Book Reviews

Religion Without Revelation. Julian Huxley. Harper, New York, rev. ed. 2, 1957. 252 pp. $4.

Julian Huxley is a well-read man, as even a cursory glance at the revised edition of *Religion Without Revelation* will reveal. The mass of material paraded across the pages here is truly amazing, especially when the reader considers that Huxley is not talking about his own professional field. As a biologist he obviously has, as a person, an intense interest in religion and its history, but it is concern for religion as a human phenomenon and not as conventional Christian theology.

A comparison with the original edition indicates that Huxley has softened his attitude toward traditional religion considerably. In place of the original chapter describing the then (1927) low estate of organized religion, he has simply substituted a statement of the naturalist's approach to God. The original edition was a more militant book in a time of open revolt from traditional Christianity; this edition is simply a statement of the naturalist's sincere interest in religion.

Perhaps the most striking thing about the book as a whole, to a philosopher, is that anyone needs to argue that a nontheistic religion is possible. The Stoics had no God recognizable in our sense, and the Epicureans (notably Lucretius) long ago delivered elaborate arguments against transcendent religious beliefs. The Christian claim to revelation is not an assertion that all men must subscribe to the Christian beliefs; this would be contrary to the meaning of revelation. Revelation means that only believers accept this particular disclosure of God as being true, so that if it were not natural and possible to live without admitting the truth of the revelation, conversion would have no meaning. If religion without revelation were not always naturally attractive to some men, Christianity would lose all distinctiveness.

Huxley does give clear and well-documented support of the naturalist's view, but it will be a "new conception" (page 1) only to those people unfamiliar with philosophical history. Most of the statement, however, is a personal declaration of what he, Huxley, believes, and as such no one can argue about it. (It is helpful to remember that the book was originally published as one of a series on "What I Believe.")

His call for the application of scientific method to religion (page 4) seems not to have taken hold, and today what we find more prevalent is an attempt to establish theological methods upon their own foundations. Not that science is being ignored; the truth is that modern science has been completely accepted, but it has not seemed able to serve as a basis for theological revival. The challenge of science seems to have had the effect of driving theology in search of its own methodology rather than of reforming it as a branch of the natural sciences.

Huxley's modern reinterpretation of traditional doctrines (for example, the trinity treated as nonhuman forces, ideals, and human nature) is one possible account of what has often been described in different ways, but it surely does not of itself prove that traditional doctrines can no longer be interpreted traditionally by thoughtful persons. God, as Huxley indicates, may not be a useful hypothesis, as a trinity or otherwise, to science; but this does not say that God may not remain a hypothesis in nonscientific disciplines. Huxley's reinterpretation is surely possible; the only question arises from his apparent assumption that a new interpretation makes traditional views no longer tenable. After all, theology may not be as scientific as all that.

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The Carbohydrates. Chemistry, biochemistry, physiology. Ward Pigman, Ed. Academic Press, New York, 1957. xvii + 902 pp. $20.

This is a complete revision and expansion of *The Chemistry of the Carbohydrates* by W. Pigman and R. M. Goepp, Jr., published in 1948, although, according to the editor, considerable borderline material has been deleted and a number of chapters have been condensed. The present volume contains sections on the structure, stereochemistry, occurrence, properties, and synthesis of the monosaccharides; the chemistry of carbohydrate esters; chemistry of the glycosides, simple acetals, and thioacetals; chemistry of the polyols; carbohydrate acids and acid products; carbohydrate esters and hydrosugars and unsaturated derivatives; carbohydrate nitrogenous derivatives; oligosaccharides; naturally occurring glycosides and glycosidases; and chemistry of polysaccharides, as well as a section on methods for the quantitative determination of carbohydrates. All of these topics are treated in ample detail, with copious references to the appropriate literature, principally from the standpoint of the organic chemist. These chapters would serve admirably as a reference work for interested individuals and as a text for the advanced student of chemistry.

The volume also contains two new chapters, one dealing with photosynthesis and carbohydrate metabolism and the other with carbohydrates and nutrition. These are adequate in terms of a very rapid survey. However, only eighty-odd pages of a total of 902 are devoted to these aspects of the carbohydrates, and they hardly justify the use of the terms *biochemistry* and *physiology* as part of the title of the volume.

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Morphological Astronomy. F. Zwicky. Springer, Berlin, 1957. iv + 299 pp. Illus. DM. 49.60.

This book, by a well-known astronomer of Mount Wilson and Palomar Observatories, is an unusual mixture of factual information on one of the most important of astronomical subjects—galaxies—and a development of the author's ideas on the morphological method. These latter he bases on Faraday's concept "that ultimately all things are interrelated in a most surprising variety of ways."

In his morphological approach to science, the author takes a strong stand against the present trend of research to learn more and more about less and less. "The morphological method always attempts to attain the most general perspective." The main emphasis in the book is definitely on galaxies—a field in which the author uses his own researches to illustrate the morphological approach. On galaxies, there is a vast amount of material of value to both the professional astronomer and to the student, including some excellent photographs. We cannot help regretting, however, that Zwicky keeps all distances of galaxies on

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.

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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 hypothalamico-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 ergotoxine 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.

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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