

effect. The rays themselves are in reality practically parallel, but seem to converge to east and west just as the parallel track of a straight railway seems to converge in both directions to anyone standing between the rails. The effect in the east soon after sunset is sometimes so striking that anyone might well believe that the sun had set there, were there no other circumstances to judge by.

T. C. PORTER.

Upton, Slough, May 31.

**Red Water.**

IN connection with the letters on "red water" in NATURE of April 4 and 11, it may be of interest to state that a rusty-red coloration of brine and salt in evaporating pools of sea water is common on this coast.

I remember particularly such pools at Suez and near the Rawaya Salt Lake, in lat. 21° N. In the latter case the salt beds themselves, though also formed by the evaporation of sea water, remain quite pure white.

I have had no opportunity of examining the growth microscopically.

Another cause of red water is the occurrence of shoals of a large protozoan (? radiolarian) in the open sea. These are of sufficient size and density to colour large areas.

CYRIL CROSSLAND.

Sudan Government, Red Sea Province, Office of the Marine Biologist, Dongonab, May 5.

**Zoological Nomenclature.**

THE Zoology Organisation Committee has decided to obtain the opinion of the zoologists of this country on the question of the strict application of the rule of priority as regards zoological nomenclature.

As it is not possible to draw up a complete list of those who are competent to form an opinion on this subject, I should be obliged if you would allow me to say that I shall be glad to send a copy of the voting papers to any British zoologist who will forward to me his name and address before June 30.

SYDNEY J. HICKSON.

(Hon. Sec. of the Z.O.C.)

The University, Manchester, June 3.

**THE DUNDEE MEETING OF THE BRITISH ASSOCIATION.**

AFTER a lapse of little short of fifty years, the British Association is to meet again this autumn in Dundee, on September 4-11, under the presidency of Prof. E. A. Schäfer. The former meeting in 1867 was a distinguished and memorable one, and many of the most eminent men of the time took part in it, among others Sir R. Murchison, Sir Charles Lyell, Sir David Brewster, and Sir William Thomson; Prof. Sharpey was president of anatomy, Sir Samuel Baker of geography, and Mr. Archibald Geikie of geology.

The memory of the 1867 meeting still survives in the town and district, and the citizens of Dundee are anxious, if it be at all possible, to make the forthcoming meeting no less successful. The necessary funds have been subscribed on a scale even more liberal than usual, and the offers of private hospitality from persons in and round the city are very numerous.

While Dundee is a commercial city, and by no means picturesque in itself, its situation is remarkably fine, and the views from the town over the estuary of the Tay, the Fife coast, and to the northward over the Sidlaw Hills, are exceedingly beautiful. In every direction the country affords easy and interesting excursions. Within short walking distance one has moorland and hill country, and not less attractive are the sandy wastes and dunes at the mouth of the river. A little farther one finds, for instance, the bold cliff scenery of the Forfarshire and Kincardine coasts, and all the Perthshire Highlands are within easy reach. Excursions are already arranged to such places as these, and the university town of St. Andrews and the ancient royal burghs of Arbroath and Dunfermline will each receive and entertain a party of visitors. Numerous other excursions are being planned for particular sections, and these will be more particularly described in forthcoming articles. The geologists, for instance, will find reopened for them the famous fossil fish-beds at Dura Den; they will also visit the neighbourhood of Stonehaven, the fossiliferous beds of the Lower Carboniferous in Fife, and will make, after the close of the meeting, a longer excursion to the western Highlands. The botanists will find work of unusual interest among the alpine flora of Clova and Glen Esk, celebrated by the discoveries of George Don. The agriculturists will have an opportunity of visiting some of the best farms in Scotland, and some of the best herds of polled Angus and other Scotch cattle.

The usual handbook of the meeting, now in the press, gives a complete account of the history of the town, its trade and local industries, and the topography and natural history of its neighbourhood. It is accompanied by a geological map containing much new material, and prepared, by the kind permission of the director, under the care of the staff of the Geological Survey in Edinburgh. Another and larger map depicts the flora, or "plant associations," of the adjacent parts of Forfar, Perth, and Fifeshire; it is reproduced from the work of the late Robert Smith, who was the first to introduce into this country this aspect of botanical study. The handbook is further enriched by several articles on distinguished men of science born in the district: for example, on Sir Charles Lyell, by Sir Archibald Geikie; on Robert Brown, by Colonel Prain; on George Don, the botanist, by Dr. Claridge Druce; and on Patrick Matthews, one of Darwin's most important precursors, by Dr. W. T. Calman.

The accommodation provided in the town for the meetings of the Association appears to be excellent. The reception room will be found in the Albert Institute, the principal building in the centre of the town. There, in addition to the main hall, is a suite of large galleries which will be used for conversation and writing rooms. The walls of these will be hung with a loan collection of pictures, which promises to be a very notable feature of the meeting. The great houses of the



neighbourhood are rich in artistic treasures, and the owners of these and many smaller collectors are lending their best pictures liberally. The Raeburns alone will constitute a large and important exhibit, and besides these there will be seen fine and little-known examples of Reynolds, George Jamieson, Allan Ramsay, and many others.

