

on "Plant Processes from Laboratory Experiments" by C. M. Stine.

It is rarely the case that any book is free from error, and inasmuch as the author of the present work has stated that he will welcome suggestions, additions or corrections, a few criticisms may be noted. In the chapter on "Synthesis of Medicinals" it is stated (page 223) that the alkaloids are "all either primary, secondary or tertiary substituted ammonia derivatives, most of them the last," but in view of the complexity of plant alkaloids such a definition is certainly not sufficiently comprehensive to be of much value to the student. No uniformity has been observed in the termination of the names of the alkaloids mentioned, and, although in English it is a generally accepted rule that the names of all organic bases should end with the syllable *ine*, we find such variations as morphine, narcotin and papaverin, atropine and atropin, pilocarpin, spartein, caffeine, etc. The typographical errors in this chapter are also somewhat numerous. Thus on page 232 "acetphenitidin" should be acetphenetidin, "antpyrine" should be antipyrine, on page 234 "physostegmin" should be physostigmine, on page 235 "hyescin" is evidently intended for hyoscine, on page 237 "erythol tetranitrate" should be erythrol tetranitrate, and on page 238 "theophylline" should be theophylline. Another typographical error that has incidentally been noted occurs on page 213, fourth line from the top, where "hydrobarbons" should read hydrocarbons.

The formula for quinine, as given on page 241, is neither empirically nor structurally correct, as part of the formula has been omitted. The structural formula given for morphine (page 231), which is that of Pschorr, has now been discarded, as its constitution is believed to be more correctly represented by the somewhat modified structure proposed by Gulland and Robinson.

Notwithstanding the few imperfections, which can easily be eliminated in a subsequent edition, the book contains much of interest. It will doubtless be found useful to those who are entering upon a career of research and especially helpful to such students of chemistry as have not received adequate guidance and instruction from their teachers respecting the fundamental methods and principles that are so essential for success.

F. B. POWER.

Essentials of Pharmacy, by Clyde M. Snow, Ph.G., A.M. Professor of Pharmacy, University of Illinois, School of Pharmacy. Second

edition, 752 pages. Cloth. C. V. Mosby Company, St. Louis. \$5.50.

This book originally brought out in 1919 is now in the second edition made necessary because the first printing is exhausted. The fact that the book has gone into the second edition is evidence that it is a success.

At first glance one might be inclined to call the book a quiz-compend since the text is presented by the question and answer method. However, a closer inspection reveals that each subject is treated quite as exhaustively as in the standard textbooks. In fact, one finds that the preparations of the Pharmacopœia and National Formulary are accorded more attention than in other textbooks, which no doubt reflects the author's favorite field of endeavor in educational work. Since the questions and answers are in logical sequence the volume is of especial value to the student and to the candidate for registration. Because of the very complete index of some 31 pages it forms an excellent addition to the library of the teacher and to the equipment of the practicing pharmacist, since it is possible to readily find information on any involved question in pharmacy.

A timely addition is made to this second edition in the introduction of some sixteen pages on the subjects of alligation and measurement of gases which must prove of very considerable value to the student, since he usually experiences much trouble in these phases of pharmaceutical instruction.—GUSTAV BACHMAN.

A Systematic Hand Book of Volumetric Analysis or the Quantitative Determination of Chemical Substances. By Measure Applied to Liquids, Solids and Gases. Eleventh edition. By Francis Sutton, F.I.C., F.C.S. Revised throughout with additions by W. Lincoln Sutton, F.I.C. and Alfred E. Johnson, B.Sc., Lond., F.I.C., A.R.C. S_QI. P. Blakiston's Son & Co., 1924. Price \$9.00.

