

with great respect. He has witnessed many storms and startling phenomena in all parts of the world, and has sought to ascertain the causes according to his lights. Not being sufficiently acquainted with phenomena outside his own experience, and perhaps misled by the "long arm of coincidence," he has gone wrong, but the spirit of inquiry exhibited is very creditable, and much to be preferred to the display of indifference so often manifested by seamen and others.

*Die Cnidosporidien (Myxosporidien, Actinomyxidien, Microsporidien). Eine monographische Studie.* By Dr. M. Auerbach. Pp. viii+261. (Leipzig: Verlag von Dr. Werner Klinkhardt, 1910.) Price 18 marks.

THIS memoir deals with an important group of parasitic Protozoa, associated with disease in cold-blooded vertebrates, especially fishes, and in invertebrates, for instance, pébrine in silkworms. The spores of these Sporozoa are enclosed in a valvate shell (the valves of which are shown to arise from two or three special cells in the sporoblast), which contains, besides one or more masses of spore-plasm, one to four polar capsules, each with a spirally-wound filament. The assertions of some workers that the polar filaments can be extruded and subsequently retracted are not borne out by the author's experience. The morphology of the vegetative forms and spores and the multiplicative and propagative reproduction are fully described; some form of sexual reproduction is now known to occur in members of each of the three subdivisions of the Cnidosporidia.

In the biological portion of the work the occurrence of the parasites is discussed, and an excellent host-index is given showing the Cnidosporidia recorded from each, with references to the records; the situation of the parasite and its pathological effects are described. In the systematic section an account is given of the genera and species described subsequent to 1897, which thus serves as a supplement to Labbé's account in "Das Tierreich" (1899). There are useful hints on technique, a list of 530 memoirs dealing with this group of parasites up to August, 1909, and an appendix giving a summary of the literature issued between that date and the time of printing. A comprehensive index completes this admirably arranged and useful monograph, which is illustrated with eighty-three half-tone figures.

*Lehrbuch der Botanik für höhere Lehranstalten und die Hand des Lehrers, sowie für alle Freunde der Natur.* By Prof. O. Schmeil. (Sechszwanzigste Auflage.) Pp. xvi+534. (Leipzig: Quelle and Meyer, 1910.) Price 5.40 marks.

THE author of a book that passes through twenty-five editions in seven years has reason to be satisfied. Such is the record of Dr. Schmeil's "Text-book of Botany," which is intended for use in high schools and similar institutions, as well as for teachers and home students. It is largely a systematic compilation treating of phanerogams, with a shorter review of cryptogamic types; to this is added an account of general morphology and physiology, and a brief appendix on plant systems and geographical distribution. The success of the book may be attributed to the training value of systematic botany in a general course of education. The information proceeds by families, for which one or more of the important members is taken for tolerably full description, especially with regard to features of biological interest, while others, particularly those of economic interest, are mentioned, and in many cases figured. Among the numerous illustrations those portraying

general habit and appearance are a notable feature. Most of the coloured plates refer to an individual species, but one is a representation of a wood in the carboniferous epoch. It would be useful if general characters were given for each family mentioned; as it is, they are omitted in those cases where they are not readily obtainable.

*Four-Figure Logarithms on a New Graphic System, dispensing with Interpolations.* By Dr. R. C. Farmer and M. M. Farmer. Pp. 8. (London: Longmans and Co., 1910.) Price 6d. net.

THE authors of these tables have attempted to avoid the necessity of employing difference columns. With this end in view, numbers are printed on one side of a graduated line, drawn down the page, and the corresponding logarithms are placed opposite to them. The difference between successive printed numbers is 10 and the intermediate spaces are divided into ten parts. The logarithms are also printed at intervals of ten, and the correct subdivisions are indicated. It is claimed that more accurate readings will be made in this way than from the ordinary tables where a slight error in the fourth place occasionally occurs. But we must confess that we have found this new method a considerable strain on the eyesight, and there is the additional inconvenience of having three pages to consult instead of one. For practical purposes, ordinary tables give a sufficient degree of accuracy; we therefore doubt whether this new graphic system, in itself distinctly ingenious, will receive much support.

*Die Abstammungslehre.* By Dr. P. G. Buekers. Pp. xi+354. (Leipzig: Quelle and Meyer, 1909.) Price 4.40 marks.

THIS is a very good little book. It presents the main facts bearing on the theory of descent, which have been ascertained of recent years, within a convenient compass. The account of variability is very useful, but what will probably be found of greatest use to German readers will be the author's epitome of the mutation theory and his account of elementary species in *Draba* and *Viola*, of which there are some very useful figures. His chapter on the natural system of classification is very interestingly written; he deals at length and is evidently very much interested in the question of the minute discrimination rendered possible by a long training of the observation, and he mentions a bulb dealer who knows more than a thousand varieties of hyacinths from the dry bulbs alone. His concluding chapter embodies an attempt to hold the scales between the mutation theory and the theory of the selection of continuous variations. The author makes an unequivocal declaration in favour of the theory of mutation; his thoughtful analysis of the evidence on this question should ensure the book a wide circulation. It is to be hoped that it may be translated into English.

*The Cornish Riviera.* Described by Sidney Heath. Pp. 64. *The Peak District.* Described by R. M. Gilchrist. Pp. 64. *Dickens Land.* Described by J. A. Nicklin. Pp. 64. All pictured by Ernest Haslehurst. (London: Blackie and Son, Ltd., 1911.) Price 2s. net.

THESE additions to the "Beautiful England" series which Messrs. Blackie are publishing contain all the attractive features to which attention has been directed in noticing previous volumes. Mr. Haslehurst's beautiful pictures in colour, supplemented as they are by bright, entertaining letterpress, should assure the popularity of the volumes.