ABSTRACTS OF MEMOIRS

RECORDING WORK DONE AT THE PLYMOUTH LABORATORY

PYTHIUM THALASSIUM N.SP. INFECTING THE EGG-MASS OF THE PEA-CRAB, *PINNOTHERES PISUM*

By **D. Atkins**

Trans. Brit. mycol. Soc., Vol. 38, 1955, pp. 31–46

A marine *Pythium*, *P. thalassium* n.sp., has been found parasitic and saprophytic in the eggs of the pea-crab, *Pinnotheres pisum*, and of other Crustacea. The sporangia are filamentous, the method of asexual reproduction is that characteristic of the genus *Pythium*: proliferation occurs. Some variation in the behaviour of the contents of the sporangium was noted. Asexual bodies, similar to those described in certain other species of *Pythium*, are borne extramatrically at the apex of hyphae. Various stages in the germination of spores were seen. Sexual organs were not present in the material examined. The affinities of *P. thalassium* are discussed. D.A.

THE POST-EMBRYONIC DEVELOPMENT OF BRITISH *PINNOTHERES* (CRUSTACEA)

By **D. Atkins**

Proc. zool. Soc. Lond., Vol. 124, 1955, pp. 687–715

The two species of *Pinnotheres* occurring at Plymouth have been reared in the laboratory from egg to megalopa for the first time.

P. pisum has four zoeal stages and a megalopa. The megalopa stage was reached in 11 weeks from spawning and 6 from hatching. These times are probably considerably longer than under natural conditions.

P. pinnotheres has two zoeal stages and a megalopa. The megalopa stage was reached in about 9 weeks from early egg and three weeks from hatching.

The stages are described and some observations are given on habits and moulting of the zoeae. D.A.

FIRST-STAGE LARVAE HATCHED FROM NEW ZEALAND DECAPOD CRUSTACEA

By **M. V. Lebour**

Ann. Mag. nat. Hist., Ser. 12, Vol. 8, 1955, pp. 43–48

Larvae hatched by Dr E. Batham at the Portobello Marine Laboratory, New Zealand, were sent to the author and are here described. These are *Palaemon affinis*, *Alope spinifrons* and *Callianassa* (*Trypaea*) *filholi*. No *Alope* larva has

as yet been described. These are very like *Hippolyte* with a few minor differences. The larva of *Callianassa filholi* is here described for the first time. It is peculiar in the armature of the abdomen and in this respect unlike any species known. M.V.L.

Observations on the Food and the Gut Pigment of the Polyopisthocotylea (Trematoda: Monogenea)

By J. Llewellyn

Parasitology, Vol. 44, 1954, pp. 428–37

The Polyopisthocotylea is a suborder (upwards of 250 species) of monogenetic trematodes that are parasitic mainly on the gills of fishes, but the nature of the food of these parasites has not previously been determined.

An investigation by spectroscopic and histochemical methods of six representative trematodes from the gills of marine fishes at Plymouth and of trout from elsewhere, and of the monogenean parasitic in the bladder of the frog, has shown that these parasites feed mainly on the blood of their hosts. The blood is probably haemolysed fairly rapidly and subsequently absorbed by amoeboid ingestion, the globin moiety of the haemoglobin forming the chief nutriment of the parasite and the unaltered haematin being eliminated either by its discharge from epithelial cells into the gut lumen or by the sloughing off of intact epithelial cells.

In a more limited sample of skin- and cloaca-inhabiting Monopisthocotylea there was no evidence of a blood-feeding habit. J.L.

The Structure and Function of the British Pholadidae (Rockboring Lamellibranchia)

By R. D. Purchon

Proc. zool. Soc. Lond., Vol. 124, 1955, pp. 859–911

Exhaustive study of the Pholadidae, the least specialized family in the Adesmacea, revealed two features of potential systematic importance. The appendix of the stomach is homologous with the caecum of the Teredinidae and with the postero-dorsal caecum of the Tellinacea, thus indicating relationship between the Adesmacea and the Tellinacea. An accessory visceral ganglion is present in the Pholadidae, and such a structure has been reported elsewhere only in *Dreissena*.

