

His account of the Lichens is not more trustworthy than that which he gives of Volvox. He appears to be halting between two opinions with regard to the burning question of the nature of these organisms, for although he states on p. 69 that the germinating spore gives rise to both gonidia and hyphæ, thereby implying that those cells of the thallus which do not contain chlorophyll and those which do have a common origin, yet he admits (p. 74) that the gonidia may escape from the thallus and lead an independent existence, and further (p. 84), that he has observed the formation of a lichen-thallus by the combination of algal and fungal forms which were originally distinct.

His treatment of the Cormophytes is also disappointing. If the student, anxious to become acquainted with the most recent views as to such important points as the gymnosperms of the Conifers and the morphological significance of the embryo-sac and its contents in Flowering Plants, turns to the sections of this book which profess to treat of them, he will find only a few dogmatic statements with regard to the former point, and none at all with regard to the latter. Perhaps these points may have been thought too recondite for discussion in a work which professes to be a handbook for learners of the science, but many pages are devoted to the consideration of subjects, such as the more complicated forms of phyllotaxis, which have principally a mathematical interest. Again, the morphology of the stem, of the leaf, and especially of the root, is dismissed far too summarily. It is to be hoped that these organs, as well as inflorescences, flowers, and fruits, will have justice done to them in the volume on the Classification of Flowering Plants. One further shortcoming must yet be mentioned, namely, the scantiness of the account given of the embryology of plants. This is a subject which has been much studied in recent years, and, from the title of this book, it might naturally be expected that it would give a satisfactory account of the results which have been attained. This is, unfortunately, by no means the case. Some of the facts are mentioned, it is true, but they are stated too briefly to be very intelligible, and no attempt seems to have been made to connect them together and to explain their significance.

It must be admitted that the book contains a considerable amount of information scattered through its pages, but the purely theoretical principles upon which this information has been arranged render it difficult of acquirement, and for this reason, if for no other, the book is not one which can be recommended for the use of students.

OUR BOOK SHELF

The Gardens of the Sun; or, A Naturalist's Journal on the Mountains and in the Forests and Swamps of Borneo and the Sulu Archipelago. By F. W. Burbidge. (London: John Murray, 1880.)

THIS book is the itinerary of a competent and enthusiastic botanist, whose main object was "the collection and introduction of beautiful new plants to the Veitchian collection at Chelsea," in which he so far succeeded as to add about fifty ferns to the list of those already collected in Borneo, about twenty being also new to science, and to introduce alive the giant pitcher-plant of Kina Balu (*Nepenthes Rajah*, Hook. f.). But these alone by no

means show the floral riches which have induced the author to use the by no means exaggerated term "Gardens of the Sun." Amongst epiphytal orchids which here growing in mid-air "screened from the sun by a leafy canopy, deluged with rains for half the year or more at least, and fanned by the cool sea-breezes or monsoons," is found the beautiful *Phalænopsis grandiflora*; nor in the mountain vegetation are like floral riches absent; at 5000 feet the curious pitcher-plant, *Nepenthes Lowi*, was found epiphytal on mossy trunks and branches, and higher still a "large-flowered rhododendron, bearing rich orange flowers two inches in diameter, and twenty flowers in a cluster." The forests and gardens of Borneo are equally rich in native and naturalised kinds of edible fruits, the mango, pine-apple, durian, rambutan, &c., being all alike plentiful and luxuriant, and, as Mr. Burbidge remarks, in some favoured districts in Malaya the forests almost become orchards on a large scale, so plentifully are they stocked.

Zoology was naturally less followed than botany, but still a collection of birds was made, notices of which, contributed by Mr. Sharpe to the Zoological Society, are appended to the volume. We however regret to find the word "alligator" still constantly occurring, whilst the word "boa" is equally misleading. Crocodile and python are words which do not seem to find a home in the East, nor moreover in many books of Eastern travel. It is also quite erroneous to say that Borneo "is the only habitat of the wild elephant in the Malay Archipelago"; certainly so, at least, if we are not to exclude Sumatra from that region.

Many ethnological facts are scattered about the volume; the account of the Jakuns of Johore is taken and fully acknowledged from Maclay's memoir on the subject in the "Journal of Eastern Asia"; but the author contributes an interesting account of the method pursued by the Kadyans in playing the game of football. No one but the student of games knows how difficult it is to find much or any information on this point in most books of travel.

Tasmanian Friends and Foes: Feathered, Furred, and Finned. By Louisa Anne Meredith, Author of "My Home in Tasmania," &c. With Coloured Plates from Drawings by the Author, and other Illustrations. (London: Marcus Ward and Co., 1880.)

IT will probably be granted that there is developed in most people a fondness for certain of what we are pleased to call the lower forms of animals. Such are made pets of for various reasons: the sweetness of their song, the brightness of their plumage, the splendour of their scales—these phenomena act as causes that attract the senses. Their sometimes fond and gentle ways make of some, prime favourites, while a sense of their usefulness makes again of others indispensable companions to man.

Most of man's dumb companions have been taken from groups of animals with a more or less world-wide distribution; and it will no doubt be new to some of our readers to learn that in Australia—a country where the aborigines, for want of native pets, had to import at some time or another a dog—that there, such forms as brush kangaroos, wombats, bandicoots, and even great forest kangaroos—animals only known in these parts—can also become nice, quite gentle, mannerly things, doing a little damage now and then, it is true, by leaving long dirty tracks to bother the housemaid, like a boy home at Christmas time, or pulling up tulip-bulbs, or, worst of all, getting into the children's beds because they are comfortable. The beautifully got-up volume whose title heads this notice is written by a well-known and respected lady who has often before written pleasantly about her Tasmanian home and the bush friends she found or made there. In the present volume she writes an able defence of some of her dumb "marsupial" acquaintances, showing that