

in this text is on an elementary level and no attempt has been made to cover any involved or sophisticated aspects" and "Care has been exercised in eliminating the time-honored 'it readily follows that' mathematical approach which leaves the student in a puzzled quandary."

The book seems to be relatively error free, but Table 3.8, which gives "chemical examples of important point groups" and extends over 34 pages, contains numerous examples which are misleading or incorrectly assigned, such as the assignment of " $p\text{-FC}_6\text{H}_4\text{CH}_3$ " to the point group D_{2h} , " NH_4Br " to D_{4h} , " $(\text{C}_6\text{H}_5)_2\text{SnCl}_2$ " to C_{3v} , and so on. Finally the reviewer would like to record his sorrow at finding, in a publication intended for the use of students, that the expression "asymmetric vibration" is used regularly instead of the correct term "antisymmetric vibration". That the authors should know better is illustrated by their description of the normal vibrations of the water molecule in the caption to Figure 3.7 and by their correct usage of the term in the text relating to that figure.

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Steroid Drugs. Volume II. Index of Biologically Active Steroids.

By NORMAN APPLEZWEIG, Director, Norman Applezweig Associates, Consulting Biochemists. Holden-Day, Inc., 728 Montgomery St., San Francisco, Calif. 1964. ix + 449 pp. 19.5×26.5 cm. Price, \$10.50.

"This volume attempts to carry forward the coding of biologically active steroids that was started in *Steroid Drugs*, Norman Applezweig (McGraw-Hill, New York, 1962)." Thus the first sentence of the Introduction in Volume II. It is an effort to summarize journal and patent literature on steroids which makes any mention of biological activity. In the 449 pages of this book (a) 13 are devoted to the explanation of the steroid nomenclature, the classification of the biological activities, and a listing (not an explanation) of twenty-one categories of activities; (b) 91 contain tables of biologically active steroids; (c) 430 catalog structural formulas, patent or literature references, and major probable or claimed activity; and (d) 9 list steroid drugs available commercially or for investigative purposes.

This is, therefore, not strictly a book about the 1594 steroids classified but a catalog. Since it lacks an index, the user must seek out for himself any compound or group of compounds by rather particular means. Knowing the type of biological activity he is seeking, ready access to minimum information is available. Indeed, for the major activity categories the author attempts a tabulation of relative biological potencies, *i.e.*, androgenic, estrogenic, progestogenic, and corticoid, on the basis of one or more standard assay procedures. This attempt is not a particularly happy one because variations in assay procedures in different laboratories make over-all comparisons rather unreliable. Indeed, it appears that the author reneged on his intentions in this regard since the table on progestogens lists six columns of tests with some potency figures for the first three but none for the last three; in his listing of tests at the head of the table test 6 is not even described. Similarly, there are six columns in his table of corticoid activity, but the sixth is both blank and unexplained. The listing of relative estrogenic activities is so slight as to be unmeaning.

It is, therefore, the table cataloging of biologically active steroids with its references to literature which is the primary source matter of this volume. Here, despite certain minor irritant headings (*e.g.*, the use of the meaningless activity "antihormonal," the misspelling of lipodiatic as lipodiactic, the inclusion of subnumbers not too understandable—such as 2359 A, B, and C), the industrious searcher may indeed glean adequate references and information on chemical structure. This catalog cannot be entirely systematic in its listing of compounds, but it attempts a fairly logical sequence beginning with estrogens and other 18-carbon steroids and their relatives and derivatives, proceeding to androstane derivatives, thence to pregnane derivatives. This is only mildly helpful in the search for a particular compound or its homologs and analogs. Most of the references are to specific patents which the author acknowledgedly finds not too meaningful in their allegations of biological activities. The journal literature citations are limited and are, interestingly, listed (like the patent references) under the name of the drug house whence the compound originated. The catalog therefore appears

primarily designed for use by the steroid industry rather than by the steroid biologist. It is, nonetheless, a useful guide to the present maze of steroid literature, involving a praiseworthy attempt at systematization on the basis of biological activity, a clear adherence to accepted chemical nomenclature, and a much-needed systematic tabulation of compounds.

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Comprehensive Analytical Chemistry. Volume IIA. Electrical Methods. Edited by CECIL L. WILSON and DAVID W. WILSON in association with C. R. N. STROUTS. American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York 17, N. Y. 1964. xvi + 268 pp. 16×23.5 cm. Price, \$11.00.

The first volume of this well-known and highly regarded series dealt with classical methods of analysis and appeared in three parts, each of about 700 pages. This much slimmer book is the first of two that are planned to cover electrical methods of analysis. In their preface the editors attribute this division to a desire to "minimize delays in publication due to inevitable hazards in the preparation of individual chapters." No one who has been associated with the preparation of a collective volume can fail to recognize the force of this consideration. It means, however, that this review of half a book can be only an interim report and not a definitive description of the editors' aims and the contributors' success in attaining them.

There are five chapters. In the first, which is a very brief introduction by Arthur J. Lindsey, electrical methods are divided into seven classes: electrolytic, potentiometric, amperometric, coulometric, conductometric, impedimetric ("high-frequency conductometric"), and polarographic. It is apparently intended to deal with the first, second, fifth, and sixth of these in the remainder of the volume, and to describe amperometric, coulometric, and polarographic methods in its successor. The second chapter, also by Lindsey, deals with electrodeposition in 55 pages of text with 111 references, and includes constant-current and controlled-potential techniques, internal electrolysis, and electrographic analysis. The third and fourth chapters, by Donald G. Davis, cover potentiometric titrations (in 101 pages with 422 references) and conductometric titrations (in 38 pages with 138 references), respectively. The fifth, by T. S. Burkhalter, deals with impedimetric titrations in 36 pages with 44 references, 42 of which are also included in a general bibliography of 188 items. The index, in 14 pages, is very good as regards the text, of which only a very few items have escaped inclusion, but it does not include the contents of several extensive tables.

The book is directed toward the practical analyst: according to its editors, its aim is "to provide a working manual." It includes descriptions of the apparatus needed for different kinds of electrochemical analyses, brief summaries of those portions of the theory that are most indispensable in practical determinations, and rather detailed summaries of procedures that have been proposed for determining many inorganic and some organic substances.

This is useful and important information, and it may be said at once that every practical analyst who ever has occasion to use or consider any of the techniques included here will find this book extremely valuable. Davis' two chapters are especially noteworthy: that on potentiometric titrations is the best summary of its topic that has appeared since the book by Kolthoff and Furman.

One cause for regret is that the contributors were not assigned rather broader topics than appears to have been the case; Lindsey's classification in Chapter I promises more than the subsequent chapters include. Thus Lindsey speaks of "potentiometry" but Davis was nonetheless apparently asked to write on potentiometric titrations. This chapter does not mention precision null-point potentiometry or any other application of direct potentiometry save in the measurement of pH; the pM electrode of Reilly, *et al.*, is mentioned because it has been used in potentiometric titrations, but metal-ion-responsive glass and membrane electrodes are not. By the same token, what Lindsey calls "impedimetry" is represented by a chapter whose title includes only its use in titrations; direct impedimetry is mentioned in passing, but in keeping with the title of the chapter there is no mention of its use for analyzing binary mixtures.

Every silver lining has a cloud, and the emphasis on practical application here has sometimes led to more condensation and simplification of the theoretical discussions than might have been de-