Garden parties or other entertainments are offered by the Earl of Moray at Kinfauns Castle, the Earl of Strathmore at Glamis, the Earl of Camperdown at Camperdown, and by Lord Kinnaird at Rossie Priory.

Lastly, it may be said that the number of distinguished foreign guests promises to be very much larger than at any recent meeting of the Association. It is, doubtless, in compliment to the president of the Association that many foreign physiologists have been invited and have accepted invitations; among others the names may be mentioned of Profs. Leon Asher, Baglioni, Botazzi, Fano, von Frey, Fürth, Fleischman, Gley, Gottlieb, Hamburger, Paul Heger, Kossel, Loewi, Lippmann, Meltzer, Hans Meyer, Gustav Mann, and Pekelharing. Among the foreign geologists, some of the principal names are those of Profs. Charles Barrois, Øyen, Reusch, Lugeon, and Baron Nopsca. But it is neither possible nor necessary to set forth here a longer list of the many eminent scientific men who have accepted the local committee's invitation.

D'ARCY W. THOMPSON.

#### THE CEYLON PEARL FISHERY.

PART vi. of the Ceylon Marine Biological Reports (dated January, 1912) contains the announcement that the laboratory, which has been maintained by the Ceylon Company of Pearl Fishers, has been closed, as the leasing of the pearl-banks has not proved a commercial success. Mr. T. Southwell, scientific adviser to the company, discusses the causes of this failure. He points out that the uncertain nature of the pearl-fishery has been recognised for several centuries, and that periods of barrenness have succeeded years of plenty. The banks were leased by the company in 1905, and there were successful fisheries for pearl-oysters in 1906 and 1907, since when no fisheries have been held. The banks are reported as being at the present time absolutely barren, due to the rapaciousness of man and his neglect to leave breeding stocks, and due also to the attacks of voracious fish. So thoroughly have the banks been depleted, not only of pearl-oysters but of all molluscs, that during the last two and a half years fewer than half a dozen molluscs have been obtained, in spite of the efforts of divers and the use of the trawl and dredge.

Mr. Southwell holds that, in order that the pearl-fishery may be continuous, it is essential that compact beds of breeding stocks be isolated and protected. Since this was realised, preparations have been made to afford the necessary protection to sufficient breeding stocks when they become avail-

able, but unfortunately the opportunity has not yet occurred. Mr. Southwell advocates the formation of a Government marine department, the duty of which shall be the investigation and enhancing of the marine resources of the island. He is confident that a spat-fall will take place at an early date, and, should this occur, only thorough inspection and care and foresight in preserving breeding stocks are required in order to make the banks perennially productive. It is to be hoped that, before this repopulation of the banks occurs, the Ceylon marine laboratory will have been reopened, and that naturalists will be at hand to carry out the recommendations for the fostering of the pearl-fishery which are put forward in this report.

The currents during different seasons of the year have been investigated by Mr. Southwell and Lieut. Kerkham, who have shown that when the south-west monsoon is strong the current sets nearly due east from the pearl-banks off Tuticorin almost directly across to the Ceylon banks. The larvæ of the pearl-oyster are free-swimming in the surface waters of the sea for the first five to seven days of their existence. They then develop shells, fall to the bottom, and become attached there. The writers of the report believe that the distance from the Tuticorin to the Ceylon banks—about 85 miles—can be traversed by the larvæ during the period of their pelagic life, but only when the monsoon is strong. The Tuticorin banks are important, therefore, as being the potential source of spat for the Ceylon banks.

Mr. Southwell has continued the observations on the pearl-inducing worm—a larval tape-worm (*Tetrarhynchus unionifactor*). He thinks it probable that only those larvæ which die in the tissues, and thus set up local irritation, cause the formation of pearls. He considers it practically certain that the larvæ pass directly from the pearl-oysters to the various elasmobranch fishes which devour them (that is, that there is not an intermediate host), but that certain bony fishes, e.g. Balistes and Serranus, are subsidiary or parallel hosts.

#### NOTES.

ON Wednesday, June 26, his Majesty the King will lay the foundation-stone of the National Museum of Wales in Cardiff. It will be remembered that this institution was created by Royal Charter in 1907, Sir Alfred Thomas (now Lord Pontypridd) being the first president, Lord Mostyn vice-president, and Major-General Sir Ivor Herbert treasurer. The preliminary steps of constituting the court of governors and the council took a considerable time, and it was not until the end of 1908 that a director of the museum was appointed. Dr. W. E. Hoyle, formerly head of the Manchester Museum, was selected for the post, and began his duties in March, 1909. The schedule of requirements for the proposed building was next drawn up, and three assessors, Sir Aston Webb, Mr. J. J. Burnet, and Mr. E. T. Hall were appointed,