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Quod si cui mortalium cordi et curæ sit non tantum inventis hærere, atque iis uti, sed ad ulteriora penetrare; atque non disputando adversarium, sed opere naturam vincere; denique non belle et probabiliter opinari, sed certo et ostensive scire; tales, tanquam veri scientiarum filii, nobis (si videbitur) se adjungant. —*Novum Organum, Præfatio.*

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SOLD ALSO AT THE APARTMENTS OF THE SOCIETY.

MDCCCLXXI.

2. Notes *on some new* Crustaceans *from the* Lower Eocene *of* Portsmouth. By Henry Woodward, Esq., F.G.S., F.Z.S., of the British Museum.

[Plate IV.]

Having been favoured by Messrs. C. J. A. Meyer and Caleb Evans with the opportunity of examining three new Crustaceans recently obtained by them from the Lower Tertiary Deposits exposed during the excavations for the "Dockyard Extension Works" in Portsmouth Harbour, I beg to submit the following notes thereon.

I. Family Corystidæ. (Genus *Palæocorystes*, Bell.)

This family, represented at the present day by the genus *Corystes* common on our own coast, and in the Chalk, Greensand, and Gault by the genera *Palæocorystes* and *Eucorystes*, has now been discovered in the Lower Eocene, at Portsmouth, by Mr. Caleb Evans, F.G.S.

The specimen (see Plate IV., figs. 1 *a*, *b*), although far from perfect, is sufficient to indicate at once the genus to which it belongs, namely *Palæocorystes*, and also that it is specifically distinct from those occurring in the Cretaceous rocks, already described by Prof. Bell and others*. The carapace measures one inch in length; but (both its anterior and posterior borders having been injured) it was, originally, probably nearly one-fourth of an inch longer. In breadth it measures 10 lines. Some portion of the anterior (orbital and suborbital) border can still be traced out; but the rostrum is quite destroyed. The surface of the carapace is smooth and devoid of ornamentation, save a few widely scattered and very minute puncta; but where the delicate cortical layer has been removed, the carapace presents a finely granular structure. The two sigmoid markings, observable on the carapaces of all the Corystidæ are also clearly to be seen in this example.

On the underside the branchiostegal pieces (*br*) are traceable, also the basal joint (*m*) of one of the maxillipedes (see Plate IV. fig. 1 *b*).

I propose to name this form *Palæocorystes glabra*. Previously to the discovery of this crab no species of *Palæocorystes* had been met with in any bed younger than the Maestricht Chalk, where a species named *P.* (*Notopocorystes*) *Müllleri* has been noticed by Count von Binkhorst, which much resembles *P. glabra*, save that the sigmoidal markings seen on the latter are absent in the former species. (See Plate IV. fig. 2.)

This is the second family of Crustaceans living at the present day, and met with fossil in the Maestricht Chalk, which I have had the pleasure of recording as occurring also in the Eocene of the south of England†.

* See Prof. Bell's Monograph on the Fossil Crustacea of the Gault and Greensand, Palæontographical Society, 1862, vol. xiv. p. 11, pls. ii. & iii.

† See British Association Reports, Norwich, 1868, on the Occurrence of *Callianassa Batei* in the Upper Marine Series, Hempstead, Isle of Wight, p. 75, pl. 2. fig. 4.

II. Family Portunidæ. (Gen. nov. *Rhachiosoma*.)

Amongst the pelagic Crustaceans we find numerous examples belonging to the Portunidæ, all armed with long spines on the hepatic region, and with the lateral borders of the carapace greatly produced. Thus the genera *Matuta*, *Orithyia*, *Podophthalmus*, *Portunus*, *Lupea*, and many other forms possess long hepatic spines.

