

anhydrous dextrose is commercially obtained by crystallization from aqueous solution.

The chapter on "Brewing and Distilling" is very short, being but an outline of the processes. This is also true of the two succeeding chapters on oils, resins, varnishes, and fats. The textiles and their bleaching are considered in a short chapter, while the theory of dyeing and dyestuffs are given considerable space. Paper, pigments, and paints form a couple of chapters. Leather and glue receive quite a proportionate amount of attention.

It is of course extremely difficult to condense so many and such varied topics into a book of this size, but the authors have discriminated on the whole wisely.

Above all things, it is to be noted with some satisfaction that chemical engineering problems are coming more to the front and that books of this character are multiplying. That the authors are live men the writer had an opportunity to judge from an inspection of a highly interesting exhibit by Mr. Blount, at the Institute of Civil Engineers. The apparatus was devised especially to meet the demands coming from engineers regarding important problems as the estimation of oxygen in copper, the quality of boiler scale produced by waters, etc.

He also had the pleasure of listening to an able lecture by Mr. Bloxam before an audience of gas engineers. The topic was the recovery of cyanogen compounds from gas works. The various lines of procedure for recovering these now most useful products were detailed as were also the uses to which the products could be put.

It is to be hoped that manufacturers, especially in the United States, will, through just such treatises, be led to see the value of chemical knowledge and skill for the proper control of their works and thus stimulate young men to undertake studies which will more fully fit them for responsible positions.

C. A. DOREMUS.

THE DEVELOPMENT OF THE PERIODIC LAW. BY F. P. VENABLE, PH.D., F.C.S. Easton, Pa.: Chemical Publishing Co. 1896. viii + 321 pp. Square 12mo. Price, \$2.50.

The author of this important work, who is Professor of Chemistry in the University of North Carolina, has already become

favorably known by his "Short History of Chemistry," (Boston, 1894.) When one undertakes to write the history of events that have taken place in several countries of Europe, it is a great advantage to be an American, as this insures more candor and impartiality than is likely to characterize a European author. Professor Venable shows extensive acquaintance with the literature of his subject and good judgment in the selection of materials.

In a prefatory sketch the author gives a condensed summary of the development of the periodic law, the details of which are elaborated in eight succeeding chapters; in this he expresses the feeling that the system is far from complete: "The close of this century calls loudly for another Lavoisier who shall interpret the facts won by such hard toil and place the science on the right track for another century of brilliant progress and discovery."

In the first chapter he discusses the hypothesis of Prout and the triads of Doebereiner, with the views of Berzelius, Dumas and others, respecting the numerical relations of the atoms. The latter topic is treated more at length in Chapter II. Then follows some account of Brodie's Ideal Chemistry, of the telluric screw of de Chancourtois, and of the law of octaves proposed by Newlands; the contributions of many minor lights to the general subject are not overlooked, as, for example, the propositions made by Kotikovskiy, by Lenner, by Hinrichs (pantogen), and others.

Of course Lothar Meyer and Mendeléeff receive the most attention, and their share in founding the periodic law is most conscientiously given.

The writer of this can supply a single item from personal knowledge: the author of the anonymous paper on the Pairing of the Elements, which appeared in the American Supplement to the New York edition of the *Chemical News*, in 1869, was the late Professor Charles A. Seeley, of New York.

As one reads this valuable contribution to the history of an idea, one is struck with the number of persons who have contributed in a lesser measure to the general subject; thus, we find the names of Gibbes, Zängerle, Crookes, F. W. Clarke, Bayley, Carnelley, Rydberg, Bazaroff, Tchitcherine, Sutherland, Bassett, Flavitzky, and a host of others.

The work is not illustrated in the sense of containing pretty pictures of complicated apparatus copied from foreign books rather out of date, but it does contain representations of many diagrams, such as the spiral of von Huth, the diagrams of W. Spring, of W. Crookes, of Flavitzky, and the "generation tree" of Wendt.

A valuable feature of this work is the "Index to the Literature Relating to the Periodic Law," containing 267 titles. The book is well indexed.

This contribution to the history of chemistry will prove of use to all those interested in studying great questions which influence the progress of science. H. CARRINGTON BOLTON.

ROENTGEN RAYS AND PHENOMENA OF THE ANODE AND CATHODE. BY EDWARD P. THOMPSON, M.E., E.E. Concluding chapter by PROF. WM. A. ANTHONY. New York: D. Van Nostrand Co. xvi + 190 pp. Price, \$1.50.

This book is a mere compilation of 210 abstracts from various scientific journals and original memoirs. Mr. Thompson makes no attempt at classification or analysis, but has done the work hastily and superficially, by his own confession, apparently to meet the popular demand for illustrated books on this subject. There are many blunders, both in fact and in style, and the book will hardly commend itself to anybody who has access to one or two of the various scientific journals. Prof. Anthony's chapter is by far the best part of the book, as it gives a succinct and intelligible resumé of the various theories that have been advanced by Roentgen's discovery. It is to be regretted, however, that Hertz's researches on radiant electricity have received such scant attention; since they are not only the direct cause of the work of Lenard and of Roentgen, but also contain much that must be taken into account in all later speculations. It would also seem to the reviewer that Prof. Anthony does not do sufficient justice to those hypotheses which involve "free energy," not directly fastened to particles of substantial matter.

MORRIS LOEB.

THE CHEMISTRY OF DAIRYING. By HARRY SNYDER. viii + 156 pp. Easton, Pa.: Chemical Publishing Co. Price, \$1.50.

This is the title of a manual of 156 pages devoted to the chemistry of the dairy, especially in respect of the manufacture of