

## Book Reviews

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EXTRACELLULAR AND SUPPORTING STRUCTURES (COMPREHENSIVE BIOCHEMISTRY), edited by M. Florkin and E. H. Stolz, Vol. 26A and B, American Elsevier Publishing Co., Inc., New York, 1968. 295 pp., illustrated. Price \$17.

The literature of biochemistry is expanding so rapidly the nonspecialist can be grateful to a series which assembles the most pertinent material in a given area. "Extracellular and Supporting Structures" is the title of Volumes 26A-C of Elsevier series on comprehensive biochemistry. Since the appearance in 1962 of the first volumes, every addition to the series has been a valuable contribution to the interrelationships of biochemistry, physiology, and medicine.

With present mainstream efforts in biochemistry devoted to structure and function of intracellular organelles, particularly in mammalian cells, it is important to note the advances made in the area of extracellular and supporting structures.

Volume 26A contains four chapters. In the first chapter on the Biochemistry of the Plant Cell Wall by S. M.

Siegel, the extraction, separation, and chemical characterization of polysaccharides, polyuronides, and lignins have been treated, followed by present knowledge of the biosynthesis of these components. From a nearly unlimited mass of literature, the author has brought together a 47-page summary with a most useful bibliography by topic. In the second chapter, a cooperative effort between Ghuysen (Liège) and Strominger and Tipper (Madison), a concise but thorough treatment has been accorded the structure and biosynthesis of the peptidoglycans of bacterial cell walls, followed by the nature of the protein antigens, polysaccharides, teichoic acids and lipids of gram-positive bacteria.

Chapter III comprises a 107-page thorough treatment, with extensive bibliography, of the somatic and capsular antigens of gram-negative bacteria (Lüderitz, Jann, and Wheat). The principal attention is devoted to the polysaccharide, protein, and lipid components of the somatic O-antigen from various bacteria, followed by characterization of the R-antigens, biosynthesis of O and R types, and

finally a brief treatment of the capsular antigens.

The final chapter on Calcified Shells by Wilbur and Simkiss compares particularly the biochemical development of avian eggshells and molluscan shells. Considerations of the organic matrix, inorganic composition, crystal structure, and electron microscopy combine to make a unique treatment of the subject.

Volume 26B continues with four chapters discussing collagen, cartilage, silk, and keratin. The chapter "The Nature of Collagen" by Allen J. Bailey, Cambridge (115 pp., 403 refs.), is a thorough digest of a complex subject, ranging from the biological to chemical aspects, including short sections on experimental lathyrisms, immunochemistry of collagen, and aging. The various theories of collagen structure are developed and critically examined.

"Cartilage" by A. J. Barrett (40 pp., 346 refs.) provides a succinct and factual review of the subject, providing particularly information on the protein-polysaccharide complexes of cartilage, structure and properties of the matrix, and biosynthesis of the matrix components.

The third chapter by F. Lucas and K. M. Rudall on Extracellular Fibrous Proteins treats the general subject of silks, their production, amino acid composition, structure, and conformation.

In the chapter by K. M. Rudall entitled "Intracellular Fibrous Proteins and the Keratins" (31 pp., 73 refs.), the general subject of keratins and keratinization is reviewed. Of particular interest is the role of Vitamin A in keratinization, the cellular organization responsible, and the proteins of the epidermis.—BERNARD IDSON—Hoffman-LaRoche, Inc.