

chemistry. The collection is certainly an interesting, informative and inexpensive addition to a bookshelf on physical chemistry, but it would be impractical to undertake individual critical reviews of so many disconnected topics. However, an adequate idea of the contents can be gained from a listing of the articles and their authors with a few comments:

The problem of inclusions in the silver of the silver coulometer is reviewed and inconclusive attempts to estimate inclusions by means of radioactive tracers are described by A. F. Scott. Recent accurate experimental work on the determination of the faraday constant by the electrolytic oxidation of oxalate ions, resulting in a value of 96492 ± 3 absolute coulombs on the chemical scale of atomic weights, is presented by D. N. Craig and J. I. Hoffman. Under the title of the faraday and the omegatron, H. Somer and J. A. Hipple report a determination of the faraday by a physical method using a new instrument, that they call the omegatron, designed to make use of the cyclotron resonance condition to measure the charge to mass ratio of a substance of known isotopic weight. Their measurements gave a value of 9652.2 ± 3 e.m.u./g. (physical scale) or 96496 ± 3 absolute coulombs on the chemical scale. E. G. Baker and C. A. Kraus discuss the extended Onsager equation as applied to dilute aqueous electrolyte solutions with applications to actual conductance measurements. Experimental measurements of the high field conductance of some paraffin chain electrolytes are described by S. Grusman and R. H. Cole with a discussion of its bearing on the nature and stability of micelles. A study of iodide-iodine solutions with the electromotive-force centrifuge is reported by D. A. MacInnes and Margaret O. Dayhoff. They have improved the accuracy of the method, obtained transference numbers of sodium iodide, and found evidence for the presence of the ionic complex I_3^- . Moving boundary measurements in methanol and water solution with indicator concentrations below the critical Kohlrausch value are described by A. R. Gordon and R. L. Kay. An experimental investigation of the moving boundary separation of salt mixtures is presented by L. G. Longworth. H. S. Harned gives a theoretical treatment of diffusion coefficients of electrolytes in dilute aqueous solution and its comparison with experimental results. M. Eppley and G. D. Vincent discuss the effects of various septa in standard cells. Aging of standard cells by F. X. Lamb is a brief review of their improvements over the past 50 years and a summary of data on their stability and reliability. Standard cells and the unit of electromotive force, by W. J. Hamer, Langhorne H. Brickwedde and Phyllis R. Robb, is a review of the work of the National Bureau of Standards in maintaining the standard of electromotive force. Under the title of thermal-diffusion phenomena in electrolytes and the constants involved, H. J. V. Tyrrell gives a theoretical treatment of the heat transfer processes that occur in non-isothermal electrolytic systems. H. B. Callen, on thermoelectric and thermomagnetic effects, derives a set of basic equations. T. Shedlovsky, on electromotive force from proton transfer reactions, shows that it is possible for electrical work to arise directly from proton transfer in a manner analogous to the electron transfer mechanism of the galvanic cell.

The other contributions comprise absolute half-cell potentials, by R. E. Wood; standard potentials in aqueous hydrochloric acid solutions containing organic compounds, by H. D. Crockford; use of potential diagrams in the interpretation of inorganic chemistry, by W. M. Latimer; determination of activity coefficients, by R. A. Robinson; electrolytic solutions under pressure, by B. B. Owen; standardization of the pH scale, by D. I. Hitchcock; significance of constants involved in electrochemical double layers, by J. Th. G. Overbeek; some stepping stones on the path to the true explanation of the mechanism of overvoltage, by A. L. Ferguson; parameters of electrode kinetics, by J. O'M. Bockris; electrokinetic researches in capillary systems and in colloidal solutions, by A. J. Rutgers

and M. De Smet; development of constants in polarography: a correction factor for the Ilkovic equation, by O. H. Müller.

The volume closes with abstracts of the following 3 papers. Some electrode properties of mild steel in sea water, by T. P. May and F. L. LaQue; electrolyte-solvent interaction, by R. C. Miller and R. M. Fuoss; significance of ionization constants, by W. F. K. Wynne-Jones.

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Substances Naturelles de Synthèse. Volume VII. By A. ALLAIS, Ingénieur-Docteur, J. MATHIEU, Ingénieur-Docteur, A. PETIT, Ingénieur I.C.P., P. POIRIER, Ingénieur I.C.P., and L. VELLUZ, Docteur ès Sciences. Masson et Cie, Editeurs, 120, Boulevard Saint-Germain, Paris VI, France. 1953. 157 pp. 16 × 22 cm. Price, Broche 1800 Fr.; Cartonne toile 2200 Fr.

This little book is volume 7 in a series on synthesis of natural products. This reviewer has not seen any of the previous volumes, and it is difficult to appraise this volume by itself. The series appears to be somewhat more than the title would indicate, for in addition to the preparation directions in section I, there are notes on general procedures, and then in section II there are discussions, more general in nature, of processes which are important in the investigation of natural products. Section III of this volume is called a "Practical Note" and here is given a long table of indicators. The three sections are not too closely related, which gives the reader the impression of more or less randomly assembled notes on laboratory techniques and preparations.

There is an index of compounds considered, and a frontispiece showing eight good photographs of the crystals of the 4-phenylsemicarbazone of iso- α -irone, DL-proline hydrochloride, cortisone acetate, cortisone, the 2,4-dinitrophenylhydrazone of cortisone acetate, adrenosterone, lyxoflavine and the condensation product of 3,4-xylylidine and L-lyxose.

A useful, but by no means indispensable, book, at least for American chemists; the contents of the various sections are as follows:

Section I (76 pages). Preparations. A. Cortisone from desoxycholic acid, method of Kendall, *et al.*, with notes on other natural products of possible importance as starting materials; on the activity of the oxygen functions in position 11; on elimination of the elements of hydrobromic acid from positions 4,5; and on oxidations by action of selenium dioxide. As a supplement to this preparation, there are given preparative directions for 3 α ,12 α ,21-triacetoxypregnane-20-one, and for adrenosterone. B. dl-Hydroxyproline from epichlorhydrin, method of Leuchs, *et al.*, with notes on the modification of Traube and Lehmann, and on the stereochemistry of hydroxyproline. C. dl- α -Irone by the method of Naves, with notes on other synthetic approaches; on the cyclization of alkadienes; and on the partial hydrogenation of acetylenic linkages. D. Lyxoflavine by the method of Folkers, *et al.*, with notes on the synthesis of flavines. E. l(+)-Lyxose from α -D-galactose, with notes on the preparation of aldopentoses. F. dl-Proline from acrylonitrile and ethyl malonate, with notes on other synthetic approaches and on chlorination by action of sulfur chloride.

Section II (52 pages). Methods. In this section there is a short discussion of the methods for synthesis of pyrroles and indoles, together with a discussion of the methods for progressive degradation of aliphatic acids.

There follows, in Section III (17 pages), a long table of indicators, giving pH range, color changes, preparation.

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