

All specimens of glass that I have been able to procure contain manganese. Presumably manganese-free glass will not be made permanently violet by radium rays. S. AVERY.

NEW BOOKS.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1905. Volume I, GENERAL MEDICINE. Philadelphia, New York and London: W. B. Saunders & Co. 1905. 8vo. 701 pp. Cloth, \$3.00 per volume; half morocco, \$3.75.

The interest of chemists in this excellent compilation, which has been briefly reviewed through several years past, will center largely in the chapters on physiological chemistry and physiology, but in the sections on general medicine, legal medicine, pathology and public hygiene there is also much that is important from the chemical standpoint. As in former years the work is under the editorial charge of Dr. George M. Gould. The staff of writers is essentially the same as before.

While the yearbook is prepared to furnish brief reviews for medical men it will prove of almost equal value to chemists and others who may wish to keep familiar, in a general way, with the most important advances in the related science, which, in some of its specialties, is becoming each year more and more dependent on pure chemistry. J. H. LONG.

A TEXT-BOOK OF MEDICAL CHEMISTRY AND TOXICOLOGY. By JAMES W. HOLLAND, M.D. Philadelphia: W. B. Saunders & Co. 8vo. 592 pp. Cloth, \$3.00 net.

In this good-sized volume, the preparation of which is evidence of commendable industry on the part of the author, an attempt is made to condense about everything that the medical student is supposed to require in chemistry, general, physical, inorganic, organic physiological, analytical and clinical. While much that is presented is very satisfactory, excellent in fact, the treatment as a whole can not be commended. In common with many writers of books for medical students the author has tried to cover too many subjects and in the necessary condensation, clearness and accuracy are too frequently sacrificed. The writer of this notice has long been opposed to the use of the term "Medical Chemistry" which seems to convey the idea that there is a peculiar kind of chemistry in which medical students should be trained from the very

beginning of their courses. There can be no greater mistake. Medical students need the same kind of elementary chemistry given to other students, and this should be distinguished not so much by amount of work as by quality of work. Much of the future of *scientific* medicine must depend on chemistry and the ground work for the young physician should receive as careful attention as is given to the Freshman chemistry courses in our best collegiate institutions. In a properly balanced elementary course much must be omitted as rightfully belonging to a later period.

As an example, consider the author's discussion of the Phase Rule, on pps. 42 and 43. Why this is included at all in a book for beginners it would be difficult to explain; the treatment in the present case is of such a character that the Freshman who could get anything tangible from it would be a phenomenon. Attention should be called also to several misleading definitions under the head of Polarimetry, and to the wrong use of the term "solvent," near the top of p. 124 where some other word is probably intended.

Entirely too much space is given to the subject of toxicology, which has long been the characteristic feature in the chemistry courses in some of our medical schools. The medical student has little concern with the chemical side of toxicology, that is, with the *detection* of poisons in stomach contents or complex mixtures. This is a difficult specialty which belongs to experts only. Discussions of the *actions* of poisons belong to pharmacology rather than to chemistry.

In the portion of the book devoted to organic chemistry there are very good descriptions of many compounds important in medicine. This matter appears to have been carefully selected, but a more logical arrangement of it would be advantageous.

The last 80 pages of text are given to physiological and clinical chemistry, of which urine analysis takes up the larger part. The sections on physiological chemistry proper are greatly condensed and not at all in proportion with other sections of the book. References to many of the more recent discussions in this field seem to be entirely lacking.

J. H. LONG.

LABORATORY STUDIES FOR BREWING STUDENTS. By ADRIAN J. BROWN, M.Sc. University of Birmingham. New York and London: Longmans, Green & Co. 1904. 193 pp. 36 illustrations. Price, \$2.50.

The author is to be congratulated upon his efforts to facilitate

the studies of those brewing students who wish to gain a thorough knowledge of the scientific principles of brewing and malting. The manual presents in a very concise and plain manner those facts which are of most important value to the practical and up-to-date brewer.

The author strives by means of practical laboratory experiments to introduce the student to the botanical as well as chemical properties of barley, hops and yeast. He describes the main requirements in their valuation and the changes which they undergo in the manufacture of beer. The book is divided into four sections.

The *first section* deals with the botanical description and technical valuation of barley, its anatomy and physiology as well as the physiological and chemical changes which take place during malting. The chapter ends with the technical as well as chemical examination of malt.

Section 2 comprises a thorough study regarding the hydrolysis of starch, the properties of the different carbohydrates and finally some experiments bearing upon the mashing process and its products in practice. This chapter closes with the methods for the analysis of beer and for the valuation of brewing sugars.

