

In a brief review such as this, it is not possible to refer to the many stages of development in the various types of discharge lamps—the low-pressure sodium lamp with hot cathode, the low-, medium- and high-pressure mercury lamps, or to mention more than briefly the 5 kW. high-pressure water-cooled xenon arc now being shown to the public for the first time. Many of these developments are illustrated by exhibits and are described in greater detail with diagrams and photographs in the official handbook, "Darkness into Daylight", by W. T. O'Dea, which has been published in connexion with the exhibition (London: H.M. Stationery Office. 1s.).

The exhibition will remain open until September from 10 a.m. until 6 p.m. daily, and from 2.30 p.m. until 6 p.m. on Sundays; admission is free at all times.

PLANKTONIC COPEPODS AND HYDROCORALS OF THE JOHN MURRAY EXPEDITION

COLONEL SEYMOUR SEWELL'S account* of a large collection of free-swimming copepods from the Indian Ocean is an important critical study and a most valuable contribution to our knowledge of copepods in general.

In a previous paper (Sewell, 1920-32), seventeen species of free-swimming planktonic copepods were recorded from the northern part of the Indian Ocean, which up to that time were not known from any region other than the Atlantic Ocean or the Atlantic section of the Antarctic. The present collection contains twenty-one other species that so far have not been recorded beyond the Atlantic Ocean. As the author remarks, such a comparatively large number of deep-sea species that are common to the Atlantic and the Indian Ocean, but are at present unknown from any other region, indicates that there either is or has been a close connexion between the two regions. He has suggested (Sewell, 1940) that the explanation is to be found in the trend of the deep currents of the present day. He promises to deal later with the geographical distribution.

Well over two hundred species are recorded, with notes and remarks on most of them which are interesting and instructive. The new family Megacalanidae is formed to include *Megacalanus*, *Bathycalanus* and *Brachycalanus*, all of which differ from the Calanidae in several features and show a corresponding resemblance to the Centropagidae.

Only one specimen of *Calanus finmarchicus* was found, a male, from the northern area of the Arabian Sea, 1,500-0 metres. It is rare in the Indian Ocean and it is suggested that its presence is explained by individuals being carried from the Atlantic Ocean round the Cape of Good Hope in the North Atlantic intermediate waters or the West Wind Drift, and then that they are caught up in the Sub-Polar Intermediate Current and so are carried northwards into the Arabian Sea.

Among the Sapphirinas it was found that *Sapphirina iris* was associated with the aggregated form of the salp *Pegea confederata*, some being inside. In this

genus there were numerous cutaneous glands, opening on both dorsal and ventral aspects of the body in special positions in the different species. It is tempting to regard these as luminous organs, but the author does not wish to express an opinion on this point.

There is a long list of copepods with parasites both from surface-living and deep-dwelling species. This includes twenty-one species infested with the dinoflagellate *Blastodinium*. Comparing these with Chatton's seventeen species from the Mediterranean infested with *Blastodinium*, it is found that six are common to both lists.

Dr. Hjalmar Broch has found three new species in the four hydrocorals brought home by the John Murray Expedition to the Indian Ocean*. These include two new stylasters (*S. (Eustylaster) ramosus* and *S. (Eustylaster) lonchitis*), and one new *Cryptothelia* (*C. clausa*), the fourth species being *Cryptothelia stenopoma* Hickson and England. The two stylasters were from the Pemba Canal and the *Cryptothelia* from the Maldives. It is interesting to note that in neither of these localities have Stylasteridae been found before, and these reported localities of the John Murray Expedition are at the present day the most northerly localities of the Western Indian Ocean from which Stylasteridae have as yet been found.

Another very interesting point is that whereas the two *Stylaster* species from the Pemba Canal have been collected in that zone of the bathymetrical region where the genus is known to be comparatively abundant in all seas, the localities of *Cryptothelia* at the Maldives belong to the uppermost parts of its habitat, and its occurrence in these depths seems to be very scanty. The depth of 229 metres is the shallowest record of the genus, and *Cryptothelia stenopoma* has hitherto only been taken in 1,300 metres or deeper in the Indo-Malayan Sea. *Stylaster ramosus* was abundant in two stations, its structure indicating that, like *Cryptothelia stenopoma* and other Stylasteridae, it is probably inhabited by commensal polychaetes. The cirripede, *Pyrgoma*, is also commonly found in it.

* Stylasteridae (Hydrocorals) of the John Murray Expedition to the Indian Ocean. By Dr. Hjalmar Broch. (The John Murray Expedition, 1933-34, Scientific Reports, Vol. 8, No. 2.) Pp. 305-361+1 plate. (London: British Museum (Natural History), 1947.) 2s. 6d.

THE ELECTRICITY GRID IN GREAT BRITAIN

THE twentieth and last annual report of the Central Electricity Board has recently been published (Whitehead Morris, Ltd., 72-78 Fleet Street, London, E.C.4. 1s. net). Just short of attaining its majority, the Board loses its identity in the infant British Electricity Authority, this sturdy infant inheriting the Grid system of some 150 generating stations, capable of an output of nearly 12 million kilowatts. Appropriately appearing at about the same time as this report is an interesting and informative paper dealing with the British grid system ("Load Dispatching and the British Grid System"—A. R. Cooper, Institution of Electrical Engineers, March 18, 1948), a paper which is wider in scope than its title might suggest.

Mr. Cooper describes first the long-term planning associated with the extension of such a system; planning which, as the Central Electricity Board report makes clear, has had to yield to some extent

* The Free-Swimming Planktonic Copepoda: Systematic Account. By Lieut.-Colonel R. B. Seymour Sewell. (The John Murray Expedition, 1933-34, Scientific Reports, Vol. 8, No. 1.) Pp. 304. (London: British Museum (Natural History), 1947.) 30s.