

We have now discharged a very disagreeable duty, in pointing out what seem to us grave errors in this work, and have left but little room for further remarks. We may notice, however, that the account of the Physical Geography of the county is fairly executed, and we are not without hope that the book may be useful to the beginner, by pointing out what he is to expect to meet with in the district described, and what spots are best worth a visit. More than this he must not look for, but must take the field, and touch, taste and handle for himself if he wants thoroughly to be master of his subject.

II.—ON THE GEOLOGY OF THE ISLAND OF BOMBAY.

By A. B. WYNNE, F.G.S., etc., Geological Survey of India.

THIS paper forms a part of the fifth volume of the *Memoirs of the Geological Survey of India*, a series of publications containing many valuable and interesting papers on those portions of India which have been investigated during the progress of the Geological Survey, under the able direction of Professor Oldham. The island of Bombay has been carefully surveyed by Mr. Wynne, who, after alluding to the researches of previous observers, to whom he does full justice, has now given a detailed description of the arrangement of the rocks of Bombay Island. He shows that the geological structure of the island is closely allied to that of the neighbouring coast, and other portions of Western India, although it presents local differences. The physical features of the island are intimately connected with its geology, as modified by denudation; the form of the ground, and elongate shape of the island, depend on two main ridges or chains of hills consisting of igneous (trappean) rocks, separated by alluvium and other superficial deposits, which form a central plain. The longer and more gentle slopes of the ridges are to the west, and the steeper sides to the east, coinciding in a general way with the planes of stratification, which have a more or less westerly dip. The whole island presents an ascending series of stratified trappean and aqueous rocks, commencing with the black basaltic rock of Seoree on the east, succeeded by the traps and shales of the eastern hills, which are overlain again by the shaly beds seen on both sides of the flats, and terminated by the basaltic beds of Malabar ridge and Warlee. The rocks present many varieties, some resembling Greenstone Melaphyre, Felstone, others different forms of trap, both silicious, compact, white, and amygdaloidal, volcanic breccia, and also various kinds of ferruginous and flaky ash, and the intertrappean shales, sandstones, and flags, derived apparently from the mechanical disintegration of trappean rocks.

The shale series contains remains of reptiles, amphibians, insects, mollusca, with leaves, stems, and seeds of plants, suggesting their freshwater origin, but these deposits have been traced only a short way beyond Bombay Island, from which Mr. Wynne infers that trappean flows approaching from opposite sides left shallow basins, which became repositories of mud and sand, the results of the disintegration of trap, washed down by rain during long intervals,

between the eruptions of the trappean materials; intervals in which the muddy basins became the receptacles of many forms of organic existence, and then subsequent trappean flows overran and covered up these lacustrine deposits, long afterwards to be exposed again by denudation, nearly as we see them now. The author has paid special attention to the relations between the form of the ground, and its geological structure, and to the effects of denudation, elevation, and depression, in modifying the surface features, thus rendering the Memoir a practical and useful contribution to geology.

J. M.

III.—A SKETCH OF THE GEOLOGY OF FIFE AND THE LOTHIANS. By CHARLES MACLAREN, F.R.S.E., etc. Second Edition. Edinburgh, 1866. pp. 320.

IN 1839, when this work was originally published, the Science of Geology had, at least in the Scottish metropolis, a very different direction from what it has now. The value of fossils was unknown. Their importance had already dawned on students in England and France, but in Edinburgh the lithological aspect of the science engrossed the chief, almost the whole interest; and arguments in defence of the particular theories of the observer, were the great lessons that were learned in the field. Mr. Maclaren's work belongs to those happily bygone days. It abounds with accurate descriptions of the rocks of the district, accompanied with sections and diagrams of the more interesting phenomena, so careful and characteristic that it has been for many years an invaluable hand-book to the student of local geology. Mr. Maclaren knew only two kinds of fossils from the Silurians of the Pentlands; fragments of Trilobites and Orthoceratites; but he was the first to notice that they existed there at all. Since 1839 Edinburgh students have not been idle. Papers and volumes have been published by Fleming, Miller, Chambers, Bryson, Geikie, Howell, and others. The nature and relation of the rocks, and the character of the organisms contained in them, are now well known—even the very language of the science is changed. It is strange to take up this volume with the date of 1866 on its title page, and find oneself carried back a quarter of a century, and immersed in discussions long since exploded, without a ray of light from subsequent observers. Even Mr. Maclaren's own later views, published at intervals in the *Scotsman*, are overlooked. There are sufficient verbal changes throughout the volume to make it not a simple reprint of the first edition. But it does not express the views now entertained, regarding the structure of the district—nor, indeed, the views entertained, for many years before his death, by its venerable author. It is greatly to be regretted that Mr. Maclaren was advised to bring out his volume in this form. To those who know anything of the history of this volume, and who remember that its talented author was considerably over eighty years of age when he was induced to republish it, it will not affect the high position which Mr. Maclaren's contributions to science won for him; but the general reader, who only knows that in 1866 these views