

ABSTRACTS OF MEMOIRS

RECORDING WORK DONE AT THE PLYMOUTH LABORATORY

GALATHEA

By Richard B. Pike

L.M.B.C. Mem. xxxiv, *L'pool*, 1947, pp. 1-179, 20 plates

This work follows the usual form of the *L.M.B.C. Memoirs*, giving a fairly complete description of the external and internal anatomy of *Galathea squamifera* Leach (Decapoda), with some histological detail of most structures described. The larvae have been omitted, as they are dealt with adequately by other authors. Some notes on reproduction and growth rate have been included. Attention has been paid to comparisons of the anatomy of the main organ systems of *Galathea* with that of corresponding systems, both in other members of the Anomura and also in other Decapoda. This has led to a tentative suggestion on the possible origin of the Anomura from a thalassinid ancestor and on their relationship with the rest of the Decapoda. R.B.P.

FACILITATION IN SEA ANEMONES. I. THE ACTION OF DRUGS.

II. TESTS ON EXTRACTS

By D. M. Ross[✓]

J. Exp. Biol., Vol. 22, 1945, pp. 21-36

About twenty-five drugs, mostly those which act on vertebrate neuromuscular systems, were tested on *Calliactis parasitica* in an attempt to throw light on the mechanism of neuromuscular facilitation described by Pantin. No direct contractions of the musculature were elicited, but a few of the drugs which act at adrenergic junctions, tyramine, tryptamine and 933 F, caused responses to single stimuli. This might be described as a sensitizing or 'facilitating' effect, since two stimuli are required to initiate contractions of the sphincter in untreated animals. Adrenaline itself was inactive in this respect, but other drugs belonging to this group, cocaine and ergotoxine, had potentiating and inhibitory effects respectively which closely resembled their action at sympathetic junctions in vertebrates. Acetylcholine and allied drugs had no significant effects on facilitation. Extracts of *Calliactis parasitica* and *Metridium senile* also caused responses to single stimuli, but these differed from the tyramine effect in certain respects and it is unlikely that the two effects occur in exactly the same way. The results are consistent with the view that there are two processes taking part in neuromuscular transmission in these animals and that at least one of these processes involves sensitization of the muscle or the junctions by a chemical substance liberated by each nerve impulse.

D.M.R.

THE PALLIAL ORGANS IN THE ASPIDOBANCH GASTROPODA AND THEIR
EVOLUTION THROUGHOUT THE MOLLUSCA

By C. M. Yonge

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The probable conditions in the mantle cavity of the primitive Mollusca are described in the light of work on all available aspidobanch Gastropoda. Ctenidia, hypobranchial glands and osphradia are shown to constitute a functional unit. The nature of the primitive ctenidium precluded life on soft substrata; this was made possible in the Gastropoda by the evolution of the pectinibranch ctenidium. The effects of (1) torsion and (2) asymmetrical coiling of the shell on the pallial organs in the Gastropoda are discussed. These include important effects on the reproductive as well as on the respiratory system. In the aspidobranchs four conditions are shown to have resulted from the initial asymmetrical coiling of the shell. These include the acquisition of a secondarily symmetrical limpet form which has been independently achieved four times by them as well as several other times by higher Gastropoda. In the Patellacea a functional series, *Patelloida-Lottia-Patina-Patella*, is described. The evolution throughout the molluscan classes of the various types of ctenidia is described. Attachment may be either by the efferent or afferent side of the axis, but the arrangement of the afferent and efferent blood vessels remains constant throughout. It is the further elaboration of frontal and abfrontal cilia, originally concerned with cleansing the ctenidia, that is responsible for the evolution of the food-collecting ctenidia of the majority of the Lamellibranchia. Further evidence is provided in support of the view that the osphradia are tactile organs concerned with estimating the amount of sediment carried in with the inhalant current. C.M.Y.