Two Eocene genera have also been described and figured by Dr. Alphonse Milne-Edwards in his 'Histoire des Crustacés Podophthalmaires Fossiles,' namely, *Enoplonotus armatus*, from the Nummulitic beds, Salcedo, and the *Psammocarcinus Hericartii* (Plate IV. fig. 4), from the Sables de Beauchamp (Lower Eocene). We are now, by Mr. Meyer's exertions, made acquainted with two new forms (see Plate IV. figs. 3 and 5) from the Lower Eocene of Portsmouth, which it is proposed to place in a new genus, the characters presented by the carapace in the specimens under consideration not warranting us in referring them with certainty to any genus of fossil Crustacea already established.

Rhachiosoma*, gen. nov.

Carapace produced laterally into two more or less long and pointed spines; latero-anterior border also furnished with spines; surface of carapace tuberculated.

1. Rachiosoma bispinosa, sp. nov. (Plate IV. fig. 3.)

This form is remarkable for the great development of its two lateral spines, which in length exceed half the breadth of the carapace. In section they are nearly round, slightly recurved at their extremities, and taper gradually to a point. The carapace itself measures 1 inch in length and $1\frac{1}{4}$ inch in breadth (exclusive of the hepatic spines, which are each 10 lines in length).

The cardiac region is separated from the branchial regions by two undulating subcentral furrows, and bears a single tubercle upon its centre. The gastric region is ornamented with two small subcentral tubercles. Two prominent equidistant tubercles mark the centre-line of the branchial region, and form, with a third on the mesogastric region, a prominent ridge on either side the mesial line of the carapace, inclined towards the rostrum at an angle of about 80°. A solitary tubercle on the hepatic region, just in front of the base of the great hepatic spine, completes the ornamentation of the surface of the carapace.

The latero-anterior border appears to have been armed with two or more marginal spines; but the intense hardness of the matrix (a fine-grained quartzite) in which the specimen is imbedded has rendered its development unsuccessful. The posterior border of the carapace is half an inch broad.

The surface of the carapace (where preserved) shows it to have been very minutely and delicately punctate.

* From *ῥάχις* and *σῶμα*.

The specimen was obtained from a mass of quartzite, and rests enclosed in a portion of the body-chamber of a *Nautilus imperialis*.

2. Rhachiosoma echinata, sp. nov. (Plate IV. fig. 5.)

This handsome crustacean, which must have measured $3\frac{1}{4}$ inches from tip to tip of its lateral spines, and $1\frac{1}{2}$ inch from the anterior to the posterior border of its carapace, is far more robust than the preceding species. The hepatic spines are only $\frac{1}{2}$ an inch in length, and develope a small branch spine midway upon their anterior border, resembling in this character the hepatic spines of *Psammocarcinus Hericartii* (see Plate IV. fig. 4).

The arrangement of the tubercles agrees with that in the foregoing species (*R. bispinosa*), save that around the central tubercle on the cardiac region there are placed three very minute tubercles, whilst two others, equally minute, mark the metacardiac region. The latero-anterior border gives evidence of three marginal spines on either side, all of which, however, have been broken off. The frontal border is quite lost, although most carefully attempted to be worked out by an experienced hand; the extreme hardness of the matrix (a fine-grained and very hard quartzite), as in the former case, defying development. Where the surface of the carapace has been preserved it is finely punctate. The chelate fore-hand is preserved on the right side, exhibiting 3 joints, and measuring about $1\frac{3}{4}$ inch in length.

EXPLANATION OF PLATE IV.

Fig. 1 *a*. Dorsal aspect of carapace of *Palæocorystes glabra*, H. Woodw. (nat. size), from the Lower Eocene, Portsmouth.

Fig. 1 *b*. The same, seen from the underside: *m*. maxillipede; *br*. branchiostegal piece.

From the Cabinet of Caleb Evans, Esq., F.G.S.

Fig. 2. *Palæocorystes* (*Notopocorystes*) *Müllleri*, Binkh. (two-thirds natural size), from the Uppermost Chalk, Maestricht. (Copied from tab. ix. fig. 1 *b*, Mon. des Gastéropodes et des Céphalopodes de la Craie Supérieure de Limbourg, by J. Van den Binkhorst, 1861; figured for comparison with *P. glabra*.)

