

acid as a reagent for the removal of blood proteins." The writer makes no claim to any such discovery. Trichloroacetic acid has long been used as a protein precipitant, and it was merely applied to a specific purpose, *viz.*, the removal of the proteins and lipins of blood in order to permit of the determination of non-protein nitrogen in the filtrate. The use of the phrase "Greenwald's reagent" is without justification.

I. GREENWALD.

HARRIMAN RESEARCH LABORATORY.
ROOSEVELT HOSPITAL, NEW YORK.

NEW BOOKS.

The First Year of Science. By JOHN C. HESSLER, PH.D., Professor of Chemistry, The James Milliken University, Late Instructor in the University of Chicago and in the Hyde Park High School, Chicago. Boston: 1914. Benjamin H. Sanborn & Co. xiii + 484 pp.

Laboratory Exercises of "The First Year of Science." By the same author and publishers (1915). ix + 118 pp.

In his very interesting preface the author states his conviction that while Physics and Chemistry, as such, should not be given in the first year of a high school course, some knowledge of these sciences is essential for all later work in any science, and that the simpler principles can be given in a course in General Science. Such a course is described in this book, and laboratory exercises are provided in the smaller volume, all of which, the author believes, can be successfully given to large classes, without special teachers, or expensive laboratory equipment. The book and the course are designed to "stimulate uncommon thinking about common things."

There are twenty chapters, twelve of which deal essentially with the fundamental principles of physics and chemistry, and their application to common affairs, but without formulas, symbols or equations. The remaining chapters deal with such topics as "Water, Heat, Air, and Light in the Home," "The Weather," "Rocks and Soils," "Plants," "Animals," three chapters on Physiology (sufficient, it is claimed, to constitute by themselves a short course in Physiology), and one on "Sanitation." The text proper and the laboratory manual are to be accompanied by a Teacher's Handbook. At the end of each chapter of the text proper there is a summary of the leading topics of the chapter, and a series of highly suggestive questions. The Appendix contains a series of useful tables, and there is a Glossary.

The Laboratory Manual includes one hundred and seven exercises, ranging through physics and chemistry (as applied to common affairs), weather records, tests upon rocks and soils, growth and study of plants, studies of the habits of the earthworm, mollusks, and insects, and some simple physiological tests. The greatest pains have been taken to sim-

plify all experimentation, and to describe utensils which, in many instances, can be made and used in the home.

This text is crowded with facts, interestingly told, which should serve to "link science with everyday things," provided only that there are not too many of them for the time allotment. The author presumably writes from experience, and a selection of topics on the part of any teacher is easy without a break in continuity of instruction. In general, the statements are clear, and sufficiently accurate in a scientific sense for the purpose of the course. In the chapter upon sanitation, however, the author has permitted himself to introduce the sensational statements and illustrations of the press, and of certain agencies which feel that they must over-state dangers in order to attract attention to them at all. This chapter seems a bit out of line with the rest of the book, and there is at least some doubt whether the entire chapter would not logically lead to a condition of nervous dread on the part of the young reader, rather than to sane precaution in time of real danger. A somewhat similar over-emphasis is to be found in the discussion of tobacco and alcohol, but possibly to good purpose.

Most of the illustrations specially prepared for this volume are admirable, but the cuts borrowed from various sources often lack distinctness and contain too much detail. It is a pity that the reader should be constantly forced to pay tribute to the loaners of these cuts, a matter in which he has no real interest.

Every teacher of science will find much of interest in these volumes, and the text proper may well be heartily recommended to the general reader who desires to acquire a knowledge of science as applied to daily life, or to the college graduate who has not found it practicable to include physical sciences in his course. It seems to be one of the best books of its class which has yet appeared.

H. P. TALBOT.

Chemical Calculations. By R. HARMAN ASHLEY, PH.D., Assistant Professor of Chemistry in the University of Maine. New York: D. Van Nostrand Company. 1915. 13 × 19 cm., pp. ix + 276. Price. \$2.00, net.

The author intends this book to follow, more closely than the other similar books, the needs of the student who will later find occupation in chemical laboratory work. Thus, while the usual types of problems of the beginners' course are dealt with, some space is also devoted to such topics as Baumé and Twaddell scales, analytical factors, formulas of minerals, titration of oleum, "mixed acid," etc.; and some articulation is effected with the tables in Van Nostrand's Chemical Annual. The poorly-trained works chemist will thus undoubtedly find the book useful.

The exposition of the broader principles is not compellingly pellucid, but the book contains many good problems and exercises. The inaccuracy

cies appear about normal in number and quality, and could in many cases have been avoided by more critical proofreading. The price of the book seems high.

