

MERCK'S 1907 INDEX. THIRD EDITION. An encyclopedia for the chemist, pharmacist and physician, stating the names and synonyms, chemical nature and formulas, physical form, appearance and properties, melting and boiling points, specific gravities and methods of testing, physiological effects, therapeutic uses, modes of administration and application, ordinary and maximum doses, incompatibilities, antidotes, special cautions, hints on keeping and handling, etc., of the chemicals and drugs used in chemistry, medicine and the arts. Merck & Co., New York.

The chief difference between this and the previous editions consists in the introduction of a large number of crude drugs and the omission of exact price quotations. The approximate price of any chemical listed in the Index can be easily found by a system of numbers as explained in the preface. The large amount of useful information in a very concise form should make the book very valuable to chemists, physicians and pharmacists.

H. M. GORDIN.

SIX LECTURES ON THE THERMODYNAMIC POTENTIAL AND ITS APPLICATION TO PROBLEMS OF CHEMICAL AND PHYSICAL EQUILIBRIUM, INTRODUCED BY TWO LECTURES ON CONCENTRATED SOLUTIONS AND OSMOTIC PRESSURE. BY J. J. VAN LAAR. Braunschweig, F. Vieweg & Son, 1906. Price 3.50 marks.

If one should enter a staid house of worship and without previous warning find in the pulpit the Reverend Bill Sunday exhorting the congregation with coatless harangue, he might experience the same surprise and shock as comes to the traveler in the austere realm of thermodynamics when he first peruses this little book of van Laar's. From the cold page of print we probably get little idea of the fervor with which these lectures were originally delivered. But what the printer could do he has done. The exclamation point is the favorite mark of punctuation, and the print becomes more emphatic with the growing intensity of the author, until in the peroration it culminates in a type of such size and blackness as a yellow journalist might view with pride.

In the first chapter the author discusses the dangers that first arise when the laws of dilute solutions are applied to concentrated solutions. With special severity he deals with the hydrate numbers which Jones has calculated, by first assuming that the freezing-point lowering of every solution really follows the law of van't Hoff, and then finding the degree of hydration which would account for any observed discrepancy. "In this way", says the author, "we can prove anything." The force of this criticism is, however, to some extent lost when in the second chapter the author himself makes a calculation in which unconsciously, he uses a method of reasoning which is identical in principle with that of Jones, and somewhat less justifiable. He assumes that the physical behavior of any simple liquid can be calculated from that of any other simple liquid. The fact that this is not true of most liquids, he ascribes to association, and from the discrepancy between the calculated behavior and that observed, he calculates the degree of association. Thus he states

as an incontrovertible fact that water at 0° contains 80 per cent. of double molecules.

The third chapter consists of a passionate onslaught upon osmotic pressure. The author considers that this conception has rendered important service to science, but believes that its usefulness is over, and shows how it may be replaced by the thermodynamic potential. In this war on what he calls the "dilute school" of chemists he recognizes the services of his ally Jahn. After quoting liberally from the latter, he writes, "All this is so plainly and correctly expressed that I, in my struggle of twelve years, have hardly expounded it better." --- "Now we can say that time has justified me completely. Osmotic pressure runs on its last legs, and the thermo-dynamic potential gains influence everywhere."

The remaining six chapters are devoted to an elementary exposition of the thermo-dynamic potential and its application to special physico-chemical problems. Here the author to a great extent abandons the fierce polemic style of the previous chapters, and his elementary statement and proof of the fundamental thermodynamic equations are remarkably clear and effective. In the later chapters, however, where van der Waals' theory of liquids is introduced, it is sometimes difficult for the reader to distinguish between pure thermodynamic equations and those which possess only approximate or hypothetical validity.

Throughout the book the style is vivacious and interesting, and the reviewer usually concurs heartily in the opinions expressed. He regrets therefore that the author's extreme partizanship makes it impossible to recommend the volume to those who are not already somewhat familiar with the principles of thermodynamics.

GILBERT N. LEWIS.

TENTH ANNUAL CONVENTION OF THE ASSOCIATION OF STATE AND NATIONAL FOOD AND DAIRY DEPARTMENTS, HELD AT HARTFORD, CONNECTICUT, JULY 17-20, 1906. 8vo., vi + 349 pp. John Wiley & Sons, New York, 1907. Cloth \$3.00.

This association is to be congratulated on having its proceedings appear in a manner commensurate with its dignity, in a continuous and readable form, instead of being interspersed with advertising matter as in past years.

Even to a greater degree than in previous years, the 1906 convention was characterized by a most notable series of able papers by the leading food experts in the country. In addition to the usual reports of committees and miscellaneous addresses, the following papers were presented and recorded in full in the proceedings, together with interesting discussions in many cases:

"Conflict of Laws", by George L. Flanders; "Food Work in Foreign Countries", by A. L. Winton; "A Few Thoughts for the Good of the Order", by T. K. Bruner; "City Milk Inspection", by J. Q. Emery; "Cheese Making in the Colorado Climate", by Mary Wright; "Color and