REPORT

OF THE

THIRTY-FIRST MEETING

OF THE

BRITISH ASSOCIATION

FOR THE

ADVANCEMENT OF SCIENCE;

HELD AT MANCHESTER IN SEPTEMBER 1861.

LONDON:
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Baltic, and the larger to the North Sea; and as it is asserted that the whales are the cause of their flying south, why do we not see the whale on every coast every year? Mr. Yarrell, in his valuable work on Fishes (vol. ii. p. 112), truly says, "There can be no doubt that the herring inhabits the deep water all round our coast, and only approaches the shore for the purpose of depositing its spawn within the immediate influence of the two principal agents in vivification—increased temperature and oxygen; and as soon as that essential operation is effected, the shoals that haunt our coast disappear, but individuals are to be found, and many are caught throughout the year."

11. Various other fishes have similar habits in spawning. The salmon ascends the rivers from the sea at particular periods for the purpose of spawning: for this fish no distant seas have, however, been assigned. The sprat appears in shoals in various localities of the coasts of the British Islands from November to March. The shad or *Alosa* is found in shoals in some of our rivers from May to July—in the Severn generally in May, and it continues there about two months; in the Mediterranean, near Smyrna and Rosetta; and it ascends the Nile as high as Cairo in December and January. The pilchard appears in shoals on the coast of Cornwall from June to the end of the year; and the tunny comes in-shore on the coasts of the Mediterranean in summer. All these fishes appear to have the same habit of gregariously visiting various coasts and rivers at particular seasons for a similar purpose; but no one would on this account pronounce them natives or inhabitants of a distant quarter of the globe. In short, from all the circumstances known of the natural history of the herring, in regard to its visits on our own coasts and the coasts of other countries, it is reasonable to conclude that it inhabits the seas in the neighbourhood of the coasts on which it spawns, and that it arrives at particular seasons near the coasts for the purpose of spawning, the shoals leaving the coasts immediately thereafter; and the early or late, and distant or near approach to the coasts in different years perhaps depends, as before remarked, on the clear and warm or dark and cold weather of the season, as well as upon the depth of water at the feeding- and spawning-grounds.

On the Crustacea, Echinodermata, and Zoophytes obtained in Deep-sea Dredging off the Shetland Isles in 1861. *By the* Rev. Alfred Merle Norman, *M.A.*

This paper was supplementary to that of Mr. Jeffreys, and contained an account of the Crustacea, Echinodermata, and Zoophytes obtained during the same dredging-expedition. Mr. Norman mentioned that about 140 species of Crustacea were met with. Eighteen of these, viz. 7 Podophthalmia and 11 Edriophthalmia, were new to Britain. The Podophthalmia consisted of *Portunus pustulatus* (Norman, n. sp.), distinguished by its pustular carapace, by the latero-anterior teeth, which in form resemble those of *longipes*, and by having the swimming-blade of the last pair of feet sculptured with a raised longitudinal and a marginal line; *Pagurus ferrugineus* (Norman, n. sp.); *Crangon serratus* (Norman, n. sp.), allied to *spinosus*, but furnished with seven rows of teeth on the carapace, having an acutely pointed simple rostrum (without the lateral denticular processes which are present in *spinosus*), and a central keel on the fifth segment of the abdomen (instead of diverging lines); *Sabinæa septemcarinata* (Sabine); *Hippolyte polaris* (Sabine); *Hippolyte securifrons* (Norman, n. sp.), nearest akin to the Californian *H. affinis* (Owen), having the rostrum in the form of a broad flat plate armed with eleven teeth above, four or five of which are on the carapace and four below, three pairs of spines on the carapace, the first on each side of the base of the rostrum, the second on the anterior margin just below the eye, the third, very minute, at the junction of the anterior and lateral margins, and three pairs of spines on the telson; *Ctenomysis alata* (Norman), a new genus of Mysidæ allied to *Noctiluca*. *Ctenomysis* has six pairs of thoracic feet, furnished on their inner base with large scales, which serve to protect the external branchiæ situated beneath them; the subabdominal legs are bifurcate and multi-articulate; and the species is easily distinguished by the remarkable form of the antennal scales, which are broad and triangular, and instead of being porrected, are spread at right angles to the body. The front margin of the carapace terminates in five spine-like processes, three frontal, and one on each side below the eyes.

The Edriophthalmia new to Britain which were discovered consist of *Œdiceros parvimanus* (Spence Bate, n. sp.), the genus also new to Britain; *Dexamine tenuicornis* (Rathke); *Liljeborgia Shetlandica* (Spence Bate, n. sp.); *Kröyera altamarina* (Spence Bate, n. sp.); *Calliope Fingalli* (Spence Bate, n. sp.); *Amphithoë albomaculata* (Kröyer); *Siphonœcetus typicus* (Kröyer); *Dexamine Vedlomensis* (Spence Bate, n. sp.); *Megamœra* ——; *Heisclados longicauda* (Spence Bate, n. sp.), a new genus differing from *Amphithoë* in having only one branch to the last pair of pleopoda; and *Bopyrus Galatheæ* (Spence Bate, n. sp.).

