

the Witwatersrand conglomerates, replacement ore bodies, outcrops of ores, causes of ore shoots. A great deal of the information has appeared before, and there is naturally a certain amount of divergence of opinion among the writers.

OUR BOOKSHELF.

Leitfaden zum Bestimmen der Vögel Mittel-Europas, ihrer Jugendkleider und ihrer Nester nach leicht und sicher erkennbaren Merkmalen. By Prof. F. Dahl. Pp. viii + 162. (Berlin: Gebrüder Borntraeger, 1912.) Price 5.20 marks.

THE existing handbooks of bird-classification and description are deficient in three important particulars. They are inexact and incomplete on the distinction between immature, mating and ordinary adult plumages. Descriptive adjectives, such as "short" and "long," which have none but a relative application, are used instead of absolute descriptions. Lastly, the study of nidification is very unsatisfactory. Such defects are the cause of much error and waste of labour to the student.

Prof. Friedrich Dahl, in his guide to the birds of Central Europe, seeks to remedy these defects. It is a model of compression; its 154 pages, each fully paragraphed and subdivided, contain a very complete and well-ordered fund of data. The determination of species is the main object; the subject of life-habit is untouched. The study of nests has a section to itself. This department, naturally, is the less complete. Reference is made in every case throughout the guide to the descriptions and illustrations of Naumann.

An introductory section tabulates those crucial details of beak and pinion and claw which form the elements of classification and render the morphology of the bird unique in biology. These are well illustrated, though on too small a scale in many cases. The book is indispensable as a supplement to Naumann, and English students should make acquaintance with its method.

A. E. CRAWLEY.

Celluloid: Its Manufacture, Applications, and Substitutes. By Masselon, Roberts, and Cillard. Translated from the French by Dr. Herbert H. Hodgson. Pp. xx + 356. (London: Charles Griffin and Co., Ltd., 1912.) Price 25s. net.

THIS work, which must be judged in its English rendering, conforms with the forecast of the preface. It is a fairly complete account of celluloid manufacture, with a somewhat hesitating *exposé* of its technological basis. The authors acknowledge the collaboration of M. L. Clément in contributing (1) a theoretical study of nitration baths, and (2) a discussion of the "inflammability" of celluloid. The attendant risks of manufacture, storage, and use are treated, with full reference to the researches of Will, Vieille, Voigt, and others. Their own conclusions from the established data, in the form of "Precautions to be

exercised in Celluloid Works," are practical and comprehensive.

The work is logically subdivided into:—Part i. "Manufacture," which comprises the processes involved in the production of the celluloid mass; Part ii., "Applications," deals with the production of celluloid articles, combs, handles, hollow articles, beads and buttons, and also films, including lacquers and the application of celluloid solutions in the production of filmed, or coated, and impregnated fibres; Part iii., "Uninflammable Celluloid and Substitutes," treats of modified celluloids, and the competing varieties of plastic colloids, such as the cellulose acetates, and xanthates (viscoid), as well as casein (galalith) and aldehyde-phenol derivatives (bakelite). In this section the authors modestly confess the insufficiency of their knowledge and information, and we shall not be thought hypercritical in remarking that this section is not to be taken "seriously."

There are unusual additions to our terminology; "pulpation" and "centrifugaliser" are instances of new words, which, however, are intelligible. But in the section dealing with the fibrous nitrocelluloses, we have "pile" (Fr. *pile*) for beater, "paste" (Fr. *pâte*) for pulp, and for the essential working parts of the beater we have "cylinder," or "drum" for roll, "slab" for bed-plate, "teeth" for bars. The general effect produced on the reader is that of *translated French*, which is not English.

The work appears at a moment which is opportune, in view of the appointment of a Royal Commission to inquire into the dangers of celluloid. The authors have dealt fully with this subject.

Atlas Photographique des Nuages. By Julien Loisel. (G. Thomas: Librairie Astronomique, Paris, 1912.) Price 18 francs.

THIS atlas contains twenty plates of beautiful reproductions from evidently very fine negatives, the size of each being $6\frac{1}{2} \times 4\frac{1}{2}$ inches. The letter-press accompanying them is extremely brief. It consists of twenty-three lines describing the methods adopted in securing the negatives, and three or four lines of description of each photograph, forming an index to the plates, in which is stated the type of cloud, general description of the formation and date of exposure.

The photographs were for the most part taken by Dr. Loisel, but they include some reproductions from negatives secured by M. L. Teisserenc de Bord, of Trappes, and by M. J. Vincent, of Uccle.

The cloud nomenclature used in this atlas is not that adopted by the International Meteorological Committee in their International Cloud Atlas, but it would have been an additional value to the present atlas if the international classification terms had been added in each case.

The photographs are so good and represent such typical clouds that the atlas should, and no doubt will, find a place not only in all meteorological institutions, but in the libraries of all interested in this fascinating application of photography.