

ON THE OCCURRENCE OF *JAXEA NOCTURNA*
(CHIEREGHIN) NARDO OFF RAME HEAD,
DEVON

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(Plate II)

A single specimen of the rare thalassinid *Jaxea nocturna* was recently dredged from mud off Rame Head, Devon, by S.S. *Salpa* on September 3 1937 during the September Vacation Course at the Plymouth Laboratory. Prior to this there are only four records of the adults of this species in waters round the British Isles although they are abundant in the Adriatic Sea. Selbie (1915) summarizes the British records as far as 1914. The first individuals were taken as fragments from the stomachs of gurnards and *Pleuronectes cynoglossus* captured in the Firth of Clyde near Ailsa Craig (Scott, 1899); the next was from the Irish Sea, in mud, off Clogher Head, Co. Louth, at a depth of $32\frac{1}{2}$ fathoms and in 1908 one was taken in Loch Fyne in 34 fathoms. The next record is a single specimen taken by Mr G. A. Stephen on March 26 1936 from the mud two miles south of Rame Head, and at a depth of 24 fathoms. Since September 3 1937 four more have been captured in the same locality, one on September 28 1937 and three on October 6 1937, using a new type of dredge.

The trachelifer larvae of *Jaxea nocturna* are quite widely distributed in British waters. They have been recorded from the Irish Sea and the west coast of Ireland (Selbie, 1915); the Clyde Estuary, and Tobermory, Mull (Scott, 1899); Barrow Channel, off Piel and Tremadoc Bay, Caernarvon (Scott, 1905); the English Channel between Looe and Eddystone (Bouvier, 1914); Plymouth Sound (Lebour, 1916) and Salcombe (Norman & Scott, 1906).

All the 1937 Plymouth adults, as far as one can judge without dissection, agree closely with the description of *J. nocturna* by Selbie (1915). One male and one female have been dissected for a careful examination of the body segments, appendages and gills. They show only minor points of difference from Selbie's account. Three teeth were present in the male on the anterior edge of the first pleura, as in Selbie's account, but they were absent from one side of the female and there was only one tooth on the other. The fifth pleura of two females were rather more rounded at the apex than figured by Selbie, but in the rest they were as figured by him. The second maxillipede is somewhat different. The epipodite has a distinct twist towards the proximal end and the merus bears long setae on its outer margin (Plate II, fig. 3).

Three of the Plymouth individuals were females and the other two males. The only obvious difference between the sexes is the absence of the first pair

of pleopods from the male. Two of the specimens were approximately 36 mm. from the tip of the rostrum to the tip of the telson, and the others about 34 mm. The chelae, measured from the proximal end of the merus to the tip of the dactylopodite are about three-quarters the length of the body. Selbie's drawing gives the impression of a much longer chela than is present in the Plymouth specimens, but there is not really very much difference between them (see Plate II, fig. 1).

The specimen captured on September 3 1937 was kept alive in the laboratory until December 29 1937 at an average temperature of 57.1° F. in October, 52.7° F. in November, and 49.5° F. in December. During this time intermittent attempts were made to study its mode of feeding. It was kept in a square glass dish containing a layer of sand about an inch deep, and provided at various times with shreds of fish, *Mytilus*, living *Polystomella* and plankton. None of these were apparently eaten and, with the exception of the *Mytilus*, which was toyed with by the second peraeopods, all were ignored. The second pair of peraeopods are usually extended forwards beneath the head (Plate II, fig. 2), so that their tips are visible beneath the antennae when viewed from the dorsal surface. Their dactylopodites are flattened and may be folded back against the next segment. By their movements, fine particles are disturbed from the substratum and whisked towards the mouth. At intervals the third maxillipedes sweep downwards in a plane at right angles to the ground and may possibly capture particles disturbed by the second pair of walking legs. The chelae are held outstretched in front of the head and do not perform any definite movements apart from a regular swaying from side to side as the animal walks. The inner margin of their dactylopodites bears a fringe of long setae which are frequently thickly coated with fine particles. The animal did not make any attempt to burrow in the sand and unfortunately died before there was an opportunity of providing it with finer and deeper mud, as had been intended. The few observations which have been made on the movements of its appendages show resemblances to the burrowing and feeding movements described in *Callianassa californiensis* and *Upogebia pugettensis* by MacGinitie (1930, 1934). *Callianassa californiensis* uses its second and third pairs of legs as shovels, and also to sift the sand from the sides of the burrow for the detritus which accumulates on their setae; the detritus is scraped off by the third maxillipedes and then passed to the mouth. *Upogebia pugettensis* lives in mud burrows, feeding on suspended material. It holds its first and second walking legs so as to form a basket through which water is drawn from the entrance of the burrow by the movements of the swimmerets. The sieved particles are swept out of the basket at intervals by the outward and downward movements of the third maxillipedes and pass via the second maxillipedes to the mouth. If *Faxea nocturna* lives in mud burrows, possibly between rocks, in places inaccessible to the usual dredging methods, the movements of the second pair of walking legs and the third maxillipedes suggest that its feeding mechanism is similar to that of the species described by MacGinitie. Whether *Faxea* uses the

fringed chelae to construct a basket like *Upogebia pugettensis*, scrapes sand like *Callianassa californiensis* Dana, or has some different, but probably very similar feeding method, is not known. These members of the Callianassidae, like some other detritus and suspension feeders of the tribe Anomura, use their third maxillipedes to sweep off food particles gathered by the anterior walking legs towards the mouth. One or more of the first three pairs of peraeopods is used by the three species described above. Among the Paguridae, *Eupagurus bernhardus* employs only the smaller claw of the first pair of peraeopods to gather food, which is passed on to the third maxillipedes (Orton, 1927), whereas other anomurans, for example *Galathea dispersa* and *Porcellana longicornis*, use their third maxillipedes to gather food particles from the substratum or from the water (Nicol, 1932).

My thanks are due to Dr Kemp for the loan of the four additional Plymouth specimens of *Jaxea nocturna*, and his permission to dissect one of them, and to Mr D. P. Wilson for the photograph published as fig. 1 in Plate II.

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EXPLANATION OF PLATE II

- Fig. 1. Side view of *Jaxea nocturna* ♂ (3. ix. 37). × 1·7. (Photograph by Mr D. P. Wilson.)
- Fig. 2. *Jaxea nocturna* (♂), drawn from the living animal captured 3. ix. 37, from Rame mud, Plymouth. × 2·2.
- Fig. 3. The second maxillipede of *Jaxea nocturna* showing the twisted epipodite. × 17.

