

While considering plasters, pills, emulsions, decoctions, syrups, and other classes of preparations, the author instructs and interests not only the clerks whom he addresses, but any pharmacist who reads after him and wishes to refresh his mind or to learn anew. Scarcely a subject of value in drug-store manipulation but is well treated, and the errors detected in the book are trivial or typographical, such as the word carbonate (p. 197) instead of carbamate. The reviewer picked up the book in the expectation of a task in the "twice told tale;" he read it through with unalloyed interest, forgetting the task. It is a book for pharmacists to read, to think over, to read again; it is a book for the young druggist without an instructor, as well as to refresh the mind of the teaching pharmacist who is an instructor professionally. Especially should it be read by those who are contented with the belief that the art of pharmacy has no higher standard than the counting out of factory-made pills and tablets.

JOHN URI LLOYD.

A DICTIONARY OF CHEMICAL SOLUBILITIES, INORGANIC. BY A. M. COMEY. New York: The Macmillan Co. 1896. xx + 515 pp. Price, \$5.00.

This new Dictionary of Solubilities is limited to substances not containing carbon, exception being made in the case of the carbonates, cyanides, carbon monoxide and disulphide, and a few others. While a complete compilation of data for all carbon compounds would have delayed its appearance, it is to be regretted that the author did not include some of these which are of importance to inorganic chemists. A few pages devoted to the oxalates, acetates, citrates, tartrates, the commoner alcohols and a few other organic compounds, would have added much to the value of the work without materially increasing its size; we are at a loss to understand why carbonyl chloride, nickel carbonyl, or an aromatic derivative like potassium carbonyl should be preferred to these. The plan of placing oxy- and sulpho-salts under the acid and other metallic compounds under the metal, has the precedent of use by some dictionaries of chemistry, but we think that classification under the negative radical in all possible cases would have been better as more consistent and as facilitating reference and comparison. There is

no very good reason for classifying simple negative radicals in one way, and compound in another.

The list of compounds seems to be tolerably complete; we note, however, that paracyanogen and the dicarbide and oxycarbides of silicon are omitted, while cyanogen and carborundum are to be found. Minerals are properly included, but unfortunately often without data. The plan adopted of giving "chemical" as well as "physical" solubilities, is obviously the only one suitable from a practical standpoint.

The author attempts in his preface to justify his course in giving all available data without distinction as to reliability and without eliminating actual contradictions, on the ground that it would be impossible to test all the statements experimentally. This is quite true, but we cannot regard it as a sufficient excuse for the many superfluous and contradictory statements which have been admitted. One who writes a text- or handbook must use some discrimination if he would avoid appearing not only as a very poor chemist, but as a hack of the worst sort. We are told, for instance (p. 178), that free hydroxylamine is known only in solution, while just below de Bruyn is quoted, according to whom it is a crystalline solid. It is absurd to waste space on vague statements as to solubility (see H_2 , HNO_3 , H_2SO_4 , and hundreds of others), when these are to be followed by numerical data. The space and cost of printing such superfluities might well have been devoted to giving solubility curves of the best-studied substances. On the contrary, important data are often omitted. Much is known of the solubility of water in, and its miscibility with, other liquids, yet the author's data comprise but four lines, together with some vague generalities on its being the most universal solvent (p. 499). The works of Fleitmann, Maddrell, and others, on metaphosphates are fully abstracted, but no mention is made of the later, and in part revolutionary work of Tammann. Nothing is said of the existence of two forms of magnesium pyrophosphate, differing in their behavior towards acetic acid, a fact of analytical importance. Many erroneous or ambiguous statements are to be found, which can only be attributed to carelessness. Thus, on pp. 148, 237, the didymium metals are written neodidymium and praseodidymium; hydroxylamine hydrochlorate is written hydroxylamine *chloride*

(p. 178); we are told (p. 316) that phosphorus is decomposed *by* water, *by* nitric acid and *by* alkalis, and similar statements are made concerning strontium (p. 385), and mercury (p. 225); phosphorus is said to be "easily soluble in PCl_5 ," which is not a case of "solid solution," but the author's way of stating the reaction between these bodies. "Filtered rain water was found to contain 20 mg. Zn per l." (p. 501), instead of *to dissolve*. On p. 471 both the properties and formulas of the thionyl and sulphuryl chlorides and amides are hopelessly confused. P_2O_5 is said to dissolve in water, forming H_3PO_4 (p. 318), instead of HPO_3 .

These faults, however, which can be found by scores, are far more pardonable from the practical standpoint than the author's system of references. In a work of this kind the full reference for *every* statement which is not a commonplace, should be given, and repetition avoided by the use of foot-notes. No foot-notes are used here, and a large percentage of the data are given without quoting any authority or reference whatever. On nearly every page one finds the name of the authority given without reference to the original sources, even when no repetition would have been incurred and where the original must have been easily accessible, although the author says he has always consulted the original memoirs when possible. This omission is absolutely unjustifiable, though unfortunately not without precedent. In many cases data from different sources are grouped in one paragraph with a single reference at the end, in such a way as to make this appear to cover the whole; thus, on page 317, Schiff is credited with all the solubility data of phosphorus pentachloride, while in reality only the last mentioned is due to him.

A dictionary of solubilities which one can consult with full confidence that he is getting the best information available, and which he can use as a guide to the original sources, is greatly needed, and it is to be regretted that the author has not taken more care with respect to the points above noted. Nevertheless, imperfect as it is, the work is extremely valuable, and in most cases will answer the practical requirements. The author has evidently devoted an enormous amount of labor to its preparation, and he deserves the thanks of all working chemists.

H. N. STOKES.