

Thomson view of the relation between the dielectric constant of a solvent and its so-called dissociating power. The new idea that Brühl does put forth in the article cited, is that dissociating power is due to the unsaturated condition (*i. e.*, to spare valences) of solvents. On page 269 we read, "Because substances dissolve and go into the ionic state with a loss of heat energy, does not show that there is a loss of energy to the system, but only that by the transformation heat energy as well as electrical energy are given up."

The italicised statement on page 93 that "the osmotic pressure depends upon the solute and is independent of the nature of the solvent," and that on page 100, "those substances, and only those, which give abnormal osmotic pressures in solution are capable of conducting the electric current, and if they are dissolved in other solvents in which they behave normally, they lose this power", can no longer be considered "up to date."

A brief treatise on general physical chemistry which devotes such an undue proportion of its space to the exposition of the theory of electrolytic dissociation and its applications (without even attempting to indicate the shortcomings of this hypothesis) as this book does, can at the present stage of the development of the science, hardly claim to present the subject in a fair, well-balanced form.

LOUIS KAHLENBERG.

OUTLINES OF ELECTROCHEMISTRY. BY HARRY C. JONES. New York: The Electrical Review Publishing Co. D. Van Nostrand Company. 1901. vi -- 106 pp. Price, \$1.50.

Contributed originally to the pages of the *Electrical Review*, the articles forming the chapters of this book are designed for the information of those interested in or concerned with electrical engineering, as well as for the student of the subject from the purely scientific standpoint. The author disclaims any pretensions to their forming a systematic treatise, yet the subject is treated in such a manner as to introduce the reader by comparatively easy steps to a knowledge of osmotic pressure and the ionization theory of solution, and of the bearings of these matters upon electrochemistry. The later chapters deal particularly with the calculation of the electromotive force of galvanic elements. While it may be admitted that, upon the whole, the book conveys to the so-far initiated reader a clear idea of the subject, and that a number of the chapters leave little to be desired as semi-

popular articles, there are parts which can scarcely be regarded as quite satisfactory. On page 40, for instance, under the heading of "The Present Theory of Electrolysis," sufficient evidence is not furnished to carry conviction regarding the assertion that "we must abandon the theory of electrolysis which involves the secondary decomposition of water." When there are two different kinds of anions around the anode in electrolysis—in the case of hydrochloric acid, for example, chlorine ions from the ionized acid and hydroxyl ions from the ionized water—is it quite obvious, as the author asserts, that the ions which will give up their charges to the anode are the ones which hold them less firmly? Has the effect of the varying proportions in which the two kinds of ions may be present not been overlooked here? The author's statements seem convincing enough where only exceedingly low current densities are in question; but is it justifiable to make the unqualified assertion that "the anions move to the anode, but do not give up their charges; the hydroxyl anions from the water give up their charges instead?" (page 42). How is the formation of persulphuric acid at the anode to be explained on such an assumption? It is true that a few pages further on the effect of increased current density is referred to, but in such a way that the uninformed reader is very likely to overlook its importance.

A rather misleading description of the porous earthenware vessel used as a support for the semipermeable membranes employed in making osmotic pressure determinations, is given on pages 6 and 7, where it is referred to as "porcelain," whereas true porcelain is really non-porous.

The rather inconvenient shape of the book is, no doubt, due to the type having been set up originally in column form for the review in which the articles appeared. The matter should have undergone more careful revision before being issued in book form, as a number of mistakes have escaped correction. Vagaries of linotype setting are obviously responsible for the omissions and dislocations, on page 63, column 2, lines 5 and 6, and on page 83, column 2, line ten from foot. Humphrey Davy and Borchers appear instead of Humphry Davy and Borchers respectively (pages 2, 32, 43). A figure should have been prepared for page 83, to conform with the description in the text. It can scarcely be doubted that Walker would object to being represented as the author of the general electrolytic method, mentioned on page 45,

of passing from one dibasic acid to another richer in carbon atoms.

In conclusion, the following pronouncement of the author may be warmly commended: "In a word, the proper place to lay the foundation for the career of the practical man is in the University."

LEONARD DOBBIN.

DRYING OILS, BOILED OIL, AND SOLID AND LIQUID DRYERS. BY LOUIS EDGAR ANDÉS. London: Scott, Greenwood & Co. 1901. 342 pp. Price, \$5.00 net.

In times past this author has been a serious offender in the way of writing books which were merely compilations of what other people had said or guessed, so that we look with suspicion on a new book from him; but in this instance we are agreeably disappointed. Mr. Andés evidently knows something about drying oils, and has a lot of practical experience in their treatment and use. It is the best book on the subject and is pretty well up to date. The book indeed contains many of the old, useless, and impracticable formulae, familiar to all students of the subject, but these are compensated by remarks from the author's own experience which are fairly luminous with good sense and accurate knowledge, such as characterize the chapter on "Dryers." To get the real value of the book one must differentiate between the things which the author knows and those which he has merely read about; but to one reasonably familiar with the subject, this is not difficult, and to such the book will be found very useful. It is worth buying.

A. H. SABIN.