

The Astronomy (by the Astronomer Royal) is the shortest article in the book, extending over no more than 12 pages. Hydrography, on the other hand, occupies 49 pages, and contains much useful information regarding soundings, the discovery of land, sailing directions, and artificial harbours. The directions are essentially practical and eminently suggestive; thus, take the following from *Approaching a coast*:—"Always bear in mind that no description can equal a tolerably faithful sketch, accompanied by bearings. In all four sketches take angles roughly with a sextant between objects at the extremities of four drawings, and two or more intermediate ones, and affix them to the objects of the moment, and have at least one angular height in the picture; let that be of the highest and most conspicuous or best defined object."

The article on Tides (26 pages) gives minute directions for tide observations and the construction of curve tables. The next section, on Terrestrial Magnetism, by Sir Edward Sabine, is of great importance, and describes the methods of observation most in vogue; the observations of local attraction, of vibration, of deflection, and so on. We miss, however, any account of the magnetism of iron ships, and the elimination of the compass error caused thereby. Also we feel assured that simple instructions for travellers as to the use of compasses on land, in the midst of forests, &c., would prove of much service. Under the heading Meteorology we find directions for observing systematically a large number of aerial phenomena, water-spouts, bull's-eye signals, showers of dust and ashes, cyclones, various electrical manifestations, &c. Passing over the articles on atmospheric waves and barometric curves, we come to that on Statistics, which is of very general interest, and relates to the state of education and crime of a people, the manufactures, commerce, currency, revenue, municipal regulations, &c. This is followed by "Medicine and Medical Statistics," regarding the various fevers and other diseases to which travellers are specially exposed, with hints for determining the geographical distribution of diseases.

The chapter on Ethnology by the late J. C. Prichard, revised by Mr. E. B. Tylor, is to be specially commended to the notice of travellers; under the term he includes "all that relates to human beings, whether regarded as individuals, or as members of families or communities;" the physical and social history of man. This chapter is divided into three parts:—(1) of the Physical Character of Nations; (2) Characteristics of the state of Society, &c.; (3) Language, Poetry, Literature. We are lamentably deficient in our knowledge regarding the earlier history of the physical sciences, and are glad to find that Mr. Tylor alludes to the acquirement of knowledge of this nature in the following paragraph:—"The crude notions entertained by uncivilised races on subjects within the scope of physical science are matters worthy of inquiry. Science they can hardly be said to possess, though this was scarcely true with the ancient Mexicans. All nations observe the changes of the moon, and measure the lapse of time with a greater or less degree of accuracy by the movements of some of the heavenly bodies. The special names given to the months, if any, should be recorded. Inquiry should be made whether the motions of the planets are observed, and whether these bodies are distinguished from fixed stars; what ideas are current as

to the conformation of earth and sky and the cause of eclipses; whether attempts are made to ascertain the duration of the solar year, whether there are names for the constellations, and what they are if they exist."

Of the remaining portions of this work we need only allude to that devoted to "Seismology, or Earthquake Phenomena," by Mr. Robert Mallet, which contains many details as to the observation of effects of rare occurrence in these latitudes, but to the traveller in South America the suggestions would be invaluable. Thus we have an account of instruments for observing the velocity and direction of the shock of an earthquake, observations to be made in a city affected by an earthquake, and the preparation of coseismal and meizoseismal curves. To conclude: the whole work is wonderfully suggestive, not alone to the traveller, but to the home observer; it teaches us to arrange in order and systematise our observations, and in so doing conveys a great deal of collateral information.

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OUR BOOK SHELF

Gmelin-Kraut's Handbuch der Chemie, Anorganische Chemie. In Drei Bänden, Sechste umgearbeitete Auflage. Herausgegeben von Dr. Karl Kraut, Heidelberg. Erster Band zweite Abtheilung, pp. 176. (London: Williams and Norgate.)

It is now eighteen years since the appearance of the fifth edition of this work; this, of course has necessitated the change from the old atomic weights to the new, but the arrangement of the elements and sections of the book has been retained as in former editions. The present volume has been thoroughly revised, the information having been brought up to a very recent date; should the remaining volumes be equally reliable, it will probably be the most complete work on inorganic chemistry in any language. Dr. Kraut has obtained the assistance of Drs. Naumann, Ritter, and Jorgensen, in order to expedite the conclusion of the work. There is no book to our knowledge which contains so large an amount of information in a small space as Gmelin's Handbook. It is, as expressed in the preface, a complete, concise, and systematic handbook of chemistry up to the latest time. The merits of this book for the purposes of reference are so well known that it would be quite superfluous to enter into any lengthened description of it. In the volume now under consideration oxygen, hydrogen, carbon, boron, phosphorus, and sulphur, with some of their more important compounds, are treated of; the article on ozone and its properties is perhaps typical of the book, it occupies fourteen pages, and forms a very valuable and complete history of this body. The completion of the book may be looked for with interest, although necessarily it will be some time before this can be accomplished.

Astronomical Phenomena in 1872. By W. F. Denning, Hon. Sec. of the Observing Astronomical Society. (London: Wyman and Son.)

THIS brochure consists of some general remarks on astronomical observing, and some forty pages of data almost entirely taken from the "Nautical Almanack" for 1872. The former are addressed to the simplest tyro, and are so meagre as to give the impression of a want of accurate knowledge. In the section touching upon instruments we are told that "with regard to the spectroscope, micrometer, and other astronomical appliances, it will be better to say but very