

A short geological account of the various sands and gravels obtained is given by Mr. R. H. Worth, together with a determination of the CaCO_3 (which in these deposits is nearly all of organic origin) in deposits of varying degrees of fineness. Several partial analyses of silts are also given.

Mr. Allen clearly appreciates the great importance of the character of the silt, which forms so large a part of the food of many creatures living on the sea-bottom, and it is to be hoped that in course of time he may be able to attempt a systematic survey of the silts in the neighbourhood of Plymouth, so as to tell us not only more about their chemical composition, but more about their physical character, and about the organisms they contain. He has already made an important advance in our knowledge by showing that "coccoliths" occur in shallow water deposits very much more frequently than has hitherto been believed; but many other organisms, such for example as the various bacteria which exist in these deposits, are likely to be of considerable importance as part of the biological environment; and of these we know practically nothing.

Having given a detailed description of the nature of the sea-bottom at eighteen selected places in the small area dealt with, Mr. Allen gives a complete list of the species obtained at each locality as the result of a number of dredgings, together with an estimate of the relative abundance of the various species. This complicated information has been admirably digested, and it is so tabulated that the reader can see with very little trouble the relation between the abundance of any species and the character of the bottom deposits or of the fauna of adjacent localities.

The work is deliberately limited to a small area, where the conditions of life are tolerably uniform throughout, and statements are made which lead one to hope that this is only a first instalment of a more extended survey.

Every one who cares about the problems of marine zoology will hope that Mr. Allen may be able before very long to publish his promised account of the region between the thirty-fathom line and the shore, so that the relation between the littoral fauna and the fauna he has now described may be determined. As it stands, however, his work is a solid and valuable contribution to a kind of knowledge which must be largely increased before we can hope to understand the bionomics of the sea.

THE OLD RED SANDSTONE OF SHETLAND.

THOUGH abounding in ill-preserved plant remains, the Old Red Sandstone rocks of Shetland have hitherto yielded none of those characteristic fossil fishes which would enable us to compare them with rocks of similar age elsewhere in Scotland. On the general evidence of lithological features and the supposed identity of their respective floras, they have been regarded usually as a northward extension of the "Orcadian" beds of Caithness and the Orkneys. Two years ago Mr. John S. Flett, M.B., B.Sc., of Edinburgh University, was able to report that he had found certain obscure fish remains in Shetland, and, this summer, assisted by a grant from the Royal Society of London to defray the expenses of quarrying, he has succeeded in obtaining a number of undoubted fish-remains from the flag-stones of Brissay, near Lerwick. In this collection, which consists mostly of broken and detached plates, Dr. R. H. Traquair, F.R.S., has recognised fragments of an *Asterolepis* (probably a new species) and of *Holonema*, a fish new to Britain, but occurring in the Chemung (Upper Devonian) of North America. A full description of these will, no doubt, shortly be forthcoming. In the meantime, it seems certain that the fauna of these beds

is distinct from any fauna of Old Red age at present known in Britain, and, until more fully investigated, its horizon remains open to question; but Mr. Flett inclines to believe that its real position will turn out to be intermediate between the John-o'-Groat's beds (the highest of the Orcadian series of the Orkneys) and the true Upper Old Red of Moray and Elgin. The genus *Asterolepis*, so characteristic of the Upper Old Red, was shown by him two years ago to occur also in the Thurso beds of the Orkneys, and the general forms of the Shetland flora would indicate a connection with the Orcadian. Nevertheless, the whole aspect of the fauna is Upper Old Red; not one of the commoner Orcadian fishes has been obtained in Shetland. An interesting problem is opened up by these discoveries, to which it is to be hoped further investigations will furnish a definite solution.

SIR J. WILLIAM DAWSON, C.M.G., LL.D.,
F.R.S., &c.

NEWS has been received of the death of Sir William Dawson, Emeritus Principal and Chancellor of McGill University, Montreal, and the most distinguished of Canadian geologists. He was the son of James Dawson, of Picton, a town on the northern shores of Nova Scotia, where he was born in October 1820.

Coming to this country in early youth he studied at the University of Edinburgh, and gained a knowledge of geology and allied sciences from Robert Jameson, then Regius Professor of Natural History. Returning to his native land, Dawson became Superintendent of Education in Nova Scotia from 1850 to 1853; and later on Professor of Geology and Principal of McGill College and University 1855 to 1893.

On his return to Nova Scotia he directed his attention with the greatest enthusiasm to the study of geology, for as early as 1845 we find him communicating to the Geological Society of London papers on the Coal-formation of the country. To this formation for many years he gave especial study. In company with Sir Charles Lyell he made in 1852 a detailed examination of the fine succession of "fossil forests" of the Coal-period in the cliffs of South Joggins. Together they obtained also the first remains in the Coal-measures of an "air-breathing reptile," named *Dendroperon*, which was found in the interior of one of the erect *Sigillariæ*; a single species of land-shell, *Pupa vetusta*, was found in the same situation.

Zealously pursuing his observations, Dawson was enabled to issue in 1855 his well-known work entitled "Acadian Geology: an account of the Geological Structure and Mineral Resources of Nova Scotia." A third edition of this work was published in 1878.

In 1854 he became a Fellow of the Geological Society of London, and it is noteworthy that all his leading discoveries, before and afterwards, were brought before this Society. His contributions to geological science were many, and though dealing largely with fossil plants, with footprints and impressions of various animals, he also wrote concerning the higher forms of life, and devoted much attention to the phenomena of the Glacial period.

In 1862 Dawson was elected a Fellow of the Royal Society. Two years later his name was rendered familiar to every student of geology by the announcement of the discovery of an organism in the oldest known rocks, the Laurentian of Canada. As early as 1859 Sir William Logan had expressed his opinion that traces of organic structure were to be found in Laurentian limestone; but it was not until 1864 that Dr. Dawson determined by the aid of the microscope that the structure was that of a Foraminifer. He then gave to the "fossil" the name *Eozoon Canadense*, and his opinion was strongly