The author also gave an account of the other rare Crustacea—Podophthalmia, Edriophthalmia, and Entomostraca (including fish-parasites)—which were met with.

Mr. Norman next proceeded to notice the Echinodermata, and stated that forty-seven species were found. The rarer of these were—*Comatula rosacea* (Link) and *Sarsii* (Lovén); *Ophiura* ——, n. sp.; *Ophiocoma Goodsiri* (Forbes) and *filiformis* (Müller); *Ophiopeltis securigera* (Von Düben and Koren); *Asterias* ——, perhaps distinct from *aurantiaca*, having shorter arms, less flattened spines on the under surface, and fewer tubercles on the margin than in the ordinary form; it was dredged in great abundance sixty miles from land in 70–90 fathoms; *Echinus virens* (Von Düb. and Kor.), *Flemingii* (Ball), *neglectus* (Lamarck), and *Norvegicus* (Von Düb. and Kor.), the last very abundant on the Outer Haaf; *Cidaris papillata* (Leske), spines only; *Amphidotus ovatus* (Leske); *Brissus lyrifer* (Forbes); *Cucumaria frondosa* (Gunner) and *fucicola* (Forbes and Goodsir)?; *Psolus phantopus* (L.); *Ocnus brunneus* (Forbes) and *lacteus* (Forbes and Goodsir); *Thyone raphanus* (Von Düb. and Kor.); *Synapta digitata* (Montagu), a vinous purple variety from 70 fathoms; *Phascolosoma radiata* (Alder), and two or three species of *Sipunculus*.

The Zoophytes were next passed in review. The author stated that fifty-nine Polyzoa and fifty-three Hydrozoa and Actinozoa were observed. Among the former were—*Onchopora borealis* (Busk); *Cellularia Peachii* (Busk); *Membranipora Flemingii* (Busk), *Rosselii* (Audouin), and *rhynchota* (Busk), and an undescribed species; *Lepralia concinna* (Busk), *violacea* var. *cruenta*, *punctata* (Hassall), *granifera* (Johnst.), *unicornis* (Flem.) var., and *monodon* (Busk); *Alysidota Alderi* (Busk); *Tubulipora truncata* (Jameson); *Idmonea Atlantica* (Forbes); together with a *Cellepora*, a *Hornera*, and an *Alecto* not yet determined. Of Hydrozoa there were—*Clava multicornis* (Johnst.) and *cornea* (Wright); an undescribed *Hydractinia*, which Mr. Alder has also taken at Cullercoats; an undetermined *Atractylis*; *Coryne implexa* (Alder); *Eudendrium* ——, n. sp.; *Tubularia gracilis* (Harvey), variety; *Sertularia tenella* (Alder), *Gayi* (Lamx.), *gracilis* (Hassall), *alata* (Hincks), *pinaster* (Ell. and Sol.), and *tamarisca* (L.); *Plumularia myriophyllum* (L.) and *frutescens* (Ell. and Sol.); *Laomedea flexuosa* (Hincks) and *Lovéni* (Allman); *Campanularia Johnstoni* (Alder); *Calicella gracillima* (Alder); *Reticularia serpens* (Hassall); and *Grammaria ramosa* (Alder). Among the Actinozoa were—*Tealia digitata* (Müll.), which was abundant on shells of *Fusi* (*antiquus*, *gracilis*, *propinquus*, and *Norvegicus*), and on *Buccinum Dalei* on the Outer Haaf, in from 70–90 fathoms water; *Zoanthus Couchii* (Johnst.), the simple attached and also the free branching state; the splendid *Ulocyathus arcticus* (Sars) in 65 fathoms sand, Outer Haaf; *Caryophyllea Smithii* (Flem.) var. [the *Turbinolia borealis* (Flem.)]; *Pennatula phosphorea* (L.); *Virgularia mirabilis* (L.), and *Sarcodictyon catenata* (Forbes).

With reference to the Sponges, the author remarked that a considerable number had been collected, especial attention having been paid to the small encrusting forms, and that they had been placed in Dr. Bowerbank's hands for examination and description.

On the Cervical and Lumbar Vertebræ of the Mole (Talpa Europæa, *L.*).

By Professor Owen, *M.D., LL.D., F.R.S.*

Few of our native quadrupeds have had their osteology more frequently described and studied than the common mole, by reason of the singular and extreme modifications of certain parts of the skeleton, and their readily recognizable adaptation to the peculiar sphere and habits of life of the animal. The author had not anticipated, therefore, in making a recent scrutiny of the skeleton, finding anything worth special notice that had not been noticed before, and could scarcely persuade