

congratulated upon the success which has attended his labours, which it would appear from the preface have extended over three years. The added illustrations are singularly true to nature, and as numerous as could well be desired. The bibliography is somewhat limited for a work of this kind, and it would have been worth an effort to render the list of works bearing upon the structure of each organ as complete—at least, so far as recent years are concerned—as possible. Nevertheless, important papers are looked for in vain amongst the references. And the lack of an index cannot be too strongly condemned. For it is impossible to understand what object can possibly be served by dispensing with that part of a book the absence of which renders difficult the proper employment of all the rest! Why is it that it is only in German books that we still find this unaccountable tendency to omit the all-important index? Echo can only answer, Why indeed? They do not manage these things better in Germany. But they are beginning to improve.

*The Evolution of Geography. A Sketch of the Rise and Progress of Geographical Knowledge from the Earliest Times to the First Circumnavigation of the Globe.* By John Keane. Pp. xvi + 160. (London: Edward Stanford, 1899.)

THE second title is more descriptive than the first, which suggests a much more ambitious scheme than the author had before him. This little book makes no claim to originality in matter or method. It is a compilation from accessible sources, and, so far as it goes, is a piece of careful and conscientious work. It is neither critical nor learned, and it would be unfair to review it as if it pretended to such distinction. The chapters are concerned mainly with the history of discovery under the titles of ancient geography, the early Christian ages, the crusading impulse, early and mediæval maps, Henry the Navigator, aids to geographical expansion, and Magellan. The statements of generally acknowledged facts are accurate as a rule, and controversial matters are usually excluded. Mathematical and physical geography do not receive adequate notice, even for so small a scale as is employed.

The first part of the title of the book led us to hope for a philosophical study of the science of geography, and its rise from the earliest times to its present stage of development; but such a work is still to write. Still to write also are studies of early Chinese and Hindu geographical knowledge; indeed, the whole working of the early Oriental mind on geographical problems offers a nearly virgin field, but one that can only be entered by an author well-versed in modern geography and in Eastern languages.

In the present modest work the best feature is undoubtedly the collection of maps, most of them reproduced from previously published English books, but some now shown for the first time in outline on a small scale. It is hard to believe that Magellan's ship, the *Victoria*, really bore her name all along the side in huge letters like a modern light-ship, as the frontispiece shows; but the responsibility for this is relegated to Levinus Hulsius, who published the original drawing in 1602. H. R. M.

*First Steps in Earth-Knowledge; being an Introduction to Physiography (Section I).* By J. A. Harrison, B.Sc. Edited by W. J. Harrison. vi + 290 pp. (London: Blackie and Son, Ltd., 1899.)

As the German term "Erdkunde," or its literal rendering, "Earth-Knowledge," signifies something different from an elementary treatment of the fundamental laws of physics and chemistry, such as Mr. Harrison's book provides, his title is a little incorrect and likely to be misleading. At the same time the author gives what is on the whole a satisfactory introduction to science, such

as is included in Section I. of the syllabus in physiology of the Science and Art Department and in the schedule of requirements for pupil-teachers, issued by the Education Department. The book is distinctly attractive, being clearly printed and well illustrated. But certain blemishes have revealed themselves in examining the contents more carefully. We have looked in vain for any reference to the anomalous expansion of water when heated, and no method of determining the temperature at which it possesses its maximum density seems to be given. As so much attention is bestowed upon the construction of thermometers, and the reasons for the employment of mercury are duly tabulated, this omission is rather a grave one. In explaining reflection and refraction of light no reference is made to the simple pin methods of demonstration which are so useful in enabling students to deduce the laws for themselves. The chemistry section would have been improved if a more rational plan of treatment had been adopted.

*Die Orkane des "Fernen Ostens."* By Prof. Dr. Paul Bergholz. Pp. xii + 260. With 31 lithographed charts, 33 tables, and 7 figures. (Bremen and Shanghai: Max Nössler, 1900.)

THE Kaiser's remark, "Our future lies on the water," has induced Dr. Bergholz, in charge of the Bremen Meteorological Observatory, to devote a great deal of his time to the study of tropical hurricanes, and particularly to those of the Eastern Seas, because, as he states in his preface, the increase of German trade is especially noticeable in Eastern waters, a fact which is demonstrated to Englishmen by the continued transfer of Asiatic steamship lines from the British to the German flag. Dr. Bergholz has summarised all that has previously been written on typhoons, so that the present work is the concentrated essence of our knowledge of these terrible meteors. Every feature in the life-history of a typhoon seems to be carefully dealt with—the origin of the disturbance, its progress, the circulation and the force of the wind, the behaviour of the barometer, the thermometer, the sea, the clouds, and the rainfall. Several special instances are dealt with in detail, and a chapter is devoted to such anomalies as gales unaccompanied by rain, rapid falls of the barometer without increase of wind, strong winds with a slight decline of the barometer, and so on; all which go to prove that old Dampier was right when he declared that the storms of the Temperate Zones, the hurricanes of the West Indies, the cyclones of the Indian Ocean, and the typhoons of the China seas differ only in name. A selection of charts accompanies the work; but while it is permissible to begin the meteorological year with December, in exhibiting the monthly variations of pressure and temperature, there is no sufficient reason why October and November should fall between May and June. The method adopted in drawing the isobars will not meet with the approval of meteorologists, areas of high pressure not being separated in the natural way by areas of low pressure, and *vice versa*, but merely by a dividing line where contrary winds must meet without any intervening calm space. H.

*Volumetric Analysis.* By John B. Coppock. 92 pp. (London: Whittaker and Co., 1899.)

THIS fragment of science is intended as an appendage to existing books on qualitative analysis so as to meet the requirements of certain examinations in chemistry held by the University of London and the Department of Science and Art. But recent books on analysis which have already come before our notice have met the contingency to which Mr. Coppock refers. Moreover, this is not the first little book with the same object in view. Mr. Coppock covers familiar ground in a familiar way and is, as far as we have seen, a trustworthy guide.