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ORIGINAL ARTICLES.

I.—ON SOME FOSSIL PRAWNS FROM THE OSBORNE BEDS OF THE  
ISLE OF WIGHT.

By HENRY WOODWARD, LL.D., F.R.S., F.G.S.

(PLATE V.)

THROUGH the intervention of my friend Mr. William Whitaker, F.R.S., I, some time ago, received from Mr. G. W. Colenutt, F.G.S., of Hanway Lodge, Ryde, Isle of Wight, 26 small slabs of Osborne clay, on which are preserved, in a more or less good state (generally less), a series of prawns and small shrimp-like Crustaceans, collected by him from the Oligocene strata, Chapelcorner Copse, between King's Quay and Wootton Creek, just to the west of the Boat-house, on the shore below Binstead House; also on the shore below Ryde House, and immediately to the south-east of Sea View Pier; where (especially at Chapelcorner Copse) extremely interesting exposures of the Osborne Beds may be seen and studied, between the base of the cliff and low-water mark (see p. 99).

These beds formed the subject of a paper by Mr. Colenutt (see GEOL. MAG., 1888, Dec. III, Vol. V, p. 358); while the small fishes (*Clupea rectensis*) which occur associated with the Crustaceans were described and figured in 1889 by Mr. E. T. Newton, F.R.S., F.G.S., in the Quarterly Journal of the Geological Society (vol. xlv, pp. 112–117, pl. iv).

Since receiving the above specimens from Mr. Colenutt, I have been favoured with three additional examples, also obtained from King's Quay, by Mr. Reginald W. Hooley, of Ashton Lodge, Portwood, Southampton, who has paid considerable attention to the fossils of the Tertiaries of Hampshire and the Isle of Wight.

The entire series comprises fourteen examples of the larger form (see Pl. V, Figs. 1–4) and fifteen of the smaller one (Pl. V, Figs. 5–7), Figs. 1 and 4 of the former having been drawn from Mr. Colenutt's and Figs. 2 and 3 from Mr. R. W. Hooley's cabinet. The smaller form (Figs. 5–7) is from Mr. G. W. Colenutt's Museum.

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Owing to the presence of orbicular calcite and some iron pyrites in the clay, it is often very difficult to detect the details of the structure of these Crustaceans; moreover, in order to preserve them from decay, they have to be treated with a coat of hot gelatine, which, although preservative, is apt to obscure minute details of structure afterwards.

*PROPALEMION OSBORNIENSIS*, H. Woodw. (Pl. V, Figs. 1-4.)

Although there is no one example of the large Osborne shrimp which has been preserved entire, nevertheless, by a careful examination of the fourteen specimens before me, I am enabled to arrive at a fairly correct notion of the separate parts, and so of the prawn as a whole.

The general outline of its form may be seen from the examples figured on Pl. V, Figs. 1-4, but no restoration has been attempted.

From Fig. 1 we perceive that the carapace measures 20 millimetres in length (the rostrum in this specimen is injured and indistinct, but is better seen in Fig. 2); the depth of the carapace in profile is 11 mm.; the abdomen ('pleonic somites,' Bate) measures 28 mm. in length, minus the telson, which, although wanting in Fig. 1, is supplied by Fig. 3, and is 10 mm. long; the lateral lobes of the tail-fin being about equal in length, or a trifle longer than the telson. In Fig. 2 the rostrum shows five distinct teeth or serrations; a single spine is also to be observed on the hepatic region of the carapace in Figs. 2 and 4; the bifid flagella of the inner antennæ are preserved in Figs. 1 and 2, but the fragmentary remains of the long outer antennæ are only imperfectly seen on some of the slabs; the long slender ambulatory legs measure 25 mm., they are shown in Figs. 2 and 4. But the first and second long and slender chelate limbs are too imperfectly preserved to be made out satisfactorily, though I believe both of them to be present. The abdominal swimming feet (pleopods) are well preserved in Figs. 1 and 2, and are about 12 mm. in length. The pedunculated eye can be seen in Fig. 2 and also in Fig. 4.

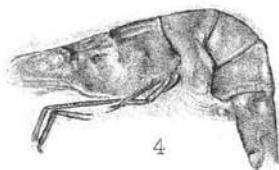
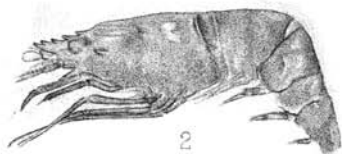
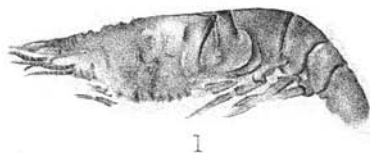
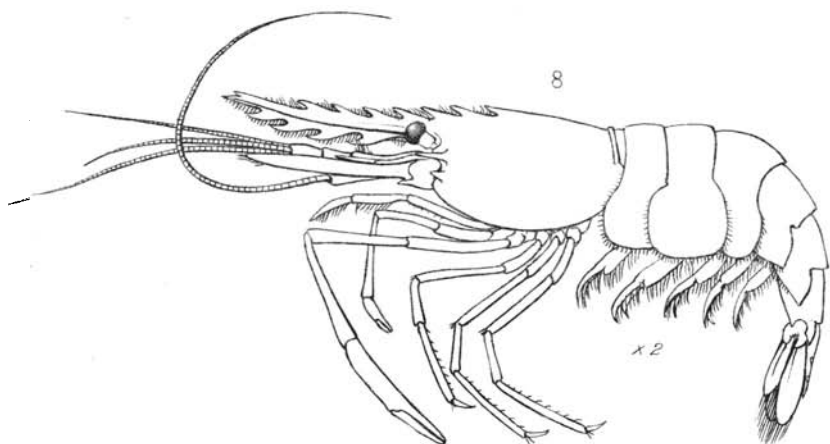
In size this prawn closely agrees with the living *Palæmon affinis*, M. Edw.<sup>1</sup> (Pl. V, Fig. 8), but the rostrum in the living form is considerably larger and more strongly serrated, both above and below. The segments of the abdomen (pleon) in the fossil form closely resemble the living genus, but the pleopods are perhaps somewhat longer in the Osborne specimen.