This new edition of the popular work on volumetric analysis which has so long been a standard is welcomed with a great deal of interest. It is practically the same size as the tenth edition and its scope as revealed by examination of the table of contents is about the same. There has been some rearrangement and much revision of the subject matter and some changes which result in nine parts instead of seven as in the tenth edition. Parts 1, 2, 3, and 4 are identical in scope with those of the previous edition. Part 5 of the old edition which was on applied methods of analysis is separated into two parts consisting of

inorganic substances and organic substances the latter being included as part 6. Part 7 on analysis of urine corresponds with part 6 of the old edition and part 8 on analysis of water and sewage corresponds to a portion of part 6 of the old edition. Part 9 is on volumetric analysis of gases and is of about the same scope as part 7 of the old edition. Finally, the list of tables covers about the same ground as in the old edition but the tables have been brought up to date.

Perhaps the only criticism which the writer would venture to make regarding this excellent work is that the authors have made an attempt to include in one volume too great a variety of subjects. When this is done it is extremely difficult to decide upon the extent of treatment each subject should receive. For instance, entering the field of physiological chemistry, there is a short chapter on the analysis of urine, but the very important and up-to-date subject of blood analysis is not dealt with at all. The chapter on indicators is not as complete as the writer would like to see and there is no discussion of p_H values, and the hydrogen electrode. The authors, however, may have considered this beyond the scope of volumetric analysis. There is a brief discussion of the theory of indicators but the discussion is altogether on the side of the ionic theory of color changes, and the other ideas of tautomeric changes in structure and light absorption are not dealt with at all, the former being barely mentioned. Again, this may have been considered outside the scope of a work on volumetric analysis, but since the theory of indicators is discussed, the discussion should have been more complete. The authors have included, under inorganic substances, in their classification of applied methods of analysis, cyanogen, ferro and ferri-cyanides, and thiocyanates, which the writer believes should be classified under organic substances. The type is a little small and were the book used as a textbook this might be a serious objection. Aside from the above there was nothing observed in connection with this volume which is open to serious criticism. The high standard of the previous editions has been fully maintained in every respect and the book should be in the hands of every one requiring an up-to-date reference work on the practical applications of volumetric analysis.—A. H. CLARK.

Verlag Leopold Voss in Leipzig, publisher of pharmaceutical, chemical, medical and other

scientific and technical works, submitted the following three books for review:

Repetitorium der Chemie für Mediziner und Pharmazeuten. Von Dr. Karl Arnold, Gch. Reg. Rat und ord. Professor der Chemie—Hanover. 16. Auflage mit 36 Abbildungen. 8 vo. 686 pp. Cloth, \$2.30.

Just as Hager's *Pharmazeutische Praxis* is the masterwork in pharmacy, so is Arnold's *Chemie* the universal textbook in chemistry for medical, pharmaceutical and veterinary students. Since the zealous Hannover professor published his first edition in 1884, the book has seen sixteen editions, truly a sure proof of its value and usefulness. A careful study of the work discloses the fact that the author is extremely well acquainted with this subject, having served as professor of chemistry for over two scores of years.

The book is divided into 3 parts:

I. General Chemistry, divided into Stoichiometry and Relativity.

II. Inorganic Chemistry containing Non-Metals and Metals and their Compounds.

III. Organic Chemistry describing Aliphatic, Isocarbocyclic and Heterocarbocyclic Compounds.

Two different kinds of type are used, the larger one representing the more important facts. Every inch, or rather every centimeter of space is utilized and there are no blanks in the book. Some might even raise the objection that it is rather too crowded. To save still more room a great many abbreviations are employed, which are explained on one page. The condensed form of the work can be realized in that the chapter on Oils and Fats occupies one page. Soaps, Plasters and Ointments also one page and Varnishes and Oil Colors one-quarter of a page. Nevertheless these pages contain a mine of information and just the kind of information which pharmacist, physician and veterinarian should have. Special attention is paid to chemicals and preparations of the German and other Pharmacopœias and those official in the *Deutsche Arzneibuch* are starred.

The present edition is brought up-to-date and records the progress made in medical, pharmaceutical, biological and technical chemistry. What a quantity of material the work contains can be seen from the fact that the Index occupies 62 pages, three columns each, and contains over eight thousand words. *The Arnold* is not only a "Repetitorium" but also a "Repositorium" of Chemistry. It is a recognized masterwork which we wish continued life and success!