Huxleyan Overview

Essays of a Humanist. Sir Julian Huxley, Harper and Row, New York, 1964, 288 pp. $4.95.

Nineteen other books by Sir Julian Huxley are listed opposite the title page of this volume of essays. One finds with astonishment that several have been omitted, among them two—*Problems of Relative Growth* and *Elements of Experimental Embryology* (with Sir Gavin DeBeer)—that shaped the minds of a whole generation of biologists (and provided the plots for several of Aldous Huxley's novels). Monographic papers, even those superb ones that helped to found the science of ethology, are of course not considered *books*. So the list of 19, now become 20, contains only *popular* books, and evidently (since at least one Penguin title is missing) only those published in the United States. Not a small achievement, one thinks, even for one of the writing Huxleys. But Sir Julian's extraordinary productivity is a by-product of his busy career, as researcher, teacher, administrator, and statesman. Can he maintain this literary output, writing as he must on trains and planes, and still have anything new or interesting to say?

The answer is that he can. Not really new, maybe, but certainly interesting. Several of these essays are concerned with *evolutionary humanism*, a rational and optimistic religion that deserves a less hackneyed title. It is a characteristically Huxleyan form of deism that Sir Julian developed more systematically in the Gifford Lectures. Like others of his family, he occupies a pulpit as warily as Emerson ever did, but the theology is nevertheless argued with cogency and skill, especially in the chapters dealing with its application to education and to eugenics. A curiously ambivalent attitude toward theologians is most apparent in his introduction to Père Teilhard's *Phenomenon of Man*, which seems out of place in this context. It cannot have been an easy book for anyone, least of all a deist, to introduce, and perhaps the result is to be read more as a tribute to the memory of a great but tormented man with a genius for friendship than as an espousal of his philosophy. What is most refreshing, and makes these essays very different from sermons, is the recognition that theology is a game, a non-zero-sum game at that, which is much too important to be left to theologians.

There is much besides theology in this book. In his youth, Sir Julian was one of the most perceptive bird-watchers of his time, and a lifetime of committee work has not diminished his stature as an ethologist. The essay "Psychometabolism," addressed originally to psychiatrists, displays the breadth of his reading as well as his own naturalist's eye, and is by no means the paraphrase of Lorenz and Tinbergen that might have been expected. "Riches of wild Africa," a judicious and optimistic assessment of a challenging ecological problem, manages to avoid the cant of the professional preservationist while pleading eloquently for Africa's national parks. "The Coto Doñana," a delightful account of birdwatching in the Spanish Marismas, indicates that Europe, too, still has wildlife worth preserving. Two chapters treat of population problems, one of them in the fresh perspective provided by little-known French and English predecessors of Malthus.

As a writer and as a scientist, Sir Julian Huxley is incapable of dullness, and his latest volume of essays is cordially recommended.

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Academic Geography

Geography Now and Then. Some notes on the history of academic geography in the United States. William Warntz. American Geographical Society, New York, 1964. xii + 162 pp. Illus. $4.

This lively and informative survey of the episodic career of geography in American universities and colleges should interest geographers most, but also some historians of science and some administrators. The career of geography has been like a jack-in-the-box in our Ivy League colleges—now you see it, and now you don't. Why?

Warntz surveys this problem historically. Geography held an exalted position in the earliest colonial colleges; it was relegated to the grammar schools in the early days of the Republic; revived in post-Civil War time, but showed strong tendencies toward weakening again around 1900; and survived to go on to a period of explosive growth everywhere except in the Ivy League where it is still in decline.

Warntz's analysis makes clear that the colonial period of growth was when geography was a systematic field with the globe as its object and mathematics and astronomy its close allies. It was reduced to primary school level when, lacking any unifying theory, it degenerated into mere place geography. The revival depended on a return to broader outlooks, first teleological and later Darwinian determinist. After World War I, crude environmental determinism came under attack, and there was a dangerous movement back toward mere cataloging—the so-called regionalist school so strongly developed in the Middle Western colleges. This was saved from aridity by its intense bent toward practicality. After World War II there appeared a strong drive toward systematic work. Cartography, geomorphology, climatology, and plant geography, all at one time almost extinct in academic geography departments, were strengthened, and some departments (for example, at Johns Hopkins) went frankly and fully into systematic studies. Warntz's own work is strongly mathematical, and this represents a still later and presently very strong current of development. There are also persistent stirrings in the direction of establishing the geography of man on a nonteleological, nonphysical, deterministic, but on a strongly cultural historical process base, that may yet give unity to this part of the field.

Warntz's little book, with its rediscovery of the colonial cycle of college geography and its interesting portrayal of the background of rise and fall of the subject, is bound to have a mighty influence on American geography. It should also interest many in other fields.

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Pharmacology

Lipid Pharmacology. Rodolfo Paoletti, Ed. Academic Press, New York, 1964. xiv + 538 pp. Illus. $17.50.

Lipid pharmacology has to do, mainly, with the effects of drugs on the lipids of the body. Lipid metabolism is

sensitive to many agencies, environmental and drug, but at the present the keenest interest is in its connections with the problem of atherosclerosis. Knowledge of the effects of drugs on the lipids has come particularly from workers whose ultimate interest lies in the possible application to clinical disease.

