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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