two small families Ptychopteridae and Orphnephilidae are included, the last-mentioned being represented by a single species: its larva and pupa are figured after the recent work of Saunders in Cambridge. Uniformity of treatment and arrangement, in spite of its being the product of a number of specialists, are by no means minor features maintained in this useful guide to the French fauna. Its cheapness and handy proportions raise the wish that something corresponding to it existed with regard to animal life in Britain.

A. D. I.

Colliery Management.

Colliery Working and Management: comprising the Duties of a Colliery Manager, the Superintendence and Arrangement of Labour and Wages, and the different Systems of working Coal Seams. By H. F. Bulman and Sir R. A. S. Redmayne. Fourth edition, thoroughly revised and much enlarged. Pp. xv + 393 + 32 plates. (London: Crosby Lockwood and Son, 1925.) 42s. net.

IN the opening sentence of Chap. iv. of this work the authors ask: "What manner of man ought a colliery manager to be?" Their answer to this question should be read by all those self-elected critics who at the present time single out the coal-mining industry, from all the industries of Great Britain, in order to level wholesale charges of inefficiency. A perusal of this book reveals the wide knowledge of pure and applied science, and of sociological, commercial, and other problems, required by the colliery manager of the present day.

The book takes a broad view of the British coal-mining industry from the outlook of the colliery manager, and may be read with profit by any one concerned with the control of collieries, or by the general reader inclined to examine for himself the present condition of the science and art of mining. In Chap. i., and indeed throughout the book, interesting historical references are given to show the gradual development in technique and administration through the long history of the industry, and modern methods and practices are also described.

Of special interest is the description of past and present conditions of labour in Chap. iii., and the very full account of the events leading up to the present system of regulating wages under the National Agreement of 1921. Chap. vi. describes the organisation of labour above and below ground, and Chap. vii. gives in detail the elaborate and complicated method of making up wages bills and cost sheets. The remainder of the book is devoted to a discussion of technical methods. Chap. xviii. deals with accidents and their prevention.

The long experience of the authors in the north of England is shown by the slightly greater length devoted to descriptions of practices in this coalfield, although other coalfields are by no means neglected. In any case the authors may be forgiven this slight bias, as the leading part played until recently by the Great Northern Coalfield has undoubtedly influenced practice in other coalfields not only in Great Britain but also all over the world.

DOUGLAS HAY.

Our Bookshelf.

Introduction to Theoretical Physics. By Prof. Arthur Haas. Vol. 2. Translated from the third and fourth editions by T. Verschoyle. Pp. x + 414. (London: Constable and Co., Ltd., 1925.) 21s. net.

IN the second volume of his treatise on theoretical physics, Prof. Arthur Haas maintains the same high standard as in the first volume already noticed in these columns (NATURE, vol. 116, p. 267, 1925). The author has wonderful skill in summarising the results of recent investigations, and a sound instinct for the really important parts of his subject. The book is remarkable not only for the power of condensation exhibited, but also for the wide range of the subject matter. It is difficult to judge how the work would appeal to a reader without much previous knowledge of the subject, but it may be questioned whether the unprepared student would not find the treatment in places too condensed and the pace too fast. Thus in the very first chapter he is introduced to three types of elementary quanta—the quantum of electricity, the quanta of positive corpuscular radiation, and the quantum of action.

The quantum theory of the hydrogen atom forms the subject of the second chapter. The subject of Röntgen rays is then taken up, and an account of exceptional interest is given of the behaviour of crystals with respect to these rays. The theory of the elements, taking Moseley's law as a starting-point, forms the subject of the next chapter, and the Part of the volume dealing with atomic theory concludes with an excellent account of the general theory of spectra. Part IV. of the whole treatise deals with the theory of heat, and includes chapters on statistics and thermodynamics. The volume concludes with an exceptionally lucid discussion of the theory of relativity. Prof. Haas has supplied a brief summary of the more important work carried out between the publication of the German edition and of the present English edition of Vol. 2. The translation into English has been admirably done by Mr. Verschoyle, who acknowledges his indebtedness to Dr. R. W. Lawson.

It was no doubt impossible in the space at the author's disposal to give due credit to all the investigators who have made important contributions to the subjects described, but we are surprised to find no reference to Perrin's work on the Brownian movement, or to Richardson's work on thermionics. These are but minor criticisms, and we would conclude by giving a warm welcome to a truly noteworthy book.

H. S. ALLEN.