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 - VIII. }
- N.B.—The figures of *Micrasterias* are half the length of the original drawings. The figures of *Euastrum* are engraved one-third less than the drawings, except *E. rostratum*, *E. spinosum* and *E. binale*, which should be reduced in the same proportion to compare them with the other species, all of which are naturally larger than these three, and the original drawings were in true proportion.
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In the plate (Pl. IV.) to illustrate Mr. Babington's paper on *Cuscuta* (p. 249) the numbers have been misplaced by the engraver. Fig. 2. is *C. approximata*, and fig. 3. is *C. trifolii*; not as referred to in the text.

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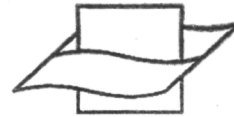
Page 109, line 14, for "slices," read "series."

THE ANNALS

AND

MAGAZINE OF NATURAL HISTORY.

"..... per litora spargite muscum,
Naiades, et circum vitreos considite fontes:
Pollice virgineo teneros hic carpite flores:
Floribus et pictum, diva, replete canistrum.
At vos, o Nymphæ Craterides, ite sub undas;
Ite, recurvato variata corallia trunco
Vellite muscosis e rupibus, et mihi conchas
Ferte, Deæ pelagi, et pingui conchyli succo."
Parthenii Ecl. 1.



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Vlaams Instituut voor de Zee
Flanders Marine Institute

I.—On the Specific and Generic Characters of the Araneiform Crustacea. By HARRY D. S. GOODSIR, M.W.S.

[With a Plate.]

AFTER a careful examination, the parts of the *Pycnogonida* which are found to afford the most decisive characters for the proper classification of the species are—the ocular tubercle, the palpi, oviferous legs, and tarsi. The first of these organs affords very valuable and sure characters, especially in the determination of the genera, but unfortunately has never been properly studied. It is therefore the object of the present communication to illustrate the characters of this organ. These animals, when examined by the naturalist, are generally lying in such a way as to hide this organ altogether. To see it properly the animal must be viewed in profile.

In *Pycnogonum* and all the other nonpalpate genera, we find the ocular tubercle standing at right angles with the segment of the thorax from which it arises, and with one exception (*Phoxichilidium*), in a line between the first pair of legs. In *Phoxichilus* the tubercle is pointed, but in all the others it is truncated.

Pycnogonum Balanarum.

This *Pycnogonum* when viewed in profile presents the appearance shown in Pl. I. fig. 1. The rostrum is flask-shaped, and the anterior extremity slightly bulging and rounded. The ocular

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tubercle is situated about the middle of the first thoracic segment and is squared or truncated, bearing four small dots or eyes of a jet-black colour, which are situated in the form of a square round its superior edge.

Phoxichilus.

Phoxichilus has the ocular tubercle situated a little before the middle of the first thoracic segment; it is of considerable size, erect, and pointed at its extremity. The eyes are four in number, and are placed rather above the middle of the tubercle. The rostrum is clavate with a slight bulge before the middle; a fine line runs along its centre on each side from its base to the tip, which is crossed at right angles by another near the extremity (Pl. I. fig. 3).

The last joint of the tarsus is bent and serrate on its inferior edge (fig. 5).

The ovigerous legs of *Phoxichilus* are seven-jointed; the first, third, fourth and sixth are almost all of equal length; the second and fifth are equal (fig. 4).

Phoxichilidium coccineum.

The ocular tubercle of *Phoxichilidium* is situated on a projection which extends forwards from the first thoracic segment above the rostrum, and which likewise supports the mandibles. The ocular tubercle is conoid, truncated, with four eyes surrounding it at regular intervals, and which are situated at a little distance from the top. The rostrum is large and clavate, and with the crucial lines as in *Phoxichilus* (Pl. I. fig. 6).

The last joint of the tarsus is semilunar, with four spines arising from its basal and inferior edge (fig. 8). The oviferous legs are five-jointed, the first two and last being almost all of equal length, and the third as long as any of the other two conjoined (Pl. I. fig. 7).

In *Pallene circularis** the ocular tubercle is situated at the posterior edge of the first thoracic segment, and is very slightly raised above the surface of the segment. The eyes are situated round its superior edges (Pl. I. fig. 9).