Fig. 3. *Rhachiosoma bispinosa*, H. Woodw. (nat. size), from the Lower Eocene, Portsmouth.

From the Cabinet of C. J. A. Meyer, Esq., F.G.S.

Fig. 4. *Psammocarcinus Hericartii*, Desmar., sp. (twice nat. size), from the Sables de Beauchamp (Lower Eocene). (Copied from the Hist. des Crustacés Podophthalmaires Fossiles, by Alph. Milne-Edwards, tome i. pl. 10, fig. 1. Paris, 4to, 1861).

Fig. 5. *Rhachiosoma echinata*, H. Woodw. (nat. size), from the Lower Eocene, Portsmouth.

From the Cabinet of C. J. A. Meyer, Esq., F.G.S.

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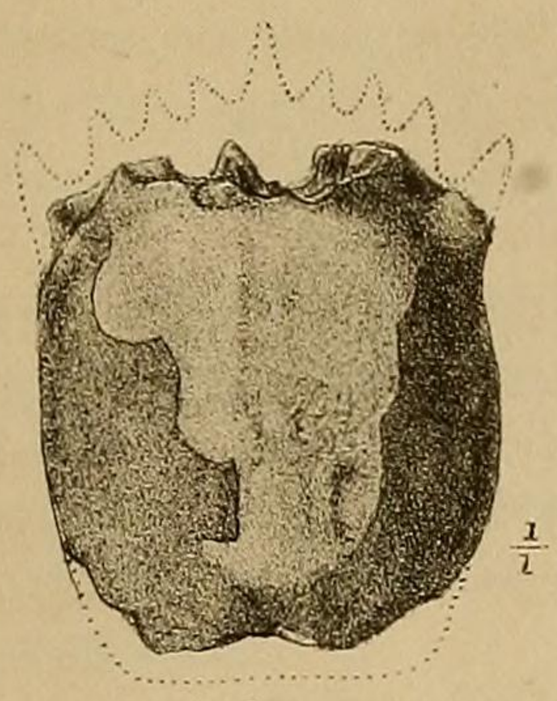
3. *On the* Chalk *of the* Cliffs *from* Seaford *to* Eastbourne, Sussex.

By W. Whitaker, Esq., B.A. (Lond.), F.G.S.*

* This paper has been withdrawn by the author by consent of the Council.



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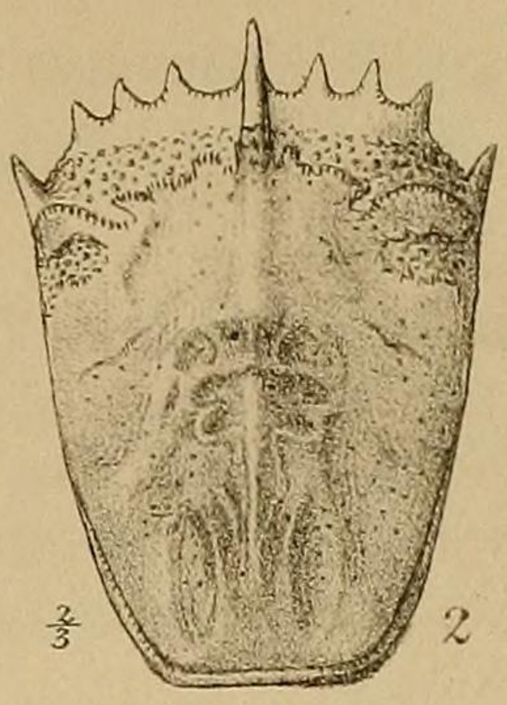

