

## ABSTRACTS OF MEMOIRS

### RECORDING WORK DONE AT THE PLYMOUTH LABORATORY

ALEXANDER, R. MCN., 1959. The physical properties of the swimbladders of fish other than Cypriniformes. *J. exp. Biol.*, Vol. 36, pp. 347-55.

The properties of the swimbladders of seventeen species of teleost from the orders Clupeiformes, Anguilliformes, Gasterosteiformes, Gadiformes and Perciformes were examined. Determinations of sinking factor and swimbladder volume are reported. In no case could excess internal pressure be detected, and the new swimbladder wall was found to exercise no appreciable constraint on changes of buoyancy of the fish with depth. These fish are contrasted with the Cypriniformes, where excess internal pressure has been found in all species examined, and where changes of swimbladder volume and so of buoyancy with depth are reduced by the constraint of the swimbladder wall.

The marine species examined were studied at the Plymouth Laboratory. R. MCN. A.

COOPER, L. H. N., 1958. Océanographie expérimentale en Méditerranée. *Trav. Cent. Rech. Etud. océanogr.*, T. 3, Fasc. 2, pp. 17-25.

The Ligurian and Balearic Seas provide a small-scale model for the study of the formation of bottom water in the North Atlantic. It is suggested that (a) nowhere in the deep ocean does truly vertical mixing between surface and bottom occur but that sinking occurs helically and waters may be re-cycled several times during the process; (b) the abyssal water of the Western Mediterranean is composite and derived firstly from water from the Eastern Mediterranean by way of the Sicily-Tunis and Capraia Channels at 300-400 m depth and secondly from water over the narrow shelf of the Cote d'Azur, Riviera di Ponente and coast of Tuscany cooled by the mistral and tramontana winds; (c) when the strong winds drop, the heavy water cascades over the edge of the shelf and at a depth of 300-400 m mixes with the water from the Capraia Channel to produce a very heavy water which sinks not vertically but along an inclined plane. Whilst sinking it may incorporate enveloping water, poor in oxygen, which may be recycled in the abyss.

L. H. N. C.

COOPER, L. H. N., 1959. Calm patch. *Yachting World*, Vol. 3, p. 250.

An explanation is offered of a calm patch about 30 miles long and a cable in width observed by a yachtsman in a rough sea off the coast of Portugal. The phenomena may have been a convergence over the continental edge between conflicting currents. In this an oil film of biological origin had become concentrated.

L. H. N. C.

DAY, ALAN A., 1959. The continental margin between Brittany and Ireland. *Deep-Sea Res.*, Vol. 5, pp. 249-65.

The continental slope between Brittany and Ireland is steep and cut by many canyons, with the exception of the central region which forms a broad smooth spur. Scarps up to 110 miles in length are associated with the continental margin, and these, together

with the steep areas of the slope proper, are considered very probably to have been developed by faulting. Cores and bottom samples from the area are shown mainly to represent Recent and Pleistocene deposits, with the exception of three which represent Tertiary and possibly Cretaceous strata.

New names applied to topographic features in the area are: Meriadzek Terrace, Goban Spur and Pendragon Scarp.

A. A. D.

HAWES, F. B., 1958. Preliminary observations on the settlement of the actinula larva of the *Tubularia larynx* (Ellis & Solander). *Ann. Mag. nat. Hist.*, Ser. 13, Vol. 1, pp. 147-55.

This paper records the results of an uncompleted study of the actinula. The latter are discharged by movements of the gonophore at differing stages of development. Attachment to a substrate is effected initially by nematocysts at the tips of the aboral tentacles. The nematocysts are frequently not fully developed when the actinula is discharged with the result that the free-living stage is prolonged.

Movements described by previous authors as walking, swimming and substrate testing appear to be parts of an inherent rhythmic cycle seen more clearly in the adult.

F. B. H.

DAY, A. A., HILL, M. N., LAUGHTON, A. S. & SWALLOW, J. C., 1956. Seismic prospecting in the western approaches of the English Channel. *Quart. J. Geol. Soc. London*, Vol. 112, p. 15.

