

neglected. With pure cudbear, the filtrate is quite colorless; if magenta be present, it is either colorless or pink, according to the amount of ammonia present in the solution. The liquid is then acidulated with acetic acid, when the presence or absence of magenta is at once made apparent; in the case of pure cudbear or orchil, the solution remains colorless; whereas, if a salt of rosaniline be present, the well-known color of magenta is immediately developed. By means of this method one part of magenta in 100,000 of cudbear can be detected with certainty.

For determining the *amount* of magenta present the author suggests a calorimetric method, in which the filtrate or an aliquot portion of it is compared with a standard solution of magenta.

The method is also applicable to the detection of methyl violet and safranine. The base of the latter is much more soluble in ammonia than those of methyl violet and magenta.

The three coloring matters are distinguished from one another on the addition of acetic acid to the ammoniacal filtrate, the solution becomes of a bluish violet tint, if methyl violet be present. Under the same conditions, solutions of safranine and magenta are pink or bluish red. Strong ammonia decolorizes methyl violet and magenta, whereas it produces little or no effect upon a solution of safranine. Strong hydrochloric acid added to a solution of safranine, changes the color to a blue; solutions of magenta and methyl violet become, with the same reagent, of a pale yellow color.

The azo or oxy-azo dyes, as rocellin, orchil red, etc., when present in cudbear, may usually be detected by sprinkling a little of the sample on the surface of concentrated sulphuric acid, with the formation of a characteristic colored streak, which may be either green, blue or violet. To detect other adulterations, or in cases of doubt, one should resort to dye tests. H. T.

ON THE PREPARATION OF ANHYDROUS MAGNESIUM CHLORIDE.—Walther Hempel (*Berl. Ber.*, **21**, 897). Anhydrous magnesium chloride is ordinarily made by the addition of ammonium chloride to the solution of the salt and the decomposition of the ammonio-magnesium chloride so formed by heating to about 460°. The author has found that the solution of magnesium chloride may be evaporated without decomposition and formation of basic salt, provided the operation be performed in an atmosphere of hydrochloric acid. The addition of ammonium chloride is unnecessary, and there is a great economy of heat. W. H. G.

BOOK NOTICES.

SOAPS AND CANDLES. By James Cameron, F.I.C. Philadelphia: P. Blakiston, Son & Co. 1888. Price, \$2.25.

Dr. Johnson once remarked to a certain Mr. Cambridge: "Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it. When we inquire into any subject, the first thing we have to do is to know what books have treated of it." This remark

applies with much more force to-day than it did a century ago when it was uttered. But to no branches of knowledge is it so applicable as it is to those that are of a scientific nature. Indeed, it is becoming quite a serious problem to know how to separate and disentangle any desired information from the huge mass of facts contained in the volumes of the many scientific journals now published. The editors of these journals recognize this difficulty, and, accordingly, give not only an index of each number and of each volume, but also publish at intervals of a few years an index of the series of volumes that has appeared in the interim. This is true, for instance, in the case of *Dingler's Journal*, of *Silliman's Journal*, and of others that might be mentioned. The preparation of such indexes is tedious and expensive, and would, therefore, be likely to be shirked were it not that the necessities of the case actually force the editors to take the step. They have been obliged to do so with the journals, not only because the latter contain an extraordinary variety of information, but also for another reason. These journals are to the scientific man what the daily newspapers are to the general public. They present the very latest information; they give it in its discursive and formative stages; they contain an abridgment, at least, of all the new ideas propagated, of all the inventions made, of all the patents issued that come within their respective departments of science. They are away and far ahead of any other vehicle of knowledge, and frequently lead the encyclopædias, treatises, manuals and text-books by a good decade at least. It is not too much to say that many of the facts and discussions appearing in the journals and technical papers of to-day will not be embodied in the text-books until the beginning of the next century.