The last tarsal joint is slightly curved, but the edges are parallel; the claw is blunted (fig. 10).

Pasithoe vesiculosa†.

By *Pasithoe* we are gradually led from the nonpalpate to the palpate genera of the order, and at the same time we find these organs in a maximum state of development. In *Pasithoe* the ocular

* Jameson's Edinb. Phil. Journ. vol. xxxii. p. 137. pl. 3. fig. 2.

† *Ib.* vol. xxxiii. p. 370. pl. 6. fig. 17.

tubercle arises from the centre of the first thoracic segment and projects forward, inclining very considerably over the rostrum; its extremity is blunted, and the eyes, which are four in number, are placed near the apex. A thin narrow projection arises from the anterior edge of the first segment immediately before the tubercle, and is continued beyond the middle of the rostrum. The palpi are eight-jointed (Pl. I. fig. 10).

*Nymphon Johnstoni**.

The ocular tubercle in *Nymphon* arises in all the species from the posterior edge of the segment. In this species it is bent from the middle backwards, at which point the eyes are situated; the apex is pointed. The palpi are four-jointed (fig. 14). The oviferous legs are eleven-jointed, including the claw (Pl. I. fig. 15). The two tarsal joints are of equal length (fig. 16).

Nymphon spinosum†.

In this species the ocular tubercle projects backwards from the base, the superior extremity is rounded, and the eyes are arranged round a projecting edge (Pl. I. fig. 17).

The first joint of the tarsus is about half the length of the second (Pl. I. fig. 18).

Nymphon pellucidum‡.

The ocular tubercle in this species is rather short, its extremity is obtuse and rounded, and the eyes are situated a little distance from the top (fig. 19).

Nymphon similis (n. s. mihi).

The ocular tubercle is depressed and projects backwards (Pl. I. fig. 21). It will be observed that this organ, in all the species of the genus *Nymphon*, is situated at the posterior extremity of the first thoracic segment, and also that it never projects forwards.

EXPLANATION OF PLATE I.

Fig. 1. Profile of the rostrum and first thoracic segment of *Pycnogonum Balænarum*.

Fig. 2. Abdominal surface of same parts with the oviferous leg of one side.

Fig. 3. Profile of *Phoxichilus*.

Fig. 4. Under or abdominal surface of same parts in *Phoxichilus*.

Fig. 5. Tarsus of *Phoxichilus* with portion of last tibial joint.

Fig. 6. Profile of *Phoxichilidium coccineum*.

Fig. 7. Abdominal surface of same parts with the oviferous leg of one side.

* Jameson's Edinb. Phil. Journ. vol. xxxii. p. 138. pl. 3. fig. 5. Through some error, the proper references to the plate in the journal quoted have been misplaced.

† Jameson's Edinb. Phil. Journ. vol. xxxii. p. 139. pl. 3. fig. 3.

‡ *Ib.* vol. xxxii. p. 138. pl. 3. fig. 6.

- Fig. 8. Tarsus of *Phoxichilidium coccineum*.
 Fig. 9. Profile of *Pallene circularis*.
 Fig. 10. Tarsus.
 Fig. 11. Profile of *Pasithoe vesiculosa*.
 Fig. 12. Tarsal and tibial joints of *Pasithoe*.
 Fig. 13. Abdominal surface of rostrum and first thoracic segment of *Pasithoe*.
 Fig. 14. Profile of *Nymphon Johnstoni*.
 Fig. 15. Abdominal surface of rostrum and first thoracic segment of *Nymphon Johnstoni*.
 Fig. 16. Tarsal joints and part of last tibial joint.
 Fig. 17. Profile of *Nymphon spinosum*.
 Fig. 18. Tarsal joints with portion of last tibial of *Nymphon spinosum*.
 Fig. 19. Profile of *Nymphon pellucidum*.
 Fig. 20. Abdominal surface of first thoracic segment with oviferous leg of one side.
 Fig. 21. Profile of *Nymphon similis*.
 Fig. 22. Abdominal surface with oviferous leg of one side.
 Fig. 23. Tarsal joints with small portion of tibial joint.
 Fig. 24. Abdominal surface of first thoracic segment with oviferous leg of one side in *Nymphon minutum*.
 Fig. 25. Tarsal joints of *Nymphon minutum* with small portion of last tibial joint.