On the basis of the measured seismic velocities, the layering found at 25 seismic stations in the area of the western approaches of the English Channel is divided into four classes which are respectively correlated with semi-consolidated Cretaceous-Tertiary sediments, the New Red system, the palaeozoic system, and a metamorphic basement. The last of these appears to form a long deep trough. The palaeozoic floor is depressed in a trough of somewhat variable depth, bounded on the north by an outcrop of the metamorphic basement which is probably a westward extension of the upthrust Lizard-Start metamorphic belt. Contour maps of the layering are produced.

A. A. D.

KAMPA, E. M., BODEN, B. P. & ABBOTT, B. C., 1959. Electrical response to illumination of the Euphausiid Crustacean eye. *Nature, Lond.*, Vol. 183, pp. 1820-1.

The electrical potentials developed in the eyes of three species of euphausiid crustaceans, *Meganocyphanes norvegica*, *Euphausia pacifica* and *Nematoscelis difficilis*, during stimulation by light have been measured. Silver-silver chloride gauze served as the indifferent electrode. The recording microelectrode, which penetrated the eye, was made of tungsten wire. Signals from the microelectrode were amplified and recorded with an oscilloscope or an ink-writer. Intensity, duration and colour of the stimulating light flash were varied. Response to a 100 msec flash is rapid with a small *a*-wave lasting about 20 msec, a main response which reaches a peak in about 40 msec, and a final overshoot in the other direction. Over a defined range of light intensities, the height of the main response varies directly with the logarithm of the intensity. At the upper end of this range the signal reaches a limiting value of 200-300  $\mu$ V. Flashes of longer duration induce response at both on and off. The euphausiid eye is most sensitive to blue-green light.

E. M. K.

WICKSTEAD, J. H. 1959. A predatory copepod. *J. Anim. Ecol.*, Vol. 28, pp. 69–72.

During analysis of some Indo-West-Pacific plankton it was noted that the copepod *Candacia bradyi* A. Scott very frequently had another animal grasped in its 1st maxillipedes. This animal was usually a chaetognath—*Sagitta enflata* Grassi. A detailed analysis was made of some samples and, after due consideration was given to the fact that it was preserved material which was being dealt with, the evidence is that this species of copepod is wholly carnivorous. Some selectivity is shown in its feeding, the prey normally being a chaetognath, particularly *S. enflata*. It is shown that the 1st maxillipedes are not suitable for filter feeding but do have all the essentials of a raptorial organ.

The suggestion is also made that *Tortanus gracilis* (Brady) is mainly, probably wholly, carnivorous, feeding mainly on other copepods.

J. H. W.

## BOOK REVIEW

### SEA SHELLS OF TROPICAL WEST AMERICA. MARINE MOLLUSKS FROM LOWER CALIFORNIA TO COLOMBIA

By A. MYRA KEEN

Stanford University Press. London: Oxford University Press. £5.

This book is the first attempt to catalogue and describe as a whole the marine shells of the Panamanian province, covering the west coast of Central America between the Gulf of California and Colombia. The marine fauna of this region is perhaps remarkable in showing greater resemblances to that of the Caribbean than to the Indo-Pacific regions, due to a continuity between the two areas through a natural Panama canal or seaway during former geological periods. The scope of this work lies between that of a monograph and a collector's handbook, but descriptions are included of all species found within the 100 fathom line, save the smaller gastropods which are cited only by genus. Dichotomous keys for identification are included where necessary, each species being briefly described, and in most instances illustrated. The reader will be gratified to find that the illustrations lie invariably on the same or facing page to that of the descriptions to which they apply. The illustrations vary in quality—there are some good colour plates, but a number of the black and white photographs, some necessarily reproductions of lithographs rather than actual specimens, are not as clear as they might have been.

This handbook will no doubt prove as valuable to the research worker as to the amateur conchologist, for the text, which is written as far as possible in non-technical language, loses nothing thereby in accuracy. Essentially a monograph of shells, one must not expect to find descriptions of the soft parts of the animals, and by the same token the section on cephalopods is restricted to a description of the paper nautiloids.

N.A.H.