ALAN W. C. MENZIES.

A Course in Quantitative Chemical Analysis, Gravimetric and Volumetric. By NICHOLAS KNIGHT, A.M., Ph.D., Professor of Chemistry. Cornell College. Revised Edition. New York and Chicago: The A. S. Barnes Co. 1915. pp. vii + 153. Price, \$1.25.

This little book consists of Part I, 13 pages on general procedures; Part II, 56 pages on fifteen gravimetric exercises involving the analysis of five pure salts, two alloys, seven minerals and one rock; Part III, 17 pages on volumetric analysis including sections on indicators, general suggestions, titrations with permanganate, dichromate and silver nitrate and alkalimetry, acidimetry and iodimetry; Part IV, 12 pages on water analysis both mineral and sanitary; Part V, 12 pages of appendix, including reactions, tables, etc., and, finally, five pages of index.

It is seen from the above that the matter in this book is very concentrated. Everything is sacrificed to condensation. The sentences are short and nearly all cast in the imperative mode, as in a recipe. To save space, the author goes so far even as to eliminate two of the dimensions of space for he frequently writes "centimeter" when he means "cubic centimeter." However, barring a few slips like the above, this style of writing is very well handled and the short, imperative sentences are made to flow along with surprising smoothness.

So much is left to be imparted by personal instruction at the student's work place or to be gathered by the student in general reading, that it is difficult to criticize the sins of omission in the book. The author could with justice reply, "I give all that in my talks," or "The student gets that by referring to larger works on the subject."

It is after all a matter of opinion. The reviewer confesses to feeling that since the beginner must be told a hundred and one points in manipulation and be warned against the numerous pitfalls that beset his path, then why not arrange this matter in logical order, put it into one's best style, print it and give it to the student? It seems foolish to do otherwise than to anticipate in this way the stock blunders of beginners. It conserves the time of the instructor which can then be more profitably spent in quizzing.

There might also be some difference of opinion as to the choice of samples for analysis. Pure salts and selected minerals are used in many cases to the exclusion of more interesting commercial products that would illustrate the same principles.

The author is conservative on certain points. He writes "litre" and "centimetre" and gives the Mohr liter, which he does not define ac-

curately, as the unit of measurement in volumetric analysis. The results of water analysis are also reported in parts per 100,000.

C. W. FOULK.

Experiments in Organic Chemistry. By F. J. MOORE, PH.D. New York: John Wiley and Sons. Price, 50 cents net.

This is the second edition of Professor Moore's laboratory manual and accompanies the second edition of his "Outlines of Organic Chemistry." His text book is so well known and so widely used that the manual based upon it should need no introduction to teachers of organic chemistry. The experimental work outlined in the manual is supposed to occupy the students' time during fifteen periods of three hours each. The method of presentation of the subject is essentially that of a manual of general chemistry. The object is to acquaint a student in a short time with the characteristics of as many organic compounds as possible. The directions are concisely and clearly written, and the experiments are within the range of equipment of the most meagerly supplied laboratory. If a teacher is using Professor Moore's "Outlines of Organic Chemistry" as a text book and has the same students in the laboratory the manual would be very useful.

L. H. CONE.

Practical Physical Chemistry. Third edition, enlarged. By ALEX. FINDLAY. New York: Longmans, Green and Co. Price, \$1.20.

This book was written primarily for students of chemistry in the University of Birmingham and the experiments were selected with a view to assisting the general chemistry student to a better understanding of the laws of physical and theoretical chemistry.

The book has appealed to a much wider circle and in the third edition new experimental methods and chapters have been added as well as references to the literature for the more advanced students. It is to be hoped that this is one of the stages in the development of this book and that we will shortly have a text comparable to the Ostwald-Luther Physical Chemistry Measurements or the Kohlrausch "Leitfaden der Physik," for there is a distinct lack of such a text in the English language, and perhaps the main criticism of this edition is that it has not been very extensively enlarged.

Some references to the literature have been added to give an idea of details of more accurate measurements. These are not intended to be exhaustive but if they had been attached to the paragraphs concerned rather than at the end of chapters and without indication of the subject treated, they would be more used and useful. They should be made fairly complete.

