Book Reviews

Biochemistry and Human Disease

Advances in Metabolic Disorders. vol. 1. Rachmiel Levine and Rolf Luft, Eds. Academic Press, New York, 1964. xiv + 366 pp. Illus. $12.

This volume introduces a new international serial publication addressed to physicians, investigators, and graduate students interested in metabolic disorders. The editors plan in this and future volumes to present authoritative reviews, written by experienced workers, of one major subject or problem. The term *metabolic disorders* is interpreted broadly. The topics discussed in volume 1 have in common the application of biochemistry to the pathogenesis and course of human disease, but within this general definition great heterogeneity exists. This first volume contains 8 papers by 12 authors.

The series is launched by a paper entitled "Glycogen storage disease," by H. G. Hers, which may well serve as a model of concise, lucid, scientific writing for future contributors to the series. It is selective in the material included, but unbiased. Biochemical techniques for investigating tissues from patients with glycogen storage disease are discussed in this chapter. In the ensuing chapter, "The parathyroids," G. D. Aurbach and J. T. Potts, Jr., consider the physiology and biochemistry of parathyroid hormone and the syndromes of hyperparathyroidism and hypoparathyroidism. This chapter ranges more widely than the first and includes a review of early development of concepts of parathormone action and more data on treatment and on patterns of hereditary transmission. Next there is the discussion "Mitochondrial respiratory control" in which L. Ernster and R. Luft review in some detail the historical developments of the biochemical concepts of coupling of respiration and phosphorylation. The chapter is organized to provide a biochemical basis for the discussion of a remarkable patient with hypermetabolism of nonthyroid origin, attributed to a defect in the maintenance of mitochondrial respiratory control. In his paper "Osteoporosis" B. E. C. Nordin marshals the argument, based on his own data and those of others, that osteoporosis is a result of increased bone resorption, perhaps due to prolonged negative external calcium balance or to degenerative changes in the bone itself. Osteoporosis may be an end result of various processes. In "Basal metabolic rate and thyroid hormones," J. R. Tata discusses the various existing theories of the calorigenic action of thyroid hormones and points out their inadequacies. He expresses the conclusion, in the final pages of the chapter, that the influence of thyroid hormones on informational mechanisms which regulate biosynthetic activities may constitute a field for fruitful future studies. His own more recent investigations in this field are not covered in this chapter.

In "Insulin antagonists and inhibitors," J. Vallance-Owen suggests that the primary abnormality in idiopathic diabetes mellitus is increased antagonism to insulin, an exaggeration of the normal which the diabetic subject presumably inherits. The type and time of onset of the diabetic state depend on the degree of antagonism and on the resilience of the beta cells of the pancreas to withstand the challenge. Impaired glucose tolerance is considered a late event in a condition that has been present from birth. Insulin antagonism is mediated through the pituitary-adrenal system. The association of diabetes with the growth spurt, pregnancy, infection, menopause, and mental stress may then be integrated within this concept. "Aldosterone: Its biochemistry and physiology," by J. H. Laragh and W. C. Kelly, contains, in the first part, a discussion of biosynthesis and measurement of aldosterone and, in the second part, a consideration of the physiological effects of aldosterone, including its normal control and abnormalities of secretion in disease. The chapter concludes with a discussion of angiotensin as a possible major regulator of aldosterone secretion.

The final chapter, by A. L. Luhby and J. M. Cooperman, "Folic acid deficiency in man and its interrelationship with vitamin B_{12} metabolism," is a long and carefully written chapter. The metabolic interrelationships between folic acid and vitamin B_{12} are considered in detail, but a molecular explanation of these interrelationships must await further studies. Many of the methods used in the study of folic acid deficiency in man are examined analytically and stress is placed on their applications, values, and limitations.

The editors, who have not encouraged neutrality, have given the contributors considerable freedom in developing their topics, and some chapters—for example, those by Nordin and Vallance-Owen—express a more individual viewpoint than others. The style is that of the other reviews published by Academic Press, with liberal use of outline subheadings and extensive citations in which the titles of articles are omitted. Both an author and subject index are included.

This series is a welcome addition to the growing list of *Advances*. Its prime function will be to integrate basic science and clinical knowledge in selected areas. The series will be particularly valuable to medically oriented investigators, both the physician who is interested in disease mechanisms and the biochemist and physiologist who are interested in the larger application of their work. The editors are to be congratulated on their selection of contributors to the first volume, for all of them have provided authoritative reviews. Additional volumes of this series will be awaited with interest.

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Dynamics of Viscous Fluids

Incompressible Fluid Dynamics. J. N. Hunt. Wiley, New York, 1964. viii + 127 pp. Illus. Paper, $4.

As the title of this little book surely does not imply, the author seeks specifically to bridge the gap between elementary texts "concerned largely with clas-