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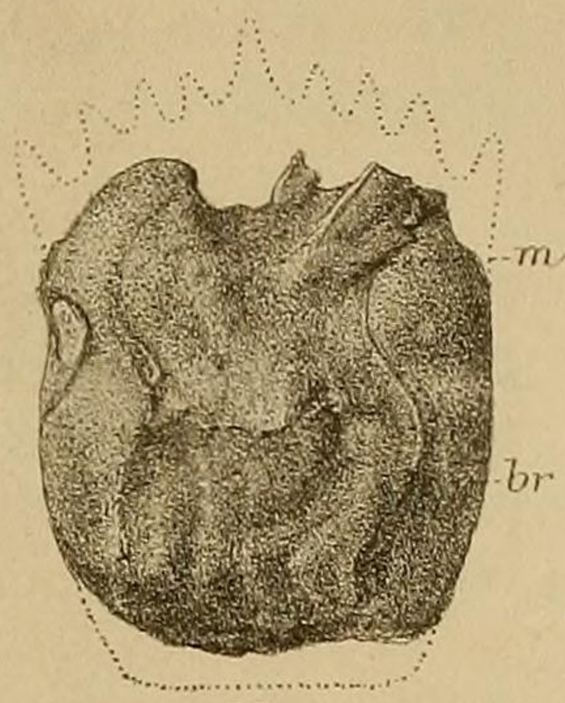

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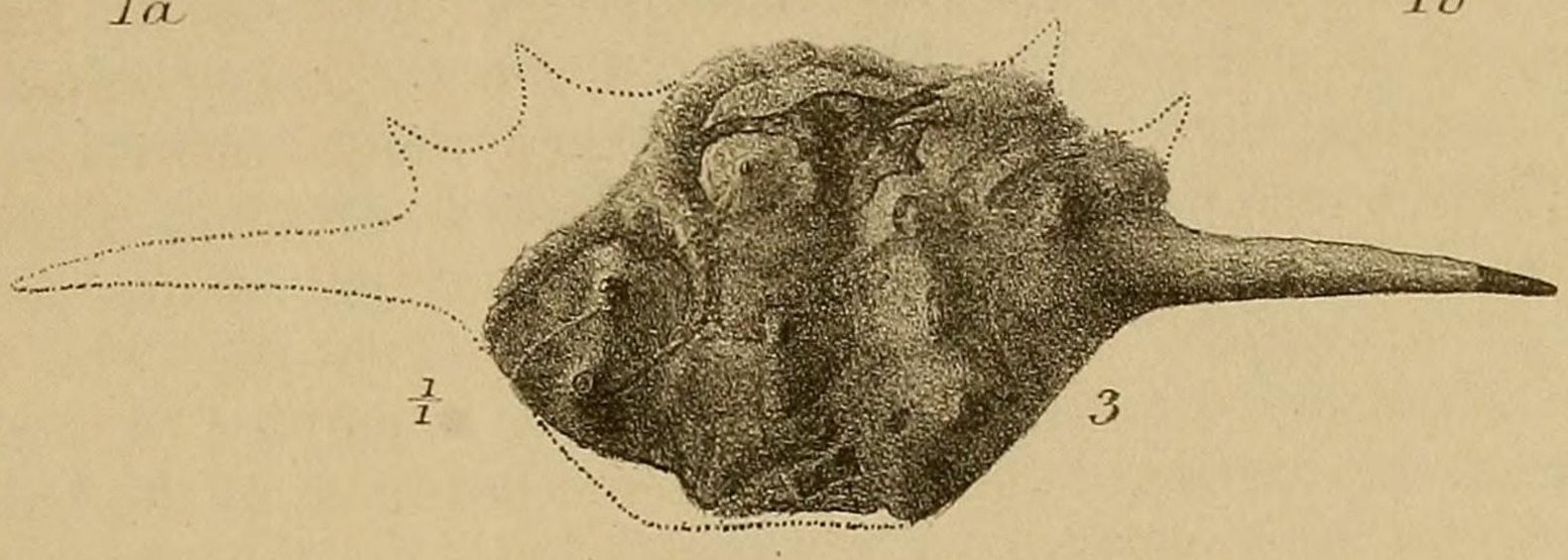