When all other ciliary activity appeared normal, cilia in the proximal oral groove were usually inactive, suggesting that feeding is intermittent. It was concluded that the ciliary mechanisms in the stomach served chiefly for trapping and rejection of particles, and that food material could not be passed

from the stomach into the digestive diverticula solely by ciliary action. Probably during a period of ciliary inactivity in the proximal oral groove, the stomach contents are prepared for presentation to the digestive diverticula, during which time the stomach contents are not contaminated by entry of fresh food material. Finally the stomach contents are passed to the digestive diverticula by relative volumetric changes in the stomach and digestive diverticula. These volumetric changes are brought about by the adductor and pedal muscles, and by the muscle fibres in the walls of the stomach and digestive diverticula. R.D.P.

Growth Changes in the Myelin Sheath of Peripheral Nerve Fibres in Fishes

By P. K. Thomas

Proc. roy. Soc. B, Vol. 143, 1955, pp. 380–391

A quantitative study of the growth of the myelin sheath of fibres of the lateral line nerve in *Salmo trutta* and *Raia clavata* has been made. This nerve is especially favourable for growth studies because of the magnitude of the changes taking place. In a large specimen of *Salmo*, the largest fibres attain a diameter in excess of 30μ and possess internodes 4 mm in length. In *Raia*, internodes of up to 8 mm in length are found.

Contrary to earlier reports, but in agreement with a recent investigation on mammalian nerves, the relative thickness of the myelin sheath is found to decrease progressively during growth as fibre size increases. Comparison between fishes of differing length demonstrates that the thickness of the myelin sheath for a given axon diameter is constant, irrespective of the size of the fish.

Measurement of the internodal length of the largest fibres in the nerve in specimens of differing length confirms the close dependence of the length of the myelin segments on growth. The form of the relationship between internodal length and fibre diameter depends upon their relative growth rates. Growth of internodal distance follows that of the part in which the nerve lies, but this is not true of diameter. The changes in the relationship between internodal length and diameter during growth have been analysed and the applicability of the equation employed to other vertebrate groups considered.

The contribution that quantitative investigations of the changes taking place during the growth of nerve fibres can make towards the understanding of the way in which their structural organization is achieved and maintained is discussed. P.K.T.

The Distribution of certain intertidal Animals around the Irish Coast

By A. J. Southward and D. J. Crisp

Proc. R. Irish Acad., B, Vol. 57, No. 1, 29 pp.

During the period 1950–53, the distribution of some animals found mainly on the upper half of the shore was investigated at ninety-six stations round the Irish Coast.

The barnacle *Chthamalus stellatus* was found on exposed shores of all coasts, except for occasional areas of chalk in Co. Antrim, and was the dominant barnacle of the south and west coasts. It was generally less common on the east coast, but was quite abundant in a limited area of the coasts of S. Co. Down and Co. Louth. *Balanus balanoides*, on the other hand, was practically absent from the extreme South-west, its distribution being almost the inverse of that of *Chthamalus*.

The top-shells *Gibbula umbilicalis* and *Osilinus lineatus* followed the main features in the distribution of *Chthamalus*, but *Osilinus* was absent from most of the north and east coasts except for an area in S. Co. Down and Co. Louth. The sea-urchin *Paracentrotus lividus* was found only on the west coast.

Of several other animals investigated, the parasite *Hemioniscus balani* was more common in the South-west, and *Littorina neritoides*, though common on all exposed shores, was generally less abundant on the east coast.

The distributions of the southern species, notably *Chthamalus*, *Osilinus*, *Gibbula umbilicalis* and *Paracentrotus* have a common basis, apparently the effect of temperature rather than any other known or unknown factor in the environment. In some of these animals the effect of low summer temperatures on the breeding activities must restrict the distribution in certain areas. The anomalous abundance of *Chthamalus*, *Osilinus* and *Gibbula umbilicalis* on a limited part of the east coast may be due to a combination of local warming during the summer, with suitable rock topography and tidal conditions. Similar examples of the possible beneficial examples of local warming during the summer are given in the case of Lough Ine (for *Paracentrotus*), and the Scottish Lochs Sween and W. Tarbert (for *Chthamalus*). A.J.S.