ABSTRACTS OF MEMOIRS

RECORDING WORK DONE AT THE PLYMOUTH LABORATORY

THE PEDAL SUCKER and ANAL GLAND OF SOME BRITISH STENOGLOSSA

By Vera Fretter

Proc. Malacol. Soc., Vol. 27, 1946, pp. 126–30

In *Ocenebra erinacea* (L.), *Nucella lapillus* (L.) and *Urosalpinx cinerea* (Say) the foot possesses a small disk-shaped, retractile sucker, situated mid ventrally, immediately behind the anterior pedal gland. Its movement is controlled by muscles and blood pressure, which keep it turgid when protruded. It is covered by ciliated glandular epithelium. The amount of secretion is scanty and has no solvent effect on mollusc shells. The sucker grips the shell of the prey below the spot where the proboscis is working and seems to steady its base.

The rectal gland of these carnivorous stenoglossa develops as a simple diverticulum from the gut, and appears to act as an accessory kidney. The epithelium abstracts excretory matter from the blood and builds it up into masses which can be easily passed from the body. V.F.

MARINE SEISMIC PROSPECTING

By M. N. Hill and P. L. Willmore

Nature, Vol. 159, 1947, p. 707

Considerable progress was made before the war in the use of seismic refraction shooting for the study of submarine geology. Two ships were used in this work, one of which fired the charges at varying distances from the second, on which was the recording gear connected to geophones on the sea bed. The difficulty of placing these instruments on the sea bed in depths greater than 100 fathoms limited the work to the continental shelf. As a result of this limitation, experiments were undertaken during the winter of 1947 to ascertain whether hydrophones at a depth of about 100 ft. compared favourably in their response with geophones laid on the bottom. The difficulties involved in obtaining two ships for this work were overcome by using a buoy for firing the charges, or, for the shorter shots, by trailing the charges on a long buoyant electric cable.

The conclusions from this work were first, that a hydrophone gave a response at least as good as that of a geophone, and secondly, that the charge-firing buoy was unsatisfactory since the instant of detonation was uncontrollable after the buoy had been launched, and because of the necessarily complicated safety precautions. For long range work it would therefore be necessary either to use two ships, or to attach the hydrophone to a radio buoy which would transmit the sounds to the firing ship. M.N.H.

Contribution to the Study of the Sponges

By Margaret W. Jepps

Proc. Roy. Soc., London, B, Vol. 134, 1947, pp. 408–17

The old observations of H. J. Carter and others on the contractile vacuoles of sponge cells have been questioned in recent years. The presence of contractile vacuoles is here established in both amoebocytes and choanocytes of the fresh-water sponges; but they have not been seen in the cells of several marine sponges, though figured by some of the older authors. Methods are described for observing the vacuoles, and incidentally other activities of the cells also.

Young sponges grown from gemmules were very useful in these studies and it was found possible to have them throughout the winter months by a simple process of vernalization.

Attention is drawn to the importance of these observations in any consideration of the relationships of the Porifera to the Protozoa and to the Metazoa respectively. M.W.J.

Giant Nerve Fibre of *Myxicola infundibulum* (Grube)

By J. A. C. Nicol and J. Z. Young

Nature, Vol. 158, 1946, p. 167

It has been known for some time that the Sabellid *Myxicola* possess very large nerve fibres, and investigations confirm that these may reach 1 mm. in diameter in the contracted state of the worm. The fibre extends throughout the length of the ventral cord and is a single unit maintained by many cell bodies scattered along its length. The fibre originates in the supra-oesophageal ganglia from two especially large cells. Branches given off along its length proceed to the muscles. There is a connective tissue sheath not containing any visible myelin.

Evidently the fibre constitutes a final common path by which afferent impulses from any part of the body activate all the longitudinal muscle fibres, producing the quick movements and withdrawal characteristic of the animal. J.Z.Y.

The Mechanics and Innervation of the Starfish Tube Foot-Ampulla System

By J. E. Smith

Phil. Trans. Roy. Soc., London, B, Vol. 232, 1946, pp. 279–310

A tube foot with its attached ampulla is a reciprocally acting self-contained system. The ampulla has a fluid capacity just adequate to produce, on contraction, the observed maximal degree of protraction of the foot. There is no evidence that water enters or leaves the system by way of the radial water canals during extension or withdrawal of the foot. Further aspects of the mechanics of movement of the foot and ampulla are considered in relation to the arrangement and properties of their constituent muscles and connective tissue.

An account, based on the results of *intra-vitam* methylene blue staining, is given of the nervous arcs that supply the muscles of the system. The sensory and associative fibres of the foot are described and their connexions with the association tracts of the radial nerve cord followed. The foot and ampulla muscles are innervated by axons whose cell bodies lie in one or other of two centres situated in the foot, near the entrance to the ampulla neck. One centre, laterally situated, appears to be excited directly through the association pathways of the foot; the more medial centre, on the other hand, has central connexions with the radial nerve cord through a system of neurones whose cell bodies lie above the cord in the floor of the radial perihaemal canal.

Some implications of the double innervation (central and peripheral) of the foot-ampulla are discussed. J.E.S.