hormones and related substances," since not all of the substrates listed have been demonstrated to be steroid hormones or substances that would be formed from them. The chapter is divided into four sections. Two deal with the reactions of the neutral and phenolic steroids observed *in vivo* and two with the *in vitro* reactions. The former are reactions that would be necessary to explain the formation of a compound isolated from the urine after the administration of a given steroid substrate. The *in vitro* reactions are those that would be necessary to account for the formation of an identified product or structure after incubations with tissues. There is considerable repetition of information given in previous chapters, since all reactions of the neutral or phenolic steroids having 21 carbons or less are tabulated, but the emphasis here is on type of chemical transformation rather than on its role in the organism. The next chapter, "Enzymes influencing steroids," again involves repetition of much material covered under biosynthesis and *in vitro* reactions. In this chapter, however, the types of tissue preparation and the cofactors used are listed.

The next two chapters are given over to an ingenious organization of the previously covered material on the basis of chemical structure. The seventh chapter, "A complete system of steroid metabolism," is largely made up of a series of charts in which certain compounds are taken as key structures, and the various reactions that have been postulated in the previous chapters are organized around them. In the eighth chapter the authors attempt to deduce the effect of structure on the subsequent metabolic reactions and to outline the metabolism of certain steroids on the basis of the reactions and urinary products already discussed. Here an oversimplification enters, for it is implied that all the urinary steroids are formed by enzymes in the tissues of the mammal (usually human) from which the urine has been obtained. This ignores the possible role of the intestinal environment during biliary-enteric recirculation of steroid metabolites, apparently a rather general phenomenon. The last chapter deals with rather general considerations, such as the importance of method, the probability of conversion of C_{19} steroids to C_{21} compounds, and a discussion of the apparent differences between the results of *in vivo* and *in vitro* studies.

For the experienced worker, this book can be very useful as a quick reference for information that would otherwise require hours of library work. Also, in some of the tables space has been provided for the addition of further data as they appear. Thus the usefulness of the outline as a reference can be maintained. The organization of the material according to certain concepts also offers a challenge to test the hypotheses as well as a basis for associative memory. There is danger, however, that the scientist who uses this book to bring himself abreast of an unfamiliar field will be led to false conclusions. For, in the later chapters, chemical organization is achieved at the expense of lack of distinction between biosynthetic processes in the endocrine tissues and the further metabolism of the hormones. Further, as already noted, at no place in the book is the possible role of intestinal environment during hepatoenteric recirculation mentioned. Thus an unwarranted impression of certainty may be obtained regarding certain processes that are, at present, hypothetical. If these factors are kept in mind, however, the book can be a very valuable reference work and a guide to investigations that will determine the significance of the reactions indicated.

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Representative Chordates. A manual of comparative anatomy. Charles K. Weichert. McGraw-Hill, New York–London, 1954. vii + 204 pp. Illus. $3.50.

This laboratory guide for the dissection of four representative vertebrates (the marine lamprey, *Petromyzon marinus*; the spiny dogfish, *Squalus acanthias*; the mud puppy, *Necturus maculosus*; and the cat, *Felis domestica*) is designed as a companion volume to the author's *Elements of Chordate Anatomy*. It contains 103 illustrations.

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Qualitative Analysis and Chemical Equilibrium. T. R. Hogness and Warren C. Johnson. Holt, New York, ed. 4, 1954. xiii + 621 pp. Illus. $5.

In this revision the authors have reached effectively their announced objectives of presenting a considerable body of related theory and a workable short laboratory course in qualitative analysis that is adaptable both to semimicro and macro work. The procedures are, however, given in terms of semimicro operation using the centrifuge.

The theoretical section occupies slightly more than one-half of the volume. A considerable amount of pertinent descriptive chemistry and facts about equilibria precedes each laboratory procedure for a group of elements. The inclusion of a chapter on quantized atoms and molecules and another chapter on nuclear chemistry may represent unnecessary material in many institutions. The other 12 chapters of the theoretical material are standard material for many courses that cover general chemistry and qualitative analysis. The discussion of complex-ion formation has been expanded and includes informative text and charts on the relationship of electronic orbitals and complex formation.

The other chapters of the theoretical section cover atoms, molecules, and solubility; electrolytes; atomic and molecular structure; oxidation-reduction equations; oxidation-reduction equilibria; equilibrium and reaction velocity; equilibria of weak acids and bases; the Brønsted concept of acidity; solubility product; colloidal properties; polybasic acids; hydrolysis, acid-