Museum, notes on distribution, &c., being added by Dr. Aitchison.

The publication by the Linnean Society of the whole series of descriptions in one fasciculus is a manifest advantage. If it has no other effect, it may perhaps convert from error some of those who, like the contributor of the part "Aves" to the last four numbers of the *Zoological Record*, still retain the mistaken idea that the Afghan fauna belongs to the Oriental or Indian region Not only does the prevalence of genera like *Arvicola*, *Ellobius*, *Cricetus*, and *Alactaga*, among mammals; *Pica*, *Accentor*, and *Phasianus*, amongst birds; *Teratoscincus*, *Phrynocephalus*, *Scapteira*, *Taphrometopon*, and *Vipera*, amongst reptiles; and *Schizothorax*, amongst fishes, show plainly the Palæarctic character of the fauna, but there is a remarkable absence of Indian types, with the exception of wide-ranging forms like the tiger, which is found here and there in suitable localities throughout Central Asia, from the Caucasus to the banks of the Amoor (and which, as its absence from Ceylon shows, is doubtless a comparatively recent immigrant into the Indian peninsula). A few species, like the wild ass and *Ovis cycloceros*, extend into the extreme north-west of India, but cannot possibly be said to form a part of the typical Indian fauna. Even amongst non-migratory birds, only two or three kinds, like *Pratincola caprata* and *Lanius vittatus*, are characteristic Indian species, and the forms named have a considerable range beyond the limits of the Oriental region.

It is interesting to find that some of the naturalists who have described the *Invertebrata* notice affinities between the forms collected and those inhabiting the Mediterranean basin. The *Vertebrata*, on the other hand, are characteristically Central Asiatic, as is shown by the genera already noticed.

The illustrations are excellent, and the representation by figures of all species of insects and *Arachnida* described as new is much to be commended. W. T. B.

A Text-book of Paper-making. By C. F. Cross and E. J. Bevan. (London: E. and F. Spon, 1889.)

AN increase in the number of technical schools and institutes will no doubt call for a number of trustworthy text-books on various chemico-mechanical industries, arranged not only for the student proper but for the manufacturer as well; indeed, it is perhaps the latter who needs and can use a good text-book to greatest advantage.

It would be well for us if we had other text-books as commendable in their particular connection, and as clear, concise, and thorough, as this on paper-making chemistry, for that is what it amounts to.

The authors state in their preface their belief in the importance of a scientific training for paper-makers. This of course would apply to many trades besides paper-making with equal force. As the earlier and most important operations in paper-making are of a purely chemical nature, or at any rate more chemical than mechanical, the authors have very rightly treated this portion more fully than the mechanical operations proper, which would involve descriptions of complex machines and details not exactly fitted for a text-book of an instructive nature as this.

The introductory note and chapter i. treat of the chemical properties and composition of cellulose and its varieties as far as is known at present. It is a somewhat concentrated chapter on the natural history of this class of substance, and to appreciate it fully the reader should already have a fair acquaintance with the more common chemical processes and elementary principles. It is a useful and valuable chapter, and nobody is better able to discuss it than the authors. The same applies to chapter v., in which processes for isolating cellulose from plant substances are considered.

The chapter on the special treatment of fibres is a very exhaustive one. The remainder of the book—with the exception of short sections on "chemical analysis" for paper-makers, and "paper-testing," and the "Willesden paper"—is taken up with the more mechanical part of paper-making. They are very fully illustrated with large diagrams.

Many besides paper-makers will find interesting matter and much information in this book. W. R. H.

Boilers: their Construction and Strength. By Thomas W. Traill, F.E.R.N., M.Inst.C.E., Engineer-Surveyor-in-chief to the Board of Trade. (London: Charles Griffin and Co., 1888.)

AS a hand-book of rules, formulæ, tables, &c., relative to material, scantlings, and pressures for boilers, this volume will prove most useful. The name of the author is a sufficient guarantee for its accuracy. It will save engineers, inspectors, and draughtsmen a vast amount of calculation, and the fact that the information is calculated from formulæ embodying the Board of Trade practice will add greatly to the confidence of those using it in any particular design. The tables contain over 60,000 results, and include in their scope most of the information required in any ordinary case. Engineer inspectors will also find valuable information pertaining to the qualities of iron and steel generally in use, and many good hints as to what ought to be allowed or prohibited in the ordinary working of the material. Among the many duties of the Board of Trade inspectors is that of determining a safe working steam-pressure for old boilers. In the tables relating to this subject thin plate scantlings are given. The decision as to a suitable pressure must, of course, to a large extent depend on the actual condition of the old boilers under inspection, whether the plates are corroded or pitted, and on the condition of the stays and rivet heads. One hears an occasional "growl" about the severity of the Board of Trade inspection, but there is no branch of engineering more carefully and conscientially done than that under Mr. Traill's control, and the present volume should be of great service to his inspectors. The work is the result of much thought and labour, and the author deserves the cordial thanks of all who have to design and superintend the construction of boilers. N. J. L.

Lord Howe Island: its Zoology, Geology, and Physical Characters. Printed by order of the Trustees of the Australian Museum, Sydney. (Sydney: Charles Potter, 1889.)

IN 1887, by the order of the trustees of the Australian Museum, Sydney, a collecting party was despatched from Sydney to Lord Howe Island. Most of the results of the expedition are described in the present volume. An excellent epitome of the general zoology of the island, by Mr. R. Etheridge, Jun., is first given. Then come detailed descriptions of the specimens obtained by the members of the party. Mr. A. J. North deals with oology, Mr. J. Douglas Ogilby with reptiles and fishes, Mr. A. Sidney Olliff with insects, Mr. R. Etheridge, Jun., with geology and physical structure, and Mr. T. W. Edgeworth David with rock specimens. The memoir also includes descriptions of various collections made in Lord Howe Island, by Mr. Alexander Morton, in 1882; of collections, chiefly entomological, made by Mr. George Masters, in 1869; and of some gatherings made by Mr. E. H. Saunders after the return of the Museum party. The contributors to the volume have evidently striven to write accurately, concisely, and clearly, and everyone who may have occasion to consult their work will admit that it is well done. The various papers are carefully illustrated. We may note that the descriptive account of the Mollusca is not yet ready, but that the plates are here issued in advance.