irreversible labels had delayed the isolation and purification of AdR, although some further progress has been made more recently (Lefkowitz, 1976, Biochim. Biophys Acta 247, 1–41). Greater progress had been made, however, in clarifying events following the combination of catecholamine with β-AdR. This was well demonstrated by accounts of the stimulation of adenyl cyclase by catecholamines, the role of membrane phospholipids and guanyl nucleotides (papers by Lefkowitz, by Wollemann and by Will-Shahab et al.) and by accounts of the actions of thyroid hormone and thyroid stimulating hormone on cardiac microsome and thyroid plasma membrane preparations (papers by Will-Shahab et al. and by Marshall et al.).

In contrast the purification of AchR had progressed to the stage at which investigations of the amino acid composition, subunit structure, carbohydrate content, immunological properties and interactions with cholinergic ligands were informative (papers by Heilbronn et al. and by Raftery et al.). However, information about the mechanisms underlying membrane events following the combination of acetylcholine with the receptor, was minimal. An account of the reconstitution of chemically excitable vesicles from purified AchR and native phospholipids (paper by Raftery et al.) illustrated a recent, promising approach. Since the Symposium, further accounts of this kind, some cautionary, have indeed appeared.

Although interesting and, in the main, well produced, this volume shares the difficulty common to most published accounts of specialised symposia, particularly on rapidly developing subjects. Of necessity, they represent limited samplings of current research in the specified areas, the greater part of which has usually reached the scientific literature before the symposia are published. It may be thought, therefore, that books of this kind are not comprehensive enough for the student, while they contain material already familiar to the specialist. Several books and reviews have appeared in the past 2–3 years, containing articles by other contributors to the area of research covered by this particular volume. Work on AchR has been particularly well represented.

A. K. Prince

Mass Spectrometry of Steroids

by Z. V. Zaretskii
John Wiley and Sons; New York, Toronto. Israel University Press; Jerusalem, 1976
xi + 182 pages. £ 9.90, $ 19.80

First reports of the application of mass spectrometry to the structural elucidation of steroids were made in the mid-1950s and since that time these compounds have been extensively investigated. The present book sets out to summarize and review electron impact induced reactions of the principal steroid structures. The six chapters include steroid hydrocarbons, ketones, alcohols and olefins together with bile acids and oestrogens. Covering a range of steroid structures in a short book (182 pages) has necessitated brief discussion of the spectra of individual compounds and limited the treatment to selecting the most characteristic fragmentations induced by particular functional elements. The author has succeeded in presenting this data succinctly and in a style which is easily read. Figures and fragmentation schemes are well laid out.

The obvious importance of stereochemistry in steroid molecules and the need to differentiate configurational isomers is reflected in the emphasis placed on the effect of stereochemistry on fragmentation and rearrangement processes in the chapters on ketones, alcohols and oestrogens. The authors has also drawn together data on the relationship of ion

appearance potentials, ion intensities and the stereochemistry of ring fusion. Ions arising from simple cleavage of bonds at ring junctions normally have lower appearance potentials and higher intensities in the more labile stereoisomer. On the other hand, ions formed by rearrangement processes depend more directly on the atomic distances between interacting centres and less on the energy differences between isomers.

Although mention is made of acetate derivatives and the methyl ethers of oestrogens and methyl esters of bile acids, reference to other derivatives has been avoided. This is an unfortunate omission, particularly for hydroxylated steroids where, for example, the use of trimethylsilyl derivatives, is very widespread. The latter have proved of value from the point of view of volatility for gas chromatographic separation and mass spectrometric introduction and as a means of directing fragmentation in the molecule. They are used extensively in characterising steroids from biological material and their exclusion underlines a lack in the book of comprehensive coverage of more highly polyfunctional compounds isolated from such sources.

This text is written primarily from a mass spectrometry mechanistic standpoint with supporting references from original papers, nevertheless, it will not overpower the reader who wishes simply to derive information about ions which arise from different structures and stereochemistries. This should be very useful to those interested in extrapolating the decomposition pathways discussed to their own studies of steroids.