The book contains 12 chapters, written by authors from the United States (8), England (4), and Italy (1). The straightforward biochemistry of lipid metabolism is reviewed in the first chapter, the basic factors of atherosclerosis in the second, and, in the remaining chapters, the influences of various types of chemical agents are treated. Most of these are reviewed in the third chapter where the ways of interfering with cholesterol synthesis are considered. The ideal point of inhibition is identified as being after mevalonic acid (before would interfere with too many other functions) and before squalene (later intermediates tend to be accumulated and may be as undesirable as cholesterol itself). In other chapters, detailed consideration is given to the effects of steroids and other hormones, nicotinic acid, heparin, thyroid analogues, and a number of other agencies.

The book, which should become a classic in the field, should be of much interest to workers in both experimental and practical medicine.

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Cells and Organisms

Comparative Biochemistry. vol. 6, *Cells and Organisms*. Marcel Florkin and Howard S. Mason, Eds. Academic Press, New York, 1964. xx + 561 pp. Illus. $20.

Volume 6 of *Comparative Biochemistry* is more homogeneous with respect to subject matter than several of the previously published volumes in the series. All eight chapters of the sixth volume are concerned with certain biological concepts that have a bearing on the complexities of cells and organisms.

In "The biochemistry of morphogenesis" Barbara E. Wright discusses and compares the processes of differentiation of germinating and sporulating bacteria, sporulation of cellular slime molds, germination of seed, development of the sea urchin, and differentiation of amphibians. She places emphasis on the basic problem of biochemical embryology, that is, the mechanisms that exert a differential effect on the enzymatic potentialities of the cells in the developing organism. This clearly written chapter offers some fascinating new vistas and perspectives in this young discipline.

A. C. Wilson and A. B. Pardee examine some of the mechanisms that control reaction rates in the living cell in order to meet the biological needs of the organism. Three of these mechanisms—control of enzyme activity, control of enzyme formation, and activation of enzymes—are discussed. Of necessity the chapter is essentially a survey of these control mechanisms of as many taxonomic groups and cell types as possible, because too little is known about the details of the mechanisms, or about their distribution, to warrant drawing many conclusions of a comparative biochemical nature.

E. Beerstecher, Jr., has written an excellent and exhaustive review of the biochemical evolution and intimate details of metabolic processes. His chapter is an exciting exercise in comparative biochemistry.

Two chapters, "Biochemistry of insect metamorphosis" (P. Karlson and C. E. Sekeris) and "Hormones in invertebrates" (M. Gabe, P. Karlson, and J. Roche), are concerned with biochemical changes brought about by very specialized hormones in animals that have evolved away from the main branch of evolution. Both chapters suffer from a paucity of knowledge in these fields, which makes a truly comparative study, either physiological or biochemical, of these phenomena quite premature. It is to the credit of the authors that they have placed emphasis on posing problems, rather than on trying to resolve them. Some very intriguing speculations on the possibility of interaction of hormones with DNA are made in the chapter by Karlson and Sekeris.

The review by R. Archer, "Protein hormones in vertebrates," is a truly comparative study of three groups of protein hormones—the neurohypophyseal hormones, the melanocorticotropic hormones, and the insulins. This chapter, a gem of clarity, raises some fascinating questions. Does the primitive organ or cell synthesize only a single representative of the regulating hormone? Will later reduplication of the gene involve the synthesis of the peptide or protein whose synthesis it controls? New avenues of research in this field are suggested.

H. J. Vonk presents an exhaustive and thorough review of the comparative biochemistry of digestive mechanisms.

The comparative distribution and activity of detoxification mechanisms in different species, especially important topics in view of the many controversies raised by Rachel Carson's *Silent Spring*, are discussed by J. N. Smith in the last chapter of this volume.

This volume, with the exception of a supplementary volume, concludes the treatise. It would have been appropriate to conclude with a volume, or even a chapter or two, summarizing our present concepts of comparative biochemistry. Such chapters could well have been written by two of the true pioneers in the field—C. B. van Niel and E. Baldwin.

I question the wisdom of publishing such an extensive compilation of reviews, on so many divergent subjects, under the comprehensive title *Comparative Biochemistry*. The resolution of this question probably depends on what one considers comparative biochemistry to be—a comparison of all the various chemical processes throughout the living world, or an imaginative and inspiring synthesis of the concept of unity in the biochemical world as we know it today.

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New Books

Mathematics, Physical Sciences, and Engineering

Advances in Cryogenic Engineering. vol. 9. Proceedings of a conference (Boulder, Colo.), August 1963. K. D. Timmerhaus, Ed. Plenum Press, New York, 1964. 592 pp. Illus. $17.50.

Advances in Electronic Circuit Packaging. vol. 4. Proceedings of the Fourth International Symposium (Boulder, Colo.), August 1963. Michael A. Marrese, Ed. Plenum Press, New York, 1964. 496 pp. Illus. $17.50.

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