melting point of organic compounds is performed under the microscope, or the conoscope, under various optical conditions.

In addition to the foregoing, its eleven chapters contain an extensive treatise on general optical crystallography and then discussions of such items as single-, mixed- and liquid crystals, iso- and polymorphism, eutectics and application of the microscope for the determination of the refractive index (by means of suitable glass powders) and cryoscopic molecular weight determination.

Of particular interest appears to be the chapter entitled: "Thermo-Analysis" featuring the use of three melting points for the identification of an organic compound. Thus in addition to its own melting point, the mixed melting points with acetanilide and separately, with phenacetine, are determined. Some 1200 organic substances have thus been treated and listed and the statement made (on p. 120) that this opens "almost unlimited possibilities for the characterization and identification of organic substances" and that henceforth the usual "preparation of derivatives is unnecessary." Further positive experimental substantiation of these statements, together with the elimination of the microscope, might really revolutionize organic qualitative analysis.

Unfortunately the literature, although extensive in both sections, is only up to about 1950 in the first and only to about 1940 in the second section. Both subject as well as author index are missing.

The first section is undoubtedly useful to the organic synthesis for rapid selection of the tools and method for a given occasional microchemical task, while the second section appears to strictly cater to the specialist, interested in organic crystallography.

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Polarographic Techniques. By LOUIS MEITES, Assistant Professor of Chemistry, Yale University, New Haven, Connecticut. With a foreword by I. M. KOLTHOFF. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1955. xiii + 317 pp. 16 × 23.5 cm. Price, $6.00.

This is not a book on analytical procedures, nor is it concerned exclusively with the experimental side of polarography. In the preface, it is stated that "It began as a manual of purely experimental techniques, but it soon became evident that these could only be explained rationally by reference to the theory which guides all of our experimental manipulations." In a foreword by I. M. Kolthoff, the aims and objectives are stated to be "to provide a concise practical and theoretical introduction into the field of polarography."

Emphasis is placed on principles which by intelligent application can be used to devise procedures for particular purposes. It contains, in addition to a theoretical introduction to the various aspects of the subject, a wealth of details on experimental techniques which should be of enormous value to the new investigator in helping him to avoid the many experimental pitfalls in this field. A major contribution is a comprehensive list of half-wave potentials and diffusion current constants of inorganic substances published prior to December 1954.

In a book of limited scope, it is inevitable that many important subjects are treated very briefly or omitted altogether. The treatment of reversible current voltage curves is excellent, and apart from an erroneous statement (p. 47) concerning the origin of the factor $\sqrt{7/3}$ in the Ilkovic equation, the theory of diffusion currents is adequate. On the other hand, irreversible waves are hardly treated at all, and it is unfortunate that most of the references to this subject are to material which is relatively inaccessible, or out of date. In particular, references to the recent papers of Koutecky and of Kern would have been desirable. Controlled potential coulometry is handled brilliantly, but unfortunately no mention is made of constant current coulometry or transition time measurements in spite of the fact that space is found for lesser topics such as derivative polarography. The treatment of back pressure of mercury, temperature coefficient of diffusion current, and current compensation techniques could have been condensed to give added space. In the opinion of the reviewer, the single reference to an oscillographic technique for proof of reversibility was not well chosen. Either the triangular voltage pulse (Sevcik) or the superimposed sine wave technique (Breyer, Ershler, Grahame, Randles) would have been more appropriate.

Chapter VI on Maxima and Their Suppression is theoretically weak, although it contains many valuable practical details. The work of von Stackelberg deserves mention.

Practically no emphasis is placed on instantaneous current–time behavior, no doubt because the treatment generally refers to currents measured by a galvanometer. The theoretical treatment of irreversible waves is more straightforward if the "peak current" is measured, and adsorption waves (p. 82–83) as well as certain waves due to film formation clearly show the expected inverted current-time behavior if a high speed recorder is used. Thus the inference (p. 63) that there is no advantage to the use of high speed recorders is misleading.

In the chapter on Amperometric Titrations the impression is somehow created (p. 198) that the over-all accuracy is limited by the accuracy of determining concentration by measurement of current, rather than by the stoichiometry of the reaction and the sensitivity of detection of a small increment of volume. If a similar criterion were applied to potentiometric titrations an entirely erroneous notion of its accuracy would be given. The absence of charging current with a rotating platinum electrode merits mention as contributing to its useful sensitivity. The need for relatively concentrated solutions of titrant is overemphasized, especially for inverted L shaped curves for which no dilution corrections are necessary before the end-point. Complex formation titrations have been applied, contrary to the statement on p. 193. No mention is made of the Sargent "Ampot," an instrument designed for amperometric titrations.

A few minor points: On p. 8, 9, it is stated that for linearity the resistance of the voltage divider "must be very much smaller than that of the cell circuit." Since the cell circuit does not obey Ohm's Law, this requirement is much too rigid, and would be better stated by requiring that the current through the voltage divider must be very much larger than the current through the cell.

The derivation (p. 98) applies to the cathodic as well as the anodic curve of mercurous ion. The term "homogeneous electrode reaction" (p. 99) is not ideal, inasmuch as all electrode reactions are surface reactions and are therefore heterogeneous. The statement (p. 108), "any appreciable variation of $E_{1/2}$ with concentration is conclusive proof of the irreversibility of the reaction" is not true of unsymmetrical waves, for example the anodic wave of thiosulfate. The lack of an inflection around the residual current curve (p. 109) is not as rigorous a condition for reversibility as the coincidence of anodic and cathodic half wave potentials. The proper logarithmic slope of the composite curve should be added as a criterion. The half-wave potential of an irreversible curve depends noticeably on drop time, contrary to the statement on p. 123.

Lest the above criticisms create an unfavorable impression, let it be understood that on the whole the objectives of the present volume have been very well achieved. This work should be a valuable aid to the student and to the beginning research worker as an introduction to the field. The book shows evidence of very careful proof-reading and editing, as evidenced by a remarkably small number of typographical errors (an exception is the wrong sign of E° on p. 129).

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Enzymologie. Eine Darstellung für Chemiker, Biologen und Mediziner. By OTTO HOFFMANN-OSTENHOF, DR. PHIL., Privatdozent am I. Chemischen Laboratorium der Universität Wien. Springer-Verlag, Mölkerbastei 5, Wien 1, Austria. 1954. xvi + 772 pp. 18 × 25 cm. Price, Ganzleinen, $26.65.

In these days of increasing specialization it is common practice to publish treatises under joint editorship and with multiple authorship. The authoritative work on enzymes in the English language today is undoubtedly "The Enzymes," edited by James B. Sumner and Karl Myrbäck