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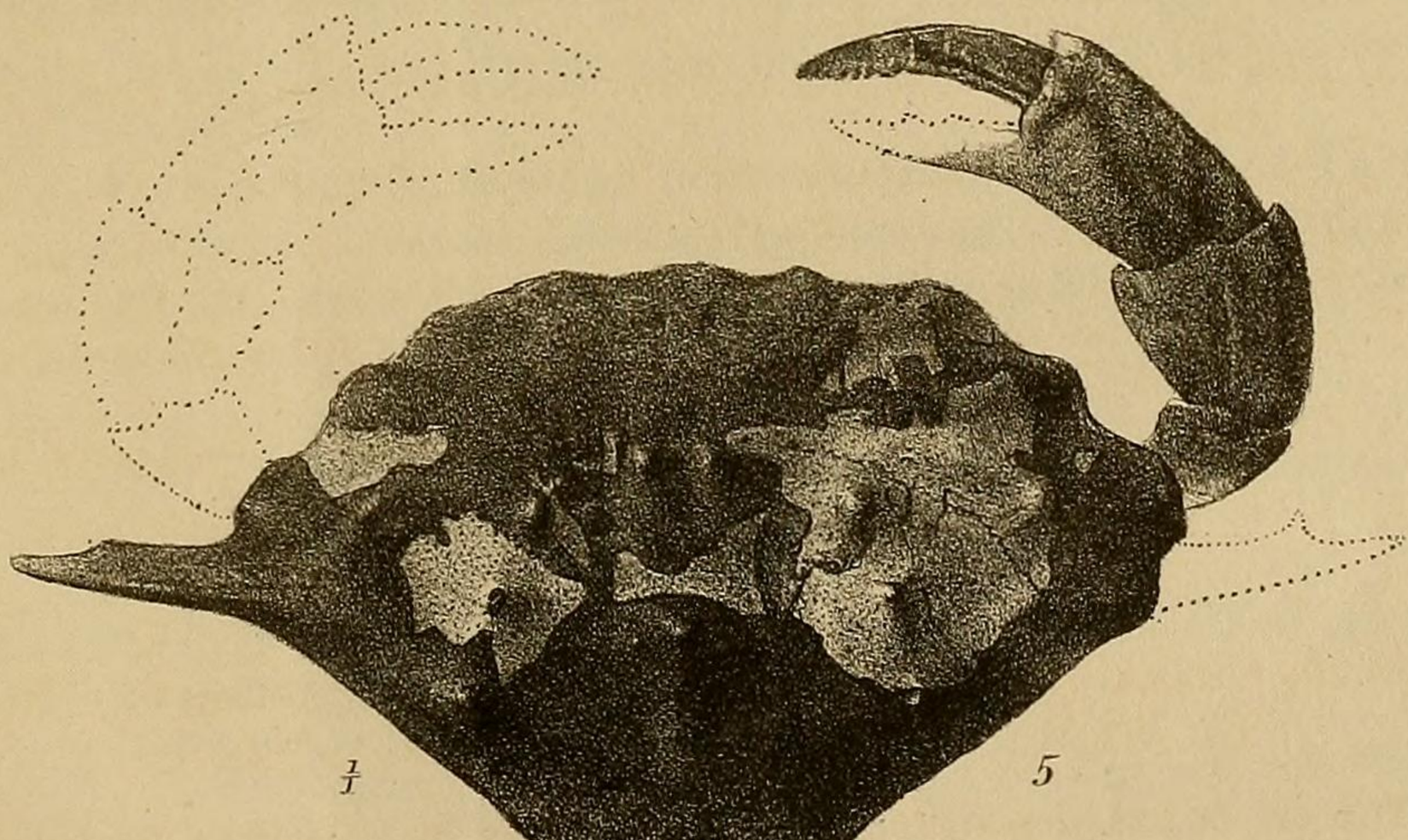

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G.H.Ford.

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NEW FORMS OF EOCENE CRUSTACEA.