Having regard to the difficulties of dealing strictly with such imperfect material, I venture to define the fossil form as *Propalæmon*, and for a trivial name I have called it after its locality, *Osborniensis*.

*PROPALEMION MINOR*, H. Woodw. (Pl. V, Figs. 5-7.)

This little form, of which fifteen examples have been obtained by Mr. Colenutt, from the same beds as have yielded the larger species (*P. Osborniensis*), measures 26 mm. in length (of which the carapace measures 10 mm., the pleon 11 mm., and the telson 5 mm. The

<sup>1</sup> Fig. 8 is drawn in our Plate of twice the natural size.



GM.Woodward del. et lith.

West, Newman imp.

Figs.1-7. Fossil Prawns &c., Osborne Beds, I. of Wight. †.  
Fig.8. *Palæmon affinis*, M.Edw.(recent) ‡.

depth of the carapace is 5 mm., and the pleon at the third somite is of the same depth. The appendages are not preserved, nor can the serrations on the rostrum be clearly detected.

This may possibly be a young form of the larger species with which it is found associated, but of that we have no positive evidence before us; it is therefore most convenient to treat it as distinct. Both species occur pretty abundantly in the same bed which yielded the small *Clupea vectensis*, described by Mr. E. T. Newton, F.R.S., and are in all probability either estuarine or marine. The living Palæmonidæ occur, not only in the sea, but also in rivers, in Lake Amatitlau Guatemala, the islands of the Pacific, and one in Australia, *Palæmon affinis*, Pl. V, Fig. 8 (see "Voyage of Challenger"; Crustacea, by C. Spence Bate, 1888, vol. xxiv, p. 782, pl. cxxviii, fig. 5). Two genera are British.

In this genus (*Palæmon*) the most striking feature is the elongation of the second legs in the male, which not infrequently even exceed the total length of the animal's body; a specimen of *Palæmon lar* may measure about five inches from the front margin of the carapace to the tip of the telson, and carry limbs eight inches long. (See "A History of Crustacea," by Rev. T. R. R. Stebbing, F.R.S., pp. 246-247.)

The following account (Art. II) of the geology of a portion of the Osborne Beds of the Isle of Wight, whence the fossil Crustacea were obtained, has been most obligingly drawn up for me by Mr. G. W. Colenutt, F.G.S., the first discoverer of the fossils.

#### EXPLANATION OF PLATE V.

FIGS. 1-4.—*Propalæmon Osborniensis*, H. Woodw. Osborne Beds: Isle of Wight.

FIGS. 5-7.—*Propalæmon minor*, H. Woodw. Osborne Beds: Isle of Wight.

FIG. 8.—*Palæmon affinis*, M. Edw. Recent: Port Jackson, Sydney, New South Wales.

#### II.—NOTE ON THE GEOLOGY OF THE OSBORNE BEDS.<sup>1</sup>

By G. W. COLNUTT, F.G.S.

THE fossil shrimps or prawns briefly described in the preceding paper by Dr. H. Woodward occur in the 'fish-clay' of the Osborne Series at Chapelcorner Copse, Binstead House, Ryde House, and Sea View, Isle of Wight, and they were first discovered by me in these beds about the year 1876. Having regard to the fact that new species of fish, etc., have been recently obtained from the Osborne Beds, it would seem that these prawns are very probably also new to English strata.

At nearly all outcrops of these beds the strata yield few fossils,

<sup>1</sup> The following is a list of the papers bearing on the present article:—

G. W. Colenutt, "On the Osborne Beds": GEOL. MAG., 1888, p. 358.

E. T. Newton, "On *Clupea vectensis*": Q.J.G.S., February, 1889, vol. xlv, pp. 112-117, pl. iv.

E. T. Newton, "Geology of the Isle of Wight": Memoirs of Geological Survey, 1889, p. 152 et seq.

E. T. Newton, "On *Amia*": Q.J.G.S., February, 1899, vol. lv, pp. 1-10, pl. i.

G. W. Colenutt, "Notes on Geology of the North-East Coast of Isle of Wight": Papers and Proceedings of the Hampshire Field Club for 1891.