BOOK NOTICES AND REVIEWS.

Toxicology, or the Effects of Poisons. By Frank P. Underhill, Ph.D. P. Blakiston's Son & Co., Philadelphia, vii plus 292, 1924.

"This volume has been compiled with the object of presenting a short, concise description of the effects of poisons upon the organism. No attempt has been made to enter into the details of the chemical reactions involved in the isolation and identification of poisons." As the author points out, several recent publications have discussed the chemical aspect of toxicology, but the physiological aspect has not been presented. As a whole, this text covers the physiological aspect very well as a medical school text. More attention has been given to some products than might seem warranted by their importance or frequency of occurrence. Nothing is said in the Introduction about the excretion of poisons into the stomach; gastric lavage may be employed several hours after poisoning by morphine, *e. g.*, because of this mode of elimination. The effect of cumulation upon drug action is probably discussed at greater length in the lecture than in the text. The use of lead chromate in foods is specifically prohibited by the Federal and by many state food and drug laws, so the chance of lead poisoning by it (page 75) should be rather slight. There is an excellent discussion of the mode of action of the "war gases." Oddly, nothing is said about the separation of alkaloids by shaking out in immiscible solvents, although the alkaloidal precipitants are given. Pertinent recent references are usually given for each poison, but under Digitalis one finds only a reference to work done in 1912; some mention of the more recent monographs, such as that by Robinson, would seem helpful. It is rather surprising to find the recommendation (page 233) that castor oil be given as a purgative following oil of chenopodium.

The subdivision of each discussion into the general headings: Symptoms, Poisonous Action, Fatal Dose, Fatal Period, Post Mortem Appearances, and Treatment, appears valuable in aiding the memory of readers. It would seem that a table might be included, perhaps as an appendix, summing up this information for all the drugs presented, to serve as a ready reference.

A few misprints were noted, which may be readily corrected in the next edition. This publication covers a field which has not been discussed by recent writers, and the information is presented in a concise but interesting form. As a guide to the physiological effects of poisons, it should prove of much assistance to medical students and other interested persons.

J. C. MUNCH.

Quantitative Chemical Analysis. By Frank Clowes, D.Sc. and J. B. Coleman. A.R.C.S. Twelfth Edition. 576 pp. Blakiston's Son and Co., Philadelphia.

This being the twelfth edition, speaks for a well-deserved popularity. Originally written for the use of Senior students but later broadened so as to appeal to the practical chemist. The subject matter with its subdivisions has been handled in an original manner. The general divisions are:

PART I—GENERAL PROCESSES.
PART II—SIMPLE GRAVIMETRIC ESTIMATIONS.
PART III—VOLUMETRIC ANALYSIS.
PART IV—GENERAL QUANTITATIVE ANALYSIS.
PART V—ORGANIC ANALYSIS AND MOLECULAR WTS.
PART VI—VOLUMETRIC ESTIMATION OF GASES.
PART VII—REFERENCE TABLES.
PART VIII—PREPARATION OF GASES, USE OF COMPRESSED GASES. BOOKS OF REFERENCE.

Section I.—The Chemical Balance and Weighing.

This section deals with the adjustment and testing of the balance, testing of weights, weighing (direct and substitution), and the general handling of balances.

We do not fancy the author's method of weighing in which all the weights are removed from the box, placed on numbered squares and reading from the uncovered spaces. The present system of arrangement of weights in the analytic weighing-box, suffices for this method of checking.

Section II.—Determination of Relative Density. M. p. and B. p.

It seems unfortunate that the authors still adhere to the old standard of 15.5° C. only. Since this work is to be used in our country, it should have referred to our standards of 20° C. (Bureau of Standards) and 25° C. (the U. S. P.) which were adopted for well-known reasons. Further, methods for calculating gravities from one standard to another are missing—very necessary, since our gravity tables are usually expressed in either of the latter standards.

Practical examples as an aid to beginners in calculating results, form an admirable feature of this work.

The sections devoted to melting and boiling points are fine.

Section III.—Desiccation, Solution, Evaporation, Precipitation, Treatment of Precipitates, Preparation of Pure Substances and Double Salts.

More detailed instructions for handling vacuum drying, might have been added.

Systematic, model directions are to be found covering every step for the formation, collection and handling of quantitative precipitates. Under General Rules for Working, on p. 69, the authors offer many valuable instructions, often overlooked by professionals. Part I closes with instructions relative to note-book entries and use of factors, a most important precaution when one considers book-keeping from a student's standpoint.

Section IV.—Simple Gravimetric Estimations.

We take exception to the employment of the term "Estimation" in place of the more accurate and now generally accepted term "Determination," meaning a scientific evaluation based upon exact physical measurements.

Under this chapter, we find typical gravimetric determinations of all the common occurring elements with cross references to other chapters detailing other methods as well as separations, followed by three pages devoted to the electrolytic determination of Cu, Cd, Ni and Co.

Section V.—Volumetric Analysis.

The introductory paragraphs are excellent, among these, methods for calibration and comparative calibration. Pleased to note, distinctions between calibration for measuring and delivery are impressed on the reader. Points so frequently overlooked in textbooks. We see no necessity in devoting space to the Erdman float, long since discarded because of its inaccuracies.

We note that the only temperature employed for standardization and working, is the old one of 15.5° C., a temperature difficult to maintain in this country. This fault is partially covered by the statement—"any other temperature which is convenient—may be selected." It would have been advisable, since this textbook is published and used in this country, to have noted in clear unmistakable terms, that the temperatures of 20° and 25° C. are the standards prevailing in the United States.

