Neurosecretion was also present in the region of the neurones lying outside the infundibulum. In the caudal part of what now must be regarded as a neurohypophysis a few cells identical with the ependymal cells are found separate from the lining of the ventricle. No neurosecretory material was found in the adenohypophysial region.

The adenohypophysis when stained with Heidenhain's azan stain or Mallory's triple stain was shown to contain at least two different types of basophils in addition to chromophobes and large vacuolated cells.

Furthermore, basophilic and periodic acid–Schiff positive colloidal aggregations occur in some adenohypophysial follicles as do epithelium-lined cavities. No distinct acidophils were observed. After applying the periodic acid–Schiff it was shown that the basophils contained periodic acid–Schiff positive material as in higher vertebrates. Some cells also stained after applying the Gomori aldehyde–fuchsin technique. It seems highly probable then that the pituitary of *Myxine* secretes carbohydrate-containing hormones in a similar manner to other vertebrates.

These observations, which will be reported in full elsewhere, indicate that the pituitary of *Myxine glutinosa* is possibly the simplest form of vertebrate pituitary and is a form which is not degenerate but is one in which the adenohypophysis has not become histologically differentiated.

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Swimming in Spider Crabs of the Genus *Macropodia*

The only adult Brachyura which have previously been recorded swimming are the Portunidae, which do so by rapid paddling of the last pair of peræopods. These are adapted for swimming by having the distal segments flattened, with the edges densely fringed with hairs.

Swimming has now also been observed in *Macropodia rostrata* (L.) and *Macropodia longirostris* (Fabricius), members of the Maiidae (spider crabs). Both these species occur sublittorally in the Isle of Man. The genus has very long legs which bear a number of long hairs, and swimming involves the four pairs of walking legs and the chelæ. All the limbs beat at the same rate, but not in phase, and are kept continually moving. At the start of the stroke they are raised in the flexed position, and are extended for the more rapid downbeat. Swimming may reach a speed of 5 cm. per sec. in a specimen of *Macropodia rostrata* with a carapace-length of 13 mm.

The pattern of movement of the legs has been followed, and it is the same in both species. The chelæ and walking legs will be referred to as *c*, 1, 2, 3, 4 respectively, on the right (*R*) and left (*L*) sides.

The swimming limbs can be divided into three groups: (1) L^2 and R^2 beat in phase with each other, but out of phase with all the other legs; that is, when group 1 is beating down, groups 2 and 3 are on the up-beat. (2) R^c, R^1, L^3 and L^4 beat as a unit, with L^4 slightly after the rest. (3) L^c, L^1, R^3 and R^4 also beat as a unit, with R^4 just behind the others. One of groups 2 and 3 starts to beat slightly before the other, and either may take the lead during a period of swimming. The rate of beating varies from once to twice per sec. The body of the crab is horizontal during swimming, and the sequence of movement of the legs prevents rolling or pitching. This is because the legs beating down at any moment are symmetrically arranged around the centre of gravity of the crab (for example, L^2 opposite R^2, and R^c and R^1 opposite L^3 and L^4).

In the laboratory, swimming may occur apparently spontaneously, as a result of attack by another crab, or on repeated disturbance. It occurs more readily in smaller specimens, and large ones can seldom be induced to swim.

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A New Cercaria of the Subfamily Gymnophallinae (Trematoda: Digenea) developing in a unique 'Parthenita' in *Littorina saxatilis* (Olivi)

A 'parthenita' containing furcocerous and tailless stages of a gymnophalline cercaria was found in the hæmolymph spaces of the digestive gland, gonad and gonoduct of the gastropod *Littorina saxatilis*. The unique feature of this 'parthenita' is that it has the same essential structure as the cercariæ which it produces. It is not yet possible to decide whether this 'parthenita' is, in fact, a cercaria possessing the kind of multiplication more usually associated with a redia or sporocyst; or whether it is a sporocyst or redia with a structure similar to a cercaria. Until this is decided the word 'parthenita' will be used here to indicate an analogy with the more usual redia or sporocyst found in digenetic trematodes.

This is the first record of a gymnophalline cercaria developing in a gastropod mollusc; previous records having been recorded from lamellibranchs. A detailed account of the information available to date on this species is being prepared for publication.

The 'parthenita' was found in 490 of 14,000 specimens of *Littorina saxatilis* examined between September 1958 and September 1959 at Aberystwyth and in 59 of 1,100 snails in August 1959 at Plymouth. Infection was almost exclusively confined to small molluscs, measuring from 0·6 to 5·0 mm. in length, occurring in the supralittoral zone; in favourable circumstances up to 40 per cent infection exists.

The fully formed 'parthenita' (Fig. 1) is spherical in shape, measuring 0·2–1·2 mm. in diameter and containing 20–2,000 tailless cercariæ. 5–70 fully formed 'parthenitæ' may occur in any one host. The whole surface of the 'parthenita' is covered with alternating rows of large backwardly directed spines. An oral sucker is present and specimens measuring less than 0·2 mm. in diameter have, also, a ventral sucker. The bifurcated alimentary canal consists of pharynx, œsophagus and two dilated cæca which are connected to the body-wall of the 'parthenita' by strands of tissue. There is no birth pore. The excretory system is best seen in specimens less than 0·3 mm. in diameter; in larger specimens the arrangement becomes difficult to observe. The translucent excretory vesicle is Y-shaped, the arms of the Y extending forwards as far as the posterior border of