to wade through the entire book, he will find parts of it to be useful, and the academician should make use of most of it. If parts 2 (*Gas Chromatography*) and 3 (*Liquid Chromatography*) build upon the theory from part 1 as anticipated, then the value of part 1 will be further enhanced.

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Steroid Metabolism

Elucidation of the chemical changes involved in the biosynthesis and catabolism of steroid hormones represents one of the great triumphs of biochemical endocrinology during the past quarter of a century. The development of excellent chromatographic methods for the separation of innumerable closely related steroids, and of isotopic and other procedures for the microestimation of these substances, are among the major factors responsible for the astounding progress in this field, which has had immense bearing on many clinical problems. This new edition of Ralph Dorfman and Frank Ungar's treatise **Metabolism of Steroid Hormones** (Academic Press, New York, 1965. 726 pp., $32) is a monumental feat of documentation of the vast and ever expanding literature on steroid metabolism, and correlates well many disparate experimental and clinical investigations.

The volume is divided into nine chapters, beginning with a brief but incisive treatment of the nomenclature and conformational analysis of steroids. There follows an account of the presence of steroids (excluding bile acids) in various animal tissue and body fluids. Like many of the other chapters, this consists of a relatively concise text, followed by a series of comprehensive tables, and then depiction of every relevant structural formula. A useful part of this second chapter is a thoughtful consideration of the various artifacts that may arise during hydrolysis, extraction, and isolation of various steroids, particularly from urine. The third section deals with pathways for the biosynthesis of steroid hormones in the gonads, adrenal cortex, and placenta, and pathways for the formation of steroid conjugates in various peripheral tissues. It also summarizes the nature and locus of action of known inhibitors of steroid biosynthetic reactions, as well as the actions of hypophyseal trophic hormones and other substances that stimulate these processes. The next chapter ties together a vast amount of recent work on microbiological transformations of steroids.

The fifth section is largely comprised of 60 tables and 46 accompanying figures dealing with the catabolism of neutral and phenolic steroids, including the formation of conjugates of the various products. Chapter 6 discusses the enzymatic basis of steroid metabolism. Although it is comprehensive and provides a thorough bibliography, I find this the least satisfactory part of the book. In my opinion, not enough emphasis is placed on the meaning and reliability of studies of steroid transformations carried out with highly refined enzymes as compared with very crude tissue extracts. In the discussion on hydroxysteroid dehydrogenase reactions, for example, practically nothing is said about the clear-cut insight into the equilibria between various steroids and pyridine nucleotides, or about the stereospecificity of the hydrogen transfers, which could only be obtained with the few enzymes of this class that have been purified to a very high degree.

The next chapter, "A system of steroid metabolism," contains 72 tables, replete with structural formulas, of the possible metabolic transformations of about 60 neutral and phenolic steroids. The following chapter deals with the relationship between tissue steroids and metabolites in blood and urine; it includes a useful account of our knowledge of the levels of biologically active steroids in blood plasma. The book ends with a survey of recent studies on steroid hormone production rates in normal individuals and in various disease states.

Conspicuously absent from this volume is any discussion of the possible relationship of the metabolic transformations and tissue distribution of steroid hormones to the molecular mechanisms by which these substances regulate the growth and function of cells. But perhaps that is all for the best, considering the extent of our present ignorance concerning the latter topic. It is inevitable that misprints and even misquotations should creep into such an encyclopedic catalog, although I noted very few. As befits a work of this nature, there are extremely thorough indexes to authors and subjects. The organization of the numerous tables and charts is such that it is very easy to find where any particular steroid is located in the body and how it is manufactured and disposed of.

As the authors state in the preface, the volume was avowedly fashioned for the novice as well as the expert, and with the requirements of both the clinician and the laboratory investigator in mind. In this and many other respects *The Metabolism of Steroid Hormones* succeeds admirably. Dorfman and Ungar have rendered an important service to biochemistry and endocrinology in compiling this up-to-date and handy reference work.

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New Books

Mathematics, Physical Sciences, and Engineering

Advances in Fluorine Chemistry. vol. 5. M. Stacey, J. C. Tatlow, and A. G. Sharpe, Eds. Butterworth, Washington, D.C., 1965. 294 pp. Illus. $14.95. Two papers: "Oxyfluorides of nitrogen" by C. Woolf and "Fluorides of phosphorus" by R. Schmutzler.

Analysis. vol. 2. Einar Hille. Blaisdell (Ginn), Waltham, Mass., 1966. 686 pp. Illus. $10.50. A Blaisdell Book in the Pure and Applied Sciences.

Asymptotic Expansions for Ordinary Differential Equations. Wolfgang Wasow. Interscience (Wiley), New York, 1966. 372 pp. Illus. $14. Pure and Applied Mathematics Series, edited by R. Courant, L. Bers, and J. J. Stoker.

Chemical Aspects of Polypeptide Chain Structures and the Cyclol Theory. Dorothy Wrinch. Munksgaard, Copenhagen, Denmark, 1965; Plenum Press, New York, 1966. 195 pp. Illus. $9.50.

The Circular Functions. Clayton W. Dodge. Prentice-Hall, Englewood Cliffs, N.J., 1966. 188 pp. Illus. $5.95.

Coatings of High-Temperature Materials. Henry H. Hausner, Ed. Plenum Press, New York, 1966. 306 pp. Illus. $15. Three papers: "Coatings of high-temperature materials" by G. V. Samsonov and A. P. Epik [translated from the Russian work (Moscow, 1964)]; "Properties of coated refractory metals" by W. A. Gibeaut and E. S. Bartlett; and "Coatings on refractory metals" by D. H. Leeds.

A Concept of Limits. Donald W. Hight. Prentice-Hall, Englewood Cliffs, N.J., 1966. 152 pp. Illus. $3.95. Teachers' Mathematics Reference Series, edited by Bruce E. Meserve.

Design of Film Bearings. Paul Robert Trumpler. Macmillan, New York, 1966. 272 pp. Illus. $9.95.