

book's field of usefulness. It might easily have been avoided, for Prof. Le Neve Foster has shown in his mining works that it is quite possible to replace provincialisms by words that are generally understood among English-speaking nations.

The authors elucidate their text by 119 woodcuts and 28 plates, most of which are admirable reproductions of photographs taken underground with the aid of the magnesium flash-light. These illustrations are excellent. The only exception that can possibly be taken to them is that several of them are unnecessary. This is most noticeable in Plate iv, representing miners' children at school. As a photograph this is a perfect piece of work; but for any indication to the contrary the girls represented might have been pork-butchers' children, and the illustration could, if needed, pass as such. Plate xxi and others, which have little connection with the text, appear to have been introduced merely because they are underground photographs, of which their authors are pardonably proud.

BENNETT H. BROUGH.

OUR BOOK SHELF.

The General Principles of Zoology. By Richard Hertwig. Translated by George W. Field. Pp. xii + 226. (New York: Holt, 1896.)

THE English version of the general part of Prof. Richard Hertwig's "Lehrbuch der Zoologie" will be welcome to all teachers of biology in this country.

The value of a text-book of zoology can nearly always be tested by the character of the introductory chapters on the general principles of the subject. To write clearly, accurately and, withal, briefly on such topics as the structure of protoplasm, the character of cells, the fertilisation of the ovum, and the general principles of embryology, requires the knowledge and experience of one who has both investigated and taught for many years.

Prof. Hertwig is a master of his subject, and his "General Principles" is written in a masterly manner.

Among the many excellent chapters in this volume, we may call attention to those on the development of morphology and on comparative histology, which should be carefully read and considered by all those who are engaged in teaching the elementary principles of zoology.

The illustrations are numerous, well chosen, and admirably executed.

Whilst expressing admiration for the book as a whole, it must be noted, with some regret, that Prof. Hertwig writes so confidently of the truth of the hypothesis that the chromatin only is the bearer and transmitter of the hereditary characters. This is a speculation which was never founded on facts, which is not supported by recent investigations, and one which it is to be hoped will soon be lost and forgotten.

The chapter on the geographical distribution of animals is by no means of the same standard of excellence as the others. The statement, on page 216, that the deep-sea fauna is "distinguished from the coast fauna by its archaic character" is not accurate. It is true that a few archaic families have survived in deep-sea water, but by far the greater number of the members of the abyssal fauna are extremely specialised representatives of shallow-water groups.

The translation is good, and we may congratulate Mr. Field on his courage in rejecting the common American translation of the word "anlage" in favour of the more reasonable and intelligible word "rudiment."

S. J. H.

British Patent Law, and Patentees' Wrongs and Rights. By Hubert Haes. Pp. xiii + 102. (London: W. B. Whittingham and Co., Ltd., 1896.)

THERE is a feeling among most men engaged in industries that a patent is a bad security for an invention, and that the best way to reap the fruits of an improved chemical process, or of any novel industrial method, is to keep the knowledge secret. This indicates a weakness in the British patent system; and though the matter is a very difficult one to deal with satisfactorily, some change is desirable which will better protect the general public and deal with patentees more justly. Under the system at present in vogue, no examination as to novelty is made before granting the patent. Mr. Haes suggests, among other reforms, that the Government should undertake the most thorough search, in the case of every application for a patent, to ascertain whether the specified invention has previously been patented within this realm. At present this task is left to the patent agents, the Government taking fees but no responsibility. It is stated, "to show in what estimation British patents are held in Great Britain, it is necessary only to mention that, to obtain for an invention a British patent which shall have the likelihood of being valid, it is becoming the custom to apply for the German patent for it. It is found cheaper and quicker to do this than to search the English records, because the German government does that before granting its patent." As the commercial prosperity of our country depends upon inventions, Mr. Haes' statement of patentees' wrongs, and proposed remedies deserves attention.

Diagrams of Terrestrial and Astronomical Objects and Phenomena. By R. A. Gregory, F.R.A.S. (London: Chapman and Hall, Ltd., 1896.)

IN a set of twelve diagrams issued under the above title, the author has supplied a convenience which has been wanted for some time past in the class-teaching of elementary science, thus removing a considerable part of the difficulty experienced in obtaining, in diagram form, results of recent work in any subject. Teachers of physiography will be directly benefited, but most of the diagrams will be found useful in the illustration of geographical and elementary teaching. Many of the figures are almost of necessity similar to previous ones; but even in these cases the treatment is original, the descriptive text being specially clear and devoid of superfluous detail. Evidence of the degree to which recent discoveries are brought up to date is specially well shown in the diagram of "the sun's family of planets," in which the planets Jupiter and Saturn are reproductions from the drawings of these bodies by Profs. Keeler and Barnard respectively, observed by them at the Lick Observatory quite recently. A diagram illustrating the various forms of aqueous circulation is also specially clear and self-explanatory.

C. P. B.

The Romance of the Sea. By Fred Whympster. Pp. xii + 468. (London: Society for Promoting Christian Knowledge, 1896.)

"FICTIONS, facts and folk-lore" of the sea make up the pages of this book, but the first and last of these are much more prominent than the facts. Interesting stories, compiled mostly from the writings of others, have been roughly grouped by the author, and the tissue of words here and there makes a slight connection between them. Phenomena of the sea and skies are given some attention, but from the purely descriptive point of view; and the same remark applies to the accounts of sea-monsters, coral, and volcanic islands. Boys with a love of the sea and adventure will be charmed with Mr. Whympster's collected narratives, and they will probably rejoice at the small attempt made to retail scientific facts at the same time.