

NOTICES OF MEMOIRS.

DEVONSHIRE ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Vol. V. Part I. 1872.

THIS volume contains a record of the proceedings which took place at the meeting held at Exeter, in July, 1872, with the Right Rev. the Lord Bishop of Exeter as President.

Mr. P. O. Hutchinson mentions the dredging of bones and teeth off Sidmouth, and the discovery of a tooth in the bed of the river Sid. He also contributes a note on Iron Pits, which were originally sunk for the purpose of seeking iron ore. In Devonshire they occur mostly on the hills capped by the Greensand formation, covered in places by a bed of plastic clay mixed with angular flints. The ore was procured on the hills, and the reducing process no doubt carried on in the valleys, for he notices the occurrence of numerous pieces of scoria in the parish of Uffculme, indicating that there had been a smelting place not far off. At Church Stanton, in the Blackdown Hills, there are the remains of several smelting places, indicated by scorise and slag.

Mr. R. N. Worth describes the rocks in the neighbourhood of Plymouth.

Mr. T. M. Hall points out records of tide, rain, and wind, during the Carboniferous Period in North Devon, in the shape of ripple-marks, and the imprints of rain-drops. Some little depressions which occurred in great numbers, and over more than twenty distinct surfaces in close proximity to each other, sometimes separated by a number of intermediate layers of smooth slate, he attributed to showers of drifting sand, the finer particles of which, borne upon the wind, had fallen upon soft mud. This idea was strongly supported by the occasional existence in some of the depressions of a small gritty nucleus, more or less angular in its character, and considerably harder than the matrix in which it was imbedded.

Mr. George Pycroft describes probable Glacial deposits in the valleys of Dawlish and Ashcombe, South Devon.

Mr. Pengelly furnishes some notes on the *Machairodus latidens* found by the Rev. J. MacEnery in Kent's Cavern, Torquay. He concludes that there is no reason whatever for believing that more than five canines and one incisor were found by Mr. MacEnery; and that the species belonged to the era of the Cave-earth of Kent's Cavern. There is, at present, no evidence that it belonged to the earlier period represented by the "Breccia"; and Mr. Pengelly adds, that should such evidence present itself hereafter, it will simply prove that, like the Cave Bear, *Machairodus* belonged to both periods.

Mr. Pengelly gives an account of the Literature of the Oreston Caverns, near Plymouth, and also a list of the mammalian remains found in them.

Mr. Whitaker furnishes a Supplementary List of Works on the

Geology, Mineralogy, and Palæontology of Devonshire, comprising one hundred and fifteen titles.

We have referred only to the geological papers. Many others there are on Natural History, Meteorology, Archæology, etc., and also a very elaborate report by Mr. Pengelly on the Signs of the Hotels, Taverns, Inns, Wine and Spirit Vaults and Beershops in Devonshire.

H. B. W.

REVIEWS.

I.—THE DEPTHS OF THE SEA. An Account of the General Results of the Dredging Cruises of H.M. S.S. "Porcupine" and "Lightning," during the Summers of 1868, 1869, and 1870, under the scientific direction of Dr. Carpenter, F.R.S., J. Gwyn Jeffreys, F.R.S., and Dr. Wyville Thomson, F.R.S. By C. WYVILLE THOMSON, LL.D., F.R.S.S. L. & E., Regius Professor of Natural History in the University of Edinburgh. With numerous Illustrations and Maps. Royal 8vo. pp. 528. (London, 1873: Macmillan & Co.)

EVER since those early days of modern Natural History when the youthful and ardent Professor Edward Forbes first commenced the systematic study of the marine zoology of our islands, British Naturalists have been among the foremost to carry on the task of working out the distribution of life in the sea, not only around our own shores, but along many foreign coasts. The names of Darwin, MacAndrew, Barlee, Carpenter, Gwyn Jeffreys, William Thompson, Robert Ball, Captain Spratt, Woodward, Barrett, Godwin-Austen, and that of the author of the present volume, besides those of many other eminent Naturalists, may be cited, who have pursued this same line of research.

One of the general conclusions arrived at by Prof. Forbes, Sars, Audouin, and Milne-Edwards was that the sea-bed is divided into four principal regions, namely:—1. The Littoral zone or tract between tide-marks. 2. The Laminarian zone, from low water to 15 fathoms. 3. The Coralline zone, from 15 to 50 fathoms. 4. The deep-sea Coral-zone, from 50 to 100 fathoms or more.

The greatest depth attained by MacAndrew in dredging off the coast of Norway, appears to have been about 200 fathoms, and by Forbes in the Ægean, about 230 fathoms for living shells, and 250 fathoms for dead shells.

But, owing partly to the great difficulties attending deep-sea dredging, and partly to a settled conviction that beyond a depth of 300 fathoms animal life was an impossibility on account of the enormous pressure of such a column of water, the absence of light, food, etc., it became a generally accepted dogma that in the deeper abysses of the ocean, "life is either extinguished, or exhibits but a few sparks to mark its lingering presence." Yet even at this time evidence actually existed of life in the sea at a far greater depth than 300 fathoms. General Sir Edward Sabine, who was a member of Sir