The *third section* is devoted to the physiological and chemical principles of fermentation, the study of the various organisms and their general biology. Directions are given for the preparation of pure cultures and for general bacteriological methods. The chapter concludes with some directions for the biological control in practice.

In *Section 4* the author describes directions for the examination of hops and their technical classification and valuation.

The book also contains six tables for ready reference in the analytical methods. The book is provided with 36 illustrations which assist the student materially in the perusal of this new and welcome laboratory manual on brewing. EMIL SCHLICHTING.

THE DETECTION OF POISONS AND STRONG DRUGS, Including the Quantitative Estimation of Medicinal Principles in Certain Crude Materials. By DR. WILLIAM AUTENRIETH, University of Freiburg. Translated from the Third Enlarged German Edition by WILLIAM H. WARREN, A.M., Ph.D. (Harvard). Illustrated. 12mo. Philadelphia: P. Blakiston's Son & Co. 1905. 12 + 222 pp. Cloth, \$1.50 net.

The author states in his preface that the book is intended as a concise laboratory guide for students in medicine and pharmacy and the contents of the five chapters and the appendix show that his aim has been kept well in mind.

The translator has followed the original text, giving even the references to the German instead of the U. S. Pharmacopoeia, the latter being at hand, he thinks, for the American student.

The examination for poisons is given in a systematic method. While the method is applicable to specimens furnished students it can also serve for the examination of viscera, as in a toxicological analysis.

The introduction gives directions especially with regard to the division of the viscera into several portions, each portion to be used for a group of poisons, with retention of one part as reserve material. While this will do for laboratory work it is inadvisable for forensic cases, since the quantity of poison present may be so small that a division of material might lead to negative, or doubtful results. It is wiser to operate with larger masses of the organs and to follow the alternate method the author indicates, of subjecting the residue of one operation to the processes of the next succeeding group. Thus after extracting the alkaloids the residue may well serve for the detection of metallic poisons.

The poisons are divided into four groups, the volatile, phosphorus, hydrocyanic acid, etc.; the alkaloids; the metallic poisons; and the poisons not found in the other groups, the mineral, and organic acids and the alkalies.

In the examination for the alkaloids the Stas-Otto method for their separation from each other is given, to be applied to the alcoholic extract of the specimen, which has been acidulated with tartaric acid.

Directions are given for the evaporation of the alcoholic extract on a water-bath. This is permissible for laboratory testing but should not be followed in a forensic case. There evaporation at a lower temperature should be resorted to.

More stress should be laid, too, in cases where poisoning is suspected, on a thorough purification of the several extracts as obtained from evaporating the ether, chloroform or amyl alcohol solutions, before applying any tests, and further that in such procedure the application of preliminary tests leads as a rule only to the waste of valuable material.

The author wisely insists on the destruction of organic matter as a first step in the detection of the metallic poisons. He does not lay sufficient stress however on a most thorough washing of the precipitate, obtained by the action of sulphuretted hydrogen, to

free it of chlorides, before subjecting it to the solvent action of ammonium hydroxide and sulphide.

Since copper is as a rule found in viscera, its separation at this point of the analysis, from arsenic and antimony, is important. Indeed the rule now so commonly followed in mineral analysis, of double precipitation, must be adhered to in the separation of the metallic poisons. Not until so separated should special tests be applied. It is rather remarkable that the book gives no directions for the quantitative determination of the metals, though a chapter is devoted to that of the alkaloids. In practice it is requisite to report the quantity of the metal present in each organ, if that is possible, and the quantitative estimation should precede the application of special tests, which should prove the identity of the poison beyond a doubt. The author lays stress on the latter point, quite rightly, and especially in regard to the alkaloids that they may be differentiated from the ptomaines. A single test should not be relied on, but the cumulative evidence of many tests, with no negative test to mar the record.

In view of the very extensive literature on the Marsh test, especially brought out by the labors of the British Commission, it is surprising that the form of apparatus described and illustrated should be recommended, and too, that no mention is made of the electrolytic method. It is also surprising that a "spot test" should be applied, or that the odor of the arsine should be relied on.

The Fresenius and Von Babo apparatus is faulty in that as each bubble of carbon dioxide comes up through the sulphuric acid in the drying bottle it will cause a puff in the ignition tube, liable to carry away the arsenic that should deposit on the cold portion of the glass.

The sections on blood and the bacteriological methods in testing for blood or for arsenic are important additions to the book.

Since the quantitative tests for the alkaloids follow official methods, their introduction serves a special function in the teaching of students in pharmacy.

The book is pleasing. Directions are plain, and the systematic character of an analysis is well developed.

The student is instructed not only as to the preparation of special reagents, but is given a correct description of their application to the object tested.

The book is in clear type, well divided into sections, and the illustrations are attractive.

C. A. DOREMUS.