

## ABSTRACTS OF MEMOIRS

### RECORDING WORK AT THE PLYMOUTH LABORATORY

BOALCH, G. T. & HARBOUR, D. S., 1977. Unusual diatom off the coast of south-west England and its effect on fishing. *Nature, London*, **269**, 687–688.

In January 1977 the large centric marine diatom *Coscinodiscus nobilis* Grunow was discovered in the Plymouth area. Prior to this there is no definite record of this species from the North Atlantic. As the diatom became abundant off Plymouth the local fishermen began to complain of a heavy grey slime clogging their nets. In laboratory culture the diatom produces copious amounts of mucilage and chemical analysis showed that the slime had the same chemical composition as the mucilage produced in culture by the diatom. Apparently in the sea the diatom had produced large quantities of mucilage which, sinking to the sea-bed, had accumulated clay and other microscopic debris and formed the heavy grey slime which had clogged the trawls. As the season progressed the diatom disappeared and so did the heavy slime. It is possible that this diatom, with its attendant mucilage, may become a regular feature of the spring diatom flora off Plymouth.

FÄNGE, R., 1977. Size relations of lymphomyeloid organs in some cartilaginous fish. *Acta zoologica*, **58**, 125–128.

In elasmobranchs (sharks, rays) the total weight of lymphomyeloid structures isolated by dissection varied between about 0.6 and 1.0% of the body weight. In a holocephalan (*Chimaera*) the corresponding value was 1.7%. Reciprocal size relations may exist between different types of lymphomyeloid organs. A thymus was found in adult specimens of rays (*Raja*) and the rabbit-fish (*Chimaera*). The lymphomyeloid organs supposedly are active in haemopoiesis and the immune responses.

GEE, J. M., MADDOCK, L. & DAVEY, J. T., 1977. The relationship between infestation by *Mytilicola intestinalis* Steuer (Copepoda, Cyclopoidea) and the condition index of *Mytilus edulis* in southwest England. *Journal du Conseil*, **37**, 300–308.

Seasonal cycles in the condition index of *Mytilus edulis* from three sites in southwest England are described. These are analysed in relation to host length, stage of gonad development and parasite burden by linear regression analysis. An effect on the condition index due to the presence of *Mytilicola intestinalis* can be detected only in the sublittoral mussels in those few winter months when the mean intensity of infestation is over about 25 parasites per host. In all cases studied, the magnitude of the effect due to variation in host length, stage of gonad development, seasonal cycles and environmental factors is greater than that due to parasitism.

MACKIE, G. O. & BONE, Q., 1977. Locomotion and propagated skin impulses in salps (Tunicata: Thaliacea). *Biological Bulletin. Marine Biological Laboratory, Woods Hole, Mass.*, **153**, 180–197.

1. Various observations by M. Fedele on the mechanism of forward and reverse locomotion, on the neurogenic origin of the locomotor rhythm and on the co-ordinated behaviour of salp chains are confirmed or extended. *Salpa fusiformis* was the species chiefly studied.

2. The striated muscle fibres of the body wall exhibit non-propagative, graded responsivity. The fibres are multiply-innervated. Adjacent fibres are not electrically coupled.

3. Intracellular recordings are reported from a pacemaker and presumed motor neurons in the brain. The locomotor rhythm is exhibited by deafferented and isolated brains. In the intact animal, sensory input can modify the rhythm and alter the firing sequence of the muscles. The rhythm is accelerated by reduction, and inhibited by elevation of the ambient light intensity.

4. The outer skin is a conducting epithelium. The cells conduct action potentials at ca. 17 cm/s and are connected by gap junctions. Three other independently conducting inner epithelial

territories are described. Propagated impulses in the excitable epithelia are believed to enter the nervous system via neurosensory processes in the skin, extending the effective fields of these receptors.

5. Salp chains show coordinated responses but, except in their earliest developmental stages, impulses are probably not through-conducted along the chain, but are relayed from one zooid to the next by an unknown mechanism.

6. Comparisons are drawn between salps and other pelagic tunicates where conducting epithelia have previously been reported.

MEVES, H. & PICHON, Y., 1977. Modèle d'action de la 4-aminopyridine au niveau des 'canaux' potassium de l'axone géant de Calmar (*Loligo forbesi* L.). *Compte rendu hebdomadaire des séances de l'Académie des sciences, Série D*, **284**, 1325-1328.

Most of the effects of 4-aminopyridine on the potassium conductance of the giant axon of the squid can be explained in terms of a simple model based on the physicochemical properties of the molecule and what is known about the structure of the potassium 'channels'.