Page 156, paragraph 290, "Stick Soda" is directed for making the N/I V. S. Why not direct the use of electrolytic sodium hydroxide? The former is of such variable water-content and quality that very few care to use it. The use of metallic sodium is unnecessary and dangerous in the hands of beginners.

It would have been well to instruct the operator to closely observe the standard temperature when making his final dilutions, an important point liable to be overlooked by beginners.

Excellent examples illustrating processes and their calculations, with other examples for practice, are given. These add so much to the real value of such a book.

Section VII.—Devoted to Processes of Oxidation and Reduction.

This includes the uses of Dichromate, Permanganate, Iodine and Thiosulphate V. S. Some of the methods of standardization are not much used in this country. Further, Arsenous Oxide V. S. might have just as well been omitted. Would suggest closer comparison with the methods of the U. S. Pharmacopœia which accord with those of our Governmental Departments.

Section VIII.—Unclassed Volumetric Estimations.

Halogens, cyanide, silver, copper, lead, zinc and phosphate.

PART IV—GENERAL QUANTITATIVE ANALYSIS.

Section IX.—Technical Analysis.

A great variety of excellent examples, calculated to give the worker broad and valuable experiences in all kinds of assaying, are given. This includes, the analysis, valuation and assay of alloys, ores, minerals, iron, steel, coal, etc. These cover practically every element. In addition to every native ore, we find glass, coal, slags, guano, phosphates, salt-cake, alloys, etc. The system of cross references employed in this work, are of the greatest value to the student or chemist, obviating needless repetitions and calling attention to comparative determinations.

Dry assays for lead, silver, gold and tin are given.

Section X.—Water Analysis.

Thirty-seven pages, systematically arranged, with emphasis on "Interpretation of the Results," are very good.

Section XI.—Part IV. Analysis of Food Materials.

The sections on Milk and Butter Analyses are rather concise, but excellently presented with useful "Remarks on Results of Analyses."

Under Wine and Beer Analyses, reference might have been made to the determination of

alcoholic content of alcoholic liquids in general. No note was made concerning liquids containing volatile acids.

Under the Quantitative Determination of Sugars, volumetric, gravimetric and polarimetric, we note absence of any practical handling of the polariscope. Possibly the authors left this to the class room. Next we find sections devoted to Partial Analyses of Tea, Tanning Materials and Soap. The latter is excellent.

Section XII.—Examination of Oils, Fats and Waxes, 25 pages with typical examples worked out. An admirable piece of work.

Section XIII.—Part V.

Determinations of Carbon, Hydrogen, Nitrogen and other Elements. The 27 pages cover the subject in a thorough and exhaustive manner and as far as possible, made comprehensive to the student—quite an art.

Section XIV. Determination of Molecular Weights.

. Within the space of ten pages, this very important chapter in physical chemistry has been curtailed to general descriptions.

PART VI—VOLUMETRIC ESTIMATION OF GASES AND VAPORS.

Section XV.—The calculation of Volume of Gases under various conditions. Calibration of Measuring Tubes with water and mercury. Errors of Meniscus. Splendid practice and well executed.

Section XVI.—Explanation and handling of the Hempel apparatus with necessary reagents. Collecting, gases—determinations—then Gas analyses with examples covering 15 pages.

PART VI. SECTION XVII.—THE LUNGE NITROMETER.

Covers a variety of determinations made by this instrument. This is followed by Gas Determinations by Absorption and Titration according to Pettenkofer.

Section XVIII.—Vapor Density Determinations.

We note on page previous the expression—"Estimation" of Gas then "Determination of CO_2," then again—"Process of Estimation." Would suggest more uniformity in dropping 'estimation,'—a term too vague, especially in this connection.

The methods of Victor Meyer and Dumas are clearly described and adapted as adjunct to class demonstrations.

PART VII—TABLES FOR REFERENCE.

These cover a great variety of topics dealing with the subject matter, especially noteworthy, an excellent list of Books for Reference on all subjects treated.

An Index to Separations as well as General Index show careful work. So many authors try to save in printers' bills on their index, much to the annoyance and sometimes disgust of the reader.

The text, which is systematically arranged, is presented in a clear, concise and direct manner which recommends itself for the pharmacy as well as the chemistry student and professional chemists.

The press-work cannot be improved.

V. COBLENTZ.

Die Chemische und Mikrokospische Untersuchung des Harns. Ein Handbuch zum Gebrauch fuer Aerzte, Apotheker, Chemiker und Studierende. Bearbeitat von Prof. Dr. Edward Spaeth, Direktor der Staatl. Untersuchungsanstalt and der Universität Erlangen. 5 Auflage mit 111 Abbildungen, 2 farbigen Tafeln und einer Spektraltafel. Lex. 726 pp. 1924. Goldm. 26=.

The first edition of this masterwork appeared in 1897 and the present, fifth edition, is just off the press, a true proof of its popularity and usefulness.

The Chemical and Microscopical Analysis of Urine which is the title of the book before us, is becoming more and more important to physician, pharmacist and chemist. The author, a recognized authority on this subject, is professor at the University of Erlangen, Bavaria, and also director of the Laboratory of the State. It is to his credit that he wrote a book on the analysis of urine, both chemical and microscopical which is so thorough and detailed that it forms 726 pages. Verily a masterwork!

The following headings indicate the scope of the book:

I. General Part: Properties, Reagents and Methods of Analysis.

II. Chemical Analysis: Inorganic (cations and anions), Organic (divided into 44 chapters) and Odd Constituents (inorganic and organic).

III. Microscopical Analysis: General, Organized and Non-organized Sediments, Concrements.

IV. Concise, Practical Method of Urine Analysis.

How thoroughly and painstaking the author has compiled this work can be observed from the following examples.

In the determination of sulphur and sulphuric acid, seven pages have been written,