

startled him when he was wandering abroad in the gloom of the forest" (p. 343).

Such fancies may find a place in a schoolboy's essay, but are altogether out of place in a massive work devoted to the archæology of Europe.

The illustrations, which are excellent and numerous, make up for much that is deficient in the text. Students will also be thankful for references to many recent papers and monographs. There is no doubt a real need for such a text-book as this written in English and designed for the use of students of archæology—a text-book to serve as a standard work. We only regret that the author, while displaying a most commendable and painstaking industry, has not risen to the height of his opportunity.

A. K.

Indian Game-Birds.

The Game-Birds of India. By F. C. Stuart Baker. Vol. 1, *Ducks and their Allies (Swans, Geese, and Ducks)*. Second edition. Pp. xvi + 340 + pl. xxx (4l. 4s. net.) Vol. 2, *Snipe, Bustards, and Sand-Grouse*. Pp. xvi + 328 + pl. xix (3l. 13s. 6d. net.) (Bombay: Bombay Natural History Society; London: J. Bale, Sons; and Danielsson, Ltd., 1921.)

THE first of these volumes, dealing with Ducks and their allies, is the second edition of a work published by the author in 1908, which again was a reprint from a series of articles which appeared in the *Journal of the Bombay Natural History Society*. The matter has therefore had the advantage of two revisions and is brought completely up to date as regards nomenclature and records. The second volume, now before us, deals with birds which are included by the sportsman among the game-birds, though in scientific classification they are not so. These are the Snipe, Bustards, and Sand-Grouse. Two further volumes are promised on the Pheasants and Partridges, and with these four by his side the Indian sportsman and amateur naturalist will be very completely equipped not only to identify the game-birds he commonly meets with, but to obtain all the information in regard to their habits and occurrence that is known. Mr. Baker, though now for some years retired from service in India, spent the greater part of his life there, and in these volumes he has given us much of his own observations and experiences; to these he has added contributions from others, both previously published and derived from information sent him by his many Indian correspondents. As a result we have here a most complete account of the life history of these favourite birds.

In every case a good description of adults and nestlings is followed by paragraphs on the distribution, nidification, and general habits, while every species is

illustrated with coloured plates. These are most of them by Mr. H. Grönvold, though some of those in the first volume are from the brush of Mr. G. E. Lodge and the late Mr. J. G. Keulemans. They are reproduced by chromolithography in the case of the Ducks, and by the three-colour process in the second volume. The chromolithography is certainly softer, and perhaps gives a more artistic result. In the three-colour process the colours are decidedly sharper, and better defined, though the very shiny paper necessary for this process certainly detracts from their artistic appearance.

Perhaps one of the most interesting facts recorded in these volumes relates to the habits of two species of sand-grouse, *Pteroclorus alchatus* and *P. senegalensis* (formerly known as *P. exustus*). Although these birds inhabit the dryer and more desert regions of north-west India and Central Asia, they are, unlike some other desert forms, unable to do without water, and resort in enormous flocks to well-known watering-places at certain fixed hours to quench their thirst. It has always been stated by native shikarees that when they have young broods they convey water to them by thoroughly soaking the feathers and the breast and underparts, and that the young birds suck the water thus conveyed to them. This story has been confirmed by Mr. Meade Waldo, who has repeatedly bred *P. alchatus* and other species in confinement and has watched the process of the male saturating the feathers of his breast and subsequently satisfying the thirsty brood.

Nearly all intelligent travellers and even residents in tropical countries have experienced the irritation and annoyance of being unable to identify the strange forms of animal and vegetable life with which they come in contact. Such works as the present, with its beautiful series of coloured plates and carefully prepared descriptions, cannot fail to be of the greatest assistance to all those whom duty or pleasure take to India, and we must congratulate Mr. Baker and the Bombay Natural History Society on their enterprise in supplying two such fine volumes at a comparatively reasonable price as things are at present. We shall look forward to the appearance of the other two volumes promised within a reasonable period.

Water Flow in Pipes.

Hydraulics of Pipe Lines. By Prof. W. F. Durand. (The Glasgow Text Books of Civil Engineering.) Pp. xvi + 271. (London: Constable and Co., Ltd., 1921.) 18s.

THE subject of the flow of water in pipes and channels is not only of very considerable historical and scientific interest, but is also one of