol. VII, No. 9. An annotated checklist of the birds of Borneo. B. E. Smythies. The Museum, Kuching, Sarawak, 1957. 308 pp. \$3.

Booklet on Sanitation History. Centenary of the graduation of Dr. Carlos J. Finlay in Jefferson Medical College. Cesar Rodriguez. Ministry of Health and Social Assistance, Havana, Cuba, 1956. 74 pp.

The Structure and Reproduction of Some Members of the Rhodymeniaceae. Publs. in Botany, vol. 29, No. 3. Shirley Ray Sparling. 78 pp. \$1.50. *A Synopsis of Hymenopterous Parasites of Malacosoma in California (Lepidoptera, Lasiocampidae).* Publs. in Entomology, vol. 14, No. 1. Robert L. Langston. 50 pp. \$1. *The Distribution of Radioisotopes of Some Heavy Metals in the Rat.* Publs. in Pharmacology, vol. 3, No. 1. Patricia W. Durbin, Kenneth G. Scott, Joseph G. Hamilton. 34 pp. \$0.75. *Development of Hymenolepis Nana and Hymenolepis Diminuta (Cestoda: Hymenolepididae) in the Intermediate Host Tribolium Confusum.* Publs. in Zoology, vol. 59, No. 9. Marietta Voge and Donald Heyneman. 32 pp. \$0.75. University of California Press, Berkeley, 1957.

Shall I Study Geological Sciences? American Geological Institute, 2101 Constitution Ave., NW, Washington, D.C. 16 pp. Free; five or more copies, \$0.10 each.

Directory of Geological Material in North America. J. V. Howell and A. I. Levorsen. Revised by Robert H. Dott and Jane Weaver Wilds. American Geological Institute, Washington, ed. 2, 1957. 208 pp. \$3.

Commonwealth Scientific and Industrial Research Organization, Australia, Ninth Annual Report. For the year ending 30 June 1957. Commonwealth of Australia, Melbourne, C.2, 1957. 36 sections.

The Development of a Mobile Acoustics Laboratory. WADC Rept. 56-656. Lothar O. Hoelt. 25 pp. *Metrical Relations among Dimensions of the Head and Face.* WADC Tech. Rept. 56-621. Edmund Churchill and Bruce Truett. 127 pp. Wright Air Development Center, Air Research and Development Command, Wright-Patterson Air Force Base, Ohio, 1957 (order from ASTIA Document Service, Knott Building, Dayton 2, Ohio).