The important position, therefore, held by this form of scientific literature, forces the editors to publish frequent and copious indexes, covering back volumes, as already described. But there are very few writers of *books*, who follow the example of these editors. Imitation is the sincerest form of flattery, and the authors of the countless scientific manuals show a sincerity in the admiration for their predecessors that is beautiful to contemplate. The amount of copying from one text-book into another by the writers on mechanics, physics, chemistry, electricity, or astronomy is, indeed, marvellous, and the regularity and precision with which they keep behind the times in stating the facts is also a matter of wonder. But the especial weakness in compositions of this character is the entire absence of references to the original papers from which the extracts are taken.

Ganot's *Physics*, for instance, is a good treatise; an excellent one. But how much more valuable would the book be to the scientific worker, if the editors had referred the reader to the time and place in which the investigations and experiments they only outline are given full and complete.

We have dwelt upon this matter at some length, because Mr. Cameron's book is a marked exception to the class of books above described. There is hardly a page in it that does not contain, as foot-notes, references to chemical, pharmaceutical or medical journals, to standard works, to lectures, to exhibition reports, or to English, German or United States patents. The book shows the results of wide reading and of careful collection of data, and in the com-

paratively small space of some 300 pages the reader is directed to a thousand sources of information of a most valuable kind. There are many illustrations of apparatus and machinery; tables showing strength of solutions, properties of oils, relation between degrees Baumé and specific gravity, and so on. These last tables are incorrect. In fact, in nearly all English books the densities by Beaumé's hydrometer are incorrect. The reason of this probably is that the English use this hydrometer very little, preferring Twaddle's. It should be borne in mind, also, that the gallons used in the various recipes are English gallons, and therefore of twenty per cent. greater capacity than ours (ten pounds of water as against eight and one-third).

We have not space here to give a detailed analysis of the book, but can recommend it to any one interested in the manufacture of soap or of candles, as a work that will prove most useful to him. H. P., Jr.

HINTS ON HOUSE BUILDING. By Robt. Grimshaw. New York: Practical Publishing Company. 1887.

This is a little manual of notes, compiled by the author during his active experiences, and, as the name indicates, it contains many brief but useful suggestions which will be found to add materially to the comfort and convenience of the home, and which might otherwise be overlooked at a critical moment.

The book is not indexed, but each paragraph is prefaced by its subject matter in small capitals, and as there are but thirty-two pages duodecimo, it is not difficult to find a hint relative to some special feature. It would seem to us, however, to be an improvement, had the subjects been arranged with some approximation to an alphabetical order. L. M. H.

AN INDEX TO ENGINEERING PERIODICALS, 1883-1887. By Francis E. Gal-
loupe, M.E. Boston: Published by the *Engineering News* Publishing
Company, New York. 8vo, cloth, 294 pp. \$2.

The title of this work is sufficiently explicit. It is only necessary to add the names of the periodicals which have been indexed, during these five years, to give its scope. They are: *Eng. News*, *Iron Age*, *Mechanics*, *Am. Eng.*, *Sanitary Eng.*, *Eng. and Build'g Record*, *Railroad Gazette*, *Van Nostrand's Eng. Mag.*, *R. R. and Eng. Journal*, *JOURNAL OF THE FRANKLIN INSTITUTE*, *Street R'y Gazette*, *Electrician and El. Eng.*, *Elec. Rev.*, *Elec. World*, *Sci. Am. Supplement*, *The Locomotive*, *Society of Arts Proceedings*, *Mass.*, *Engineering* (London), *The Engineer* (London).

Although comprehensive, the list is by no means complete, yet the author has rendered an invaluable work to the scientific professions and to the arts by thus placing it in the power of those engaged in investigations and research to save much time and trouble for a trifling expense. The subjects are classified and arranged in alphabetical order, making the reference easy. The book is indispensable, and the only regret is that its scope is not greater, still it is a move in the right direction, which should be continued by annual appendices, if possible, to keep it up to date. L. M. H.