

method is to marshal the facts and suggest the conclusions to which they point. One of the most delightful characteristics of the book is the sympathetic interest which the author shows, on almost every page, in the labours of other workers. His sympathies are as all-embracing as the views which he has formed as to the origin of terrestrial features.

The French translations of the first two volumes have already been referred to. The extensive knowledge and great literary skill of M. E. de Margérie, under whose direction the translation has been carried out, are a sufficient guarantee of the excellence of the work. It has evidently been a labour of love with the translators, who have treated their author with that respect which should always be shown in such cases. In two respects the translations are better than the original work. The number of maps and illustrations has been greatly increased (128 as against 43 for the second volume), and the notes, which are voluminous and often very important, are given at the foot of the page to which they refer instead of at the end of each section. Moreover, the notes and references have been brought up to date, but all additions are indicated by the use of square brackets.

J. J. H. T.

THE CHEMISTRY OF DYEING.

A Dictionary of Dyes, Mordants and other Compounds used in Dyeing and Calico Printing. By Christopher Rawson, F.I.C., F.C.S., Walter M. Gardner, F.C.S., and W. F. Laycock, Ph.D., F.C.S. Pp. 372. (London: Charles Griffin and Co., Ltd., 1901.) Price 16s. net.

THE technology of dyestuffs and dyeing materials has acquired in recent years such a degree of complexity that a dictionary of the subject has become almost a necessity. This want is now supplied by the handy volume before us. Although essentially a dictionary and not to be regarded in the light of a textbook, it nevertheless contains many excellent articles on the chemistry and technology of textile fibres and colouring matters, and should be a most valuable work of reference for all engaged in the arts of dyeing, bleaching, calico printing, paper staining, &c. The book is issued as a companion volume to the well-known "Manual of Dyeing," by Knecht, Rawson and Loewenthal, to which in some respects it serves as a supplement. The methods for the commercial analysis of the various chemicals, mordants and dyeing materials are treated with considerable detail. With regard to colouring-matters a careful system of classification is employed, each group being given a special article, e.g., acid colours, basic colours, direct cotton colours, mordant dyes, &c., and under each of these headings we find a fairly complete list of all the colouring-matters of the particular group at present in use. For further information with regard to individual dyestuffs, each name must be separately consulted. Excellent general articles are also to be found upon indigo, tannin matters, action of light upon dyes, and upon the analysis, valuation and detection of coal-tar colours.

On the other hand, besides a few superfluous articles having little or no bearing on the subject of dyeing (e.g., the headings Acetaldehyde, Acetanilide, Anti-NO. 1677, VOL. 65]

febrine, &c.), there are some serious omissions. Thus no method is given for examining the quality of commercial betanaphthol, a matter of much greater importance to the dyer or printer than the isomerism of the sulphonic acids of dioxynaphthalene or of alphanaphthylamine, the reference to which might well be omitted. Again, there is no article upon paranitraniline, but only a cross reference under "Paranitraniline red" to "Azo colours on cotton," where no description is to be found of the properties or methods to be employed in examining for purity this most important product. The same remark applies to dianisidine, only "Dianisidine blue" being referred to under "Azo colours on cotton." The heading of the last-mentioned article should surely have been "Insoluble azo colours on cotton" or "Azo colours produced on the cotton fibre," since all the substantive benzidine colours when applied to cotton might equally be styled "Azo colours on cotton." We also fail to find any reference to sodium sulphide, bronze colours, discharges, persulphates or titanium mordants.

Under the individual colouring-matters there might have been given in some cases a rather fuller account of the special tinctorial properties and degree of fastness to reagents (soap, alkalis, acids, &c.) To provide for these additions considerable space might have been saved by the omission of the names of obsolete colouring-matters and of obsolete names of colouring-matters still used (for instance, aldehyde green, azuline, canelle, heliochrysin, and many others).

A few errors are noticeable in the text, as, for instance, in the article "Janus colours," which latter are stated to be sulphonated basic dyes, whereas in fact they contain no sulphonic group, but are azo-compounds, which owe their solubility and peculiar dyeing properties to the presence of strongly basic ammonium or azonium groups. Again, thioflavine T is given as a derivative of primuline, whereas it is the methylated ammonium compound of dehydrothiolutidine. The list of manufacturers of colouring-matters given on p. 94 and also opposite to p. 1 is scarcely up-to-date, one of the firms mentioned having ceased to exist, whilst two others have been reconstituted under new names. In spite of the above defects, which can readily be rectified in subsequent editions, the work may be confidently recommended to all engaged in the textile and tinctorial industries as an invaluable lexicon of the subject.

ANIMAL LIFE OF THE CONGO FOREST.

The World of the Great Forest; How Animals, Birds, Reptiles, Insects Talk, Think, Work and Live. By Paul du Chaillu. Pp. xv + 323. Illustrated. (London: Murray, 1901.) Price 7s. 6d. net.

IN the outlandish and almost unpronounceable native names of animals which form the chapter-headings and recur with wearisome iteration in the text, this volume reminds us of Longfellow's "Hiawatha," although, in our opinion, without affording anything comparable to the pleasure which may be experienced in reading the latter. The author appears to have taken as his model that delightful book of Mr. Seton-Thompson's, "Wild Animals I Have Known"; but if so he has, we think, succeeded in producing only a very poor and feeble