

COLOUR CHEMISTRY.

A Manual of Dyeing: for the Use of Practical Dyers, Manufacturers, Students, and all Interested in the Art of Dyeing. By Prof. E. Knecht, C. Rawson, and Dr. R. Loewenthal. Second edition. Vol. i., pp. xii+371. Vol. ii., pp. 372-902. (London: C. Griffin and Co., Ltd., 1910.) Price 45s., two vols.

THE first edition of this work was reviewed in NATURE on June 22, 1893, and in the seventeen years which have elapsed since its publication, such rapid developments have taken place in colour chemistry that certain sections of the book have for some time been out of date, and the whole work has for several years been out of print. The issue of the present edition has, therefore, involved a very complete and laborious revision, and this no doubt accounts for the somewhat protracted delay in its issue.

This raises the question whether, for the sake both of authors and purchasers, some scheme could not be devised for arranging and binding a book of this type in such a manner that sections could be re-written and issued separately.

The general scheme of the book has not been materially altered, but vol. iii. of the first edition, which consisted of illustrative dyed patterns, has not been reproduced, and in this the authors have been well advised.

The section dealing with the theory of dyeing processes has been extended to three times its original length, but any general agreement with regard to the theory of dyeing does not at present appear possible, nor have theoretical considerations in the past been of much service in connection with the practical application of colouring matters. It is to be hoped that further investigation will lead to such a unification of ideas that theory may fulfil its proper function of a sign-post for those seeking new fields of practical application.

In the section dealing with textile fibres, five excellent plates replace the older diagrammatic illustrations. While the ordinary fibres are adequately described, the treatment of artificial silk seems hardly to have received that attention to which its present great commercial importance entitles it. There is, for instance, no reference to Thiele silk, one of the chief products now used.

Part vi. comprises a description of the natural colouring matters, and in this section it has been found possible to condense the matter originally published, this being in agreement with the diminished importance of these dye-stuffs from the practical point of view. The recent work of A. G. Perkin, v. Kostanecki, Schmidt, and others, on the constitution of the colouring matters of the natural dye-stuffs, is duly referred to.

The most extensive section of the book is, of course, that dealing with the artificial dye-stuffs, and this has required the greatest amount of revision. Certain entirely new groups of dyes, such as the artificial vat colours, have been introduced since the publication of

the first edition, and other groups, such as the sulphide dyes, have been greatly enlarged. Some mention of Tyrian purple might well have been included in view of P. Friedlaender's discovery that it is a dibrom-indigotin.

A section of the work to which great importance has always been attached is that dealing with the analysis and valuation of materials used in dyeing, and this has received a very thorough revision.

The book in its new edition will again take its place as one of the most important works published on colouring matters and their application.

OUR BOOK SHELF.

La Métallographie Microscopique. By Louis Révillon. Pp. 176. (Paris: Gauthier-Villars, n.d.) Price 3 francs.

THIS is another volume of the small Aide-Mémoire series by the author of the work on "Special Steels," which was reviewed some time ago. Considering the size and price of the book, a good account of the subject is given, though, in common with many other enthusiasts, the author is inclined to claim too much for his subject, p. 7, "et de résoudre tous les problèmes . . .," and in describing the preparation of the polished face of the section for examination, is too severe in his conditions, namely, "perfectly polished so that there remains no scratch visible at the highest power of the microscope." Much time has been wasted in the past in striving after this ideal. It is not necessary, unless when looking for the finest cracks, and, combined with a somewhat elaborate series of precautions, is apt to discourage the reader from beginning practical work. Advice such as that given on pp. 69 and 70 has always been impressed on beginners by the writer, namely, that the section is prepared for observation and study, not merely for photographing, and that the polished section should always be examined carefully before etching in any way, as then small holes, oxides, scoriæ, and sulphides are generally much more easily seen against the polished metallic surface than after etching.

With many of the opinions expressed one cannot agree. The Martensitic interlacing needles do not represent the structure of properly hardened carbon steels, and many practical points might also be controverted, but the work as a whole gives a very fair introduction to a study of the subject from the point of view of a portion of the French school. Osmondite is given, although M. Osmond has specifically repudiated it in *Revue de Métallurgie*. Separate chapters are devoted to special steels, the alloys of copper, other industrial alloys, and the final chapter to the interesting "Macrographie." A. McWILLIAM.

Die Kraftmaschinen. By C. Schütze. Pp. vi+235. (Leipzig: Quelle and Meyer, 1909.) Price 1.80 marks.

THIS little volume is devoted to a non-mathematical description of the various types of motors now employed for power purposes, and of the more important details of each class; windmills, waterwheels, and turbines, steam, gas, and petrol engines, and dynamos and electric motors are all in turn discussed and described. The text is illustrated by a large number of figures, mostly line illustrations, and, as all minute details are omitted, these illustrations will be easily understood and followed by the non-technical reader. The whole volume is, in fact, intended for those who are not experts in this branch of engineering. It will appeal, however, to many who use motors for business