Under vapor densities, the method first described by Bleier and Kohn, (*Monatsh*, 1899) is still called the Lumsden method. It might be well to refer to this method as the constant volume method and the Victor

Meyer method as the constant pressure method. It is possible that the Dumas method is little used, as stated, and so it is not described. This is unfortunate, if true, for it is the only method which gives reliable results with substances which dissociate and with slight modifications it is possible to determine with ease and accuracy the vapor density of acetic acid and phosphorous pentachloride at different temperatures. Such work is important for beginners as a foundation for later studies on equilibrium and dissociation in solution. The more recent methods for vapor densities described by Blackman and Menzies are included, as well as a short paragraph on the analysis of binary mixtures by the application of vapor density determinations.

In addition to the regular methods for molecular weights in solutions, a method of determining directly the lowering of the vapor pressure of the solvent as described by Menzies is given.

Under conductivity, determinations of the solubility of sparingly soluble salts and the hydrolysis of salts in solution are described, and also exercises on the solubility of gases in liquids and liquids in liquids. The measurements of decomposition and ionic discharge potentials are taken up in Chapter XI. The construction of standard cells does not correspond to modern practice and is no simpler. The value of the Weston standard at 20° is given as 1.086 instead of the International Conference value of 1.0183. Perhaps the difference is not important for the measurements contemplated, but the value should be correct as far as given.

G. A. HULETT.

The Chemistry of Colloids, and Some Technical Applications. By W. W. TAYLOR, Lecturer in Chemistry at the University of Edinburgh. vi and 328 pp.; 21 figs. New York: Longmans, Green and Co. Price, \$2.00.

The author, in the preface, expresses the hope that this book "will meet the want of a convenient text-book (in English) and at the same time serve as a reference book for workers in other sciences." The subject matter is divided into four parts: General Properties, Methods of Preparation, Adsorption, and Applications. In general the author has followed the rule of giving experimental facts and data first, then following with a brief theoretical discussion. In the section on adsorption he has reversed the usual order and introduced the subject with a theoretical discussion with the result that this section seems notably more satisfactory, to the reviewer, than the others. The working through of long descriptions of experimental facts, without the light cast upon them by a theoretical aspect or "explanation" may be desirable, especially in the case of so new a field as colloid chemistry, but does not conduce to the reader's obtaining a lasting familiarity with the matter under discussion.

The suggestion and use of the terms *gelation* (instead of gelatinization) and *to gelate* referring to the formation of gels, and *solation* and *to solate*

referring in the same way to sols, giving the latter a broader meaning than peptization should properly have, seems rather happy.

Although the treatment is at times, especially in the theoretical discussions and the derivation of mathematical formulae, too brief, the book is on the whole by far the most complete and satisfactory that we have in English.

HELEN ISHAM MATTILL.

A Text-book of Dispersoidology (Modern Colloidal Chemistry), in Russian. By A. JANEK. Edited by K. K. Rikker, Morskajor St., Petrograd, Russia. Price, \$1.25.

A short systematic course of Colloidal Chemistry for chemists, physicists, biologists and medical students.

The book contains all of the important material on the subject of Colloidal Chemistry very carefully systematized, with many references and methods, valuable for experimental and research work.

B. R. HONOVSKI.

Publications from the Jefferson Medical College and Hospital. Volume VI. 190 pp. Illustrated. Philadelphia, 1915.

Previous volumes have comprised reprints only, but the present one consists entirely of original papers that have not been and will not be published elsewhere. Although most of the eighteen papers appearing in this volume are of a purely medical nature those listed below contain more or less information of direct interest to the biological chemist.

Osteitis Deformans. A Report of Five Cases with Complete Metabolism Studies in Two Instances and a Review of the Literature. By J. Chalmers DaCosta, M.D., Elmer H. Funk, M.D., Olaf Bergeim, Ph.D., and Philip B. Hawk, Ph.D.

Influence of Anesthesia on the Liver. By John Funke, M.D.

The Effect of an Anesthetic on the Liver. By Melvin A. Saylor, M.D.

Phenolsulphonæphthalein Injections for the Estimation of Renal Function. By Alvin E. Siegel, M.D.

A Study of Living Cells on Kinetic and Auxetic Jellies. By J. A. Roddy, M.D., and W. D. Baun. E. J. CRANE.

A Text-Book of Medical Chemistry and Toxicology. By JAMES W. HOLLAND, M.D. Fourth edition, revised and enlarged. 678 pages, illustrated. Philadelphia and London: W. B. Saunders Company. Cloth, \$3.00.

Earlier editions of this book have been reviewed in the *Journal*. A review of the third edition is found in Vol. XXXIV, p. 1435. In this edition some new matter has been added, largely in the direction of a discussion of recently described processes in urine and blood analysis. These will be found useful by the classes of medical students for whom the book is intended. The text covers the usual lines included under the general subject of Medical Chemistry.

J. H. LONG.