

porphyrin and acts as a respiratory catalyst; but at this stage the comments of the author are rather speculative.

Having elucidated the action of the copper in promoting settlement and metamorphosis, a survey of the occurrence of copper in the water covering the natural beds was carried out. At Milford Harbor a rapid increase in copper content of the water on the ebb tide was noted, reaching a maximum concentration of about 0.6 mg./litre one hour after low water. By means of egg-box spat collectors exposed at regular periods, the variations in the intensity of setting during the tidal cycle were studied. A very close correlation between the copper content and the intensity of setting was demonstrated.

The distribution of oyster beds was studied in relation to the presence of river water, carrying with it copper in suspension, and certain, at first sight, anomalous cases have been explained. For example, in the Sea-side region in Virginia the setting of oysters is heavy although there are no rivers and very little surface drainage. However, the water has a salinity of only 27 per mille as compared with 33 per mille in the open sea. It is assumed that there is an upwelling of subterranean waters from the sea bed, and this is confirmed by the presence of copper in concentrations varying from 0.08 to 0.25 mg./litre.

A synopsis of this work was published some years ago, and experiments were initiated in Great Britain to determine whether copper played a similar role in the setting and metamorphosis of the European Oyster (*Ostrea edulis*). It has been shown that a settlement of European oysters may be obtained in tanks in which the concentration of copper is negligible when compared with the figures given for *Ostrea virginica*. Further no stimulative effect of any kind could be produced by copper salts. In view of these facts and also of the remarkable differences in the accounts of the structure and function of the "pigment spots" in these closely related species, it is earnestly hoped that further work will be undertaken on both forms which will provide a final explanation of these differences.

H. A. C.

F. C. Fraser. "Report on Cetacea stranded on the British Coasts from 1927 to 1932." British Museum (Natural History), Rep. No. 11. London, 1934.

By arrangement between the British Museum (Natural History) and the Board of Trade, Cetacea stranded on the British coasts have been reported either to the British Museum or to other national museums since 1913. Those stranded during the period 1913—26 were reported on by Sir S. H a r m e r in 1927. The records for the subsequent period 1927—32 have now been dealt with by Mr. F r a s e r.

The report gives, in the first place, a list of strandings during the period in chronological order, followed by a more detailed notice of each species and a key for identification of the British forms. In this report the external characters are noted only for previously unrecorded species or for specimens which have shown marked differences from the normal, since the common species were fully described in the earlier report. Because of the comparative rarity of whales of the family *Ziphiidae*, their skull measurements and skeletal characters have been set out at length.

During the period 1927—32, 193 strandings were reported. Seventeen species were identified, this being the same number as described in the

earlier report, but the two lists show interesting differences. The white whale, *Delphinapterus leucas*, and the false killer whale, *Pseudorca crassidens*, both from Scottish localities, are recorded for the first time since these reports commenced. Previously the claim of the false killer to be included in the British fauna rested on three sub-fossil skeletons found in the south-east of England. In October 1927, however, a school of some 150 individuals was stranded in the Dornoch Firth on the north-east coast of Scotland. A separate report on these is promised in the near future. True's beaked whale, *Mesoplodon mirus*, is reported from South Uist, this being the first Scottish record.

As in the previous report the common porpoise, *Phocaena phocaena*, was by far the most commonly stranded species, accounting for 43% of the whole series. The bottle-nosed dolphin, *Tursiops truncatus*, and Risso's dolphin, *Grampus griseus*, have been proportionately commoner than during the previous period. The common porpoise, *Balaenoptera physalus*, however, has shown a very marked decrease. During the period 1927—32 there were only two certain records, while during the period 1913—26 there were twenty-four. The author suggests that this may be due to the transfer of whaling activities to the Antarctic, with a consequent closing of northern stations and therefore less chance of wounded animals being cast ashore. It may, however, be significant of a real decrease in the total stock. It is perhaps worth noting in this connexion that whereas four blue whales, *Balaenoptera musculus*, were stranded in Scotland between 1913 and 1926, none is recorded since.

A. C. S.

Newfoundland Fishery Research Commission. Annual Report for 1933. Vol. II, No. 2. Plymouth, 1934.

This report records further progress in the important researches which are being carried on in Newfoundland¹). Among the technical results we may note that vitamin A potency of cod liver oil increases with age of the fish.

As regards hydrology and biology, the strong flow of arctic water in 1932 was continued into the summer of 1933. This had the expected detrimental effect on the important fishery for squid (*Illex*) for use as bait, and was accompanied by abundance of *Oikopleura vanhoeffeni* and scarcity of *O. dioica*, which was restricted to the southern fringe of the fishing-banks region. *Sagitta serratodentata* was also scarce and similarly distributed. These three forms are, therefore, promising indicators.

Prediction of salmon runs is barely established, but any indication is welcomed by the industry. The previous prediction was borne out.

Cod fishing, with observations of bottom temperature, confirmed the provisional scheme of "best temperatures" drawn up in the last report.

These few references may serve to show the quality of the work. There is much more, on various subjects, in the report. It is surprising and creditable that so much has been achieved in such a short time.

M. G.

¹) Previous reports were reviewed in this journal, Vol. VIII. p. 274; Vol. IX. p. 124.