A. M. Lawson

Molecular Endocrinology of the Steroid Hormones

by D. Schulster, S. Burstein and B. A. Cooke
John Wiley and Sons; London, 1976
xv + 321 pages. £ 9.75, $ 20.00 (cloth); £ 4.75, $ 10.00 (paper)

During the last 10–15 years, knowledge of the general biochemical mechanisms of hormone action has increased dramatically and the investigation of steroid hormone effects contributed much of the early impetus in this field. The stage has now been reached when conclusions are no longer too speculative to present in textbook form. However, to understand current ideas, some grasp of the principles of the chemistry, biochemistry and technology of steroid hormones and their trophins is essential. The great value of this book is that before embarking on an exposition of the authors' subject such a background is provided.

The book is divided into four sections, two of which are of an introductory nature. The first covers steroid structure and nomenclature, techniques for steroid analysis and for investigation of steroid biosynthesis and secretion, and finally pathways of biosynthesis. To cover such a field in approximately 70 pages allows no more than a superficial treatment but a series of well-selected references are given at the end of each chapter. There are two minor inconveniences in this section. Firstly, all the examples of steroid derivatives are tucked away in an appendix rather than included in the appropriate section. Secondly, the conventional representation of the α-bond is in some diagrams so poorly printed that only at a second glance can it be distinguished from a β-link. In other respects the illustrations are very clear.

The second preparatory section deals with the structure and function of the endocrine glands themselves. After a chapter on the hypothalamus and pituitary, consecutive chapters deal with the adrenal cortex, ovary, testis and foetoplacental unit. The section is completed by a description of steroid metabolism by the liver and kidney since this is important in the control of circulating steroid con-

The mass spectra of alcohols with an axial OH-group differ greatly from the spectra of their equatorial epimers, primarily in the ratio of the intensities of the peaks of M-H2O and M+. 2. On the basis of a study of the mass spectra of epimeric alcohols of the series of 16-hydroxy-Î”4,13-18-nor-17Î²-methyl-17 Î±-pregnadienedione-3, 20, as well as the spectra of their acetates, the configuration of the 16-center in their molecules was proposed. Keywords. Alcohol Acetate Mass Spectrometry Steroid Mass Spectrum. These keywords were added by machine and not by the authors. This process is experimental Gas chromatography with mass spectrometric (GC/MS) detection has been the most commonly used analytical technology for the determination of the steroid hormones [25]. However, this method requires intense purification and a derivation step prior to analysis, thus it is complex and time-consuming [26]. Radioimmunoassay is also a sensitive analytical procedure to detect steroidal hormones in a biological matrix, but its application scope is limited because it cannot be used for all hormones and it is prone to cross activity by endogenous hormones [27].Â Liquid Chromatographyâ€“Tandem Mass Spectrometry of Some Anabolic Steroids. Anal. Chem. Open access peer-reviewed chapter. Mass Spectrometry for the Detection of Endogenous Steroids and Steroid Abuse in (Race) Horses and Human Athletes. By Decloedt Anneleen, Van Landschoot Anita and Vanhaecke Lynn. Submitted: September 21st 2016Reviewed: March 15th 2017Published: June 7th 2017.

Mass spectrometric methods are still fairly labor intensive, and certainly require a higher level of laboratory expertise than do IA platforms. Occasional interferences when using mass spectrometric methods have been described, such as prednisolone/prednisone metabolite interference in urinary free cortisol measurements (48). It should be noted that currently reimbursement for steroid profile testing is not yet approved by Medicare (with the exception of the CAH steroid profile), nor are steroid profiles ordered frequently by clinicians.Â Reproducibility of serum sex steroid assays in men by RIA and mass spectrometry. Cancer Epidemiol Biomarkers Prev 2007;16:1004-1008. OpenUrl Abstract/FREE Full Text. â†µ. Gas chromatography/combustion/isotope-ratio mass spectrometry analysis of urinary steroids to detect misuse of testosterone in sport. Becchi M1, Aguilera R, Farizon Y, Flament MM, Casabianca H, James P. Author information.Â The connection of a gas chromatograph to an isotope-ratio mass spectrometer via a combustion interface allows the measurement of the corresponding characteristic value (delta /1000) for testosterone, its precursors, and its metabolites. To detect exogenous administration of testosterone, 30-40 mL of urine is sufficient. PMID: 8199357.