

the north of Ireland to the west of Scotland, and the description of the Old Man of Hoy as the result of erosion in schistose rock, whereas it is a mass of horizontally stratified Old Red Sandstone. These examples might be considerably reinforced were detailed criticism necessary, but a graver defect is the way in which work done by others than Frenchmen has been ignored. Reference is certainly made to several British, German, Russian, and American writers, but rarely at first hand, and many works of the first importance have been entirely overlooked.

There are seven chapters dealing successively with the movements of water in the sea, coast erosion, the movements of sand (the two most satisfactory chapters), the origin of beaches, deltas, estuaries, and the evidence of movements of the land along the coasts, including the origin of fjords.

The treatment of estuaries is particularly inadequate. The Amazon and Congo are scarcely seriously touched on, the part of salinity in determining the *régime* of tides in an estuary is practically overlooked, and the relation of the volume and velocity of a river to the volume of its estuary is not worked out at all. Perhaps the most marked omission is Prof. Osborne Reynolds' magnificent experiments on the synthesis of sandbanks by tides, and the controlling relation of the configuration of the coasts to that of the banks.

But with many faults of execution, the plan of the book is sound, and the work supplies a framework for a treatise of great value, which might be furnished if the author would first prepare a bibliography of the subject, and then undertake a thorough and leisurely revision.

H. R. M.

*The Mechanics of Hoisting Machinery.* By Dr. Julius Weisbach and Prof. Gustav Herrmann. Translated from the second German edition by Karl P. Dahlstrom, M.E. (London and New York: Macmillan and Co., 1893.)

THIS book is a translation from Prof. Herrmann's revised edition of Weisbach's great work on engineering mechanics. Several volumes of this work are familiar to English readers. The present section, however, has not previously appeared in English print, although its value has long been recognised. Mr. Dahlstrom was induced to undertake the translation, because he felt that there was a want in our technical literature for a text-book suitable for the higher grades of mechanics of machinery.

As the title implies, the contents of the work are entirely concerned with hoisting machinery; commencing with the simple lever and screw-jacks, and going on with all kinds of pulleys and blocks, windlasses and lifts, as well as hydraulic plant, concluding with hoisting machinery for mines, cranes and sheers, excavators, and dredgers, &c.

The treatment of these subjects is such that criticism is nearly unnecessary. The examples and illustrations are nearly all taken from every-day engineering practice; some are, however, old-fashioned. Senior students will obtain many useful hints in this book, more especially on studying the methods of working out the examples throughout the volume. The diagrams are very clear and to the point. One cannot help noticing that the illustrations have in many cases a decidedly foreign appearance, and the design would not be followed in this country; nevertheless, they serve the very useful purpose of illustrating theoretical constructions by means of every-day objects. Fig. 65 represents the usual wood-cut of the essential arrangement of an hydrostatic press. The ram of the force-pump is shown the full diameter of the cylinder, and therefore no passage exists for the water to pass from the suction to the delivery valve on the down stroke. Fig. 105 represents a two-

cylinder geared steam winch, fitted with a peculiar slide valve. A description of this valve would have been interesting, because only one eccentric appears to be necessary, thus doing away with the noisy link motion, especially when badly worn.

The many references given add considerably to the value and usefulness of this work, while the able mathematical treatment of the more difficult examples leaves nothing to be desired. The translator may be congratulated on having added one more useful book to the library available to the student and engineer.

N. J. L.

*An Elementary Manual of Zoology.* By E. C. Cotes. Pp. 119. (Calcutta: Government Printing Office, 1893.)

THE encouragement given to scientific instruction and research by the Indian Government is known to all who see the many interesting and important publications which issue from the different departments. Most branches of natural knowledge are fostered in India with a care which could be followed with advantage in the British Isles. The work before us is not a voluminous report, nor is it a richly illustrated monograph of the kind that often emanates from the various departments of the Government. In its way, however, it will do excellent service by providing a course of zoology suitable for the use of students at the Imperial Forest School, Dehra Dun. The author, who is lecturer on zoology in that school, and deputy superintendent of the Indian Museum, points out that the particular animals with which the Indian Forest officer is concerned are not treated in sufficient detail in the general text-books. His manual admirably supplies the requisite information, and furnishes a sound elementary course on the classification and habits of the commoner Indian animals. The work is divided into two parts, the first of which is a systematic course, while the second consists of directions for the dissection and examination of specimens. Theory and practice are thus each given a proper share of consideration. The book is a practical one, and the theoretical matter included in it is only such as is likely to be of use to the students for whom it has been designed. Little reference is therefore made to the fundamental theories of modern biology.

*Preservation of Health in India.* By Sir J. Fayrer, K.C.S.I., F.R.S. Pp. 51. (London: Macmillan and Co., 1894.)

THE young European who is about to take up a long residence in India, could not do better than "read, mark, learn, and inwardly digest" what Sir Joseph Fayrer has to say about the preservation of health there. In this primer, so small that it will almost fit into the waistcoat-pocket, we find a good summary of information with regard to the physical characters and the climate of India. To obviate the deleterious action of the latter, and preserve health, the author lays down a few simple hygienic rules which must be observed. He describes the diseases and accidents in which immediate aid is required, and states briefly the antidotes to be employed in each case. Readers of the book will acquire, pleasantly and easily, a fund of useful knowledge on the most important points concerning health and possible sickness in our Eastern Empire.

*First Principles of Building.* By Alex. Black. Pp. 329. (London: Biggs and Co.)

THEY who build houses will find many matters connected with their occupation, presented in a practical light, in the book under review. The choice and preparation of a site, the planning of the dwelling, and the nature and use of the materials to be employed, are considered by the author from a technical point of view. The work is a practical handbook for architects and builders, and contains a mass of highly-compressed information on all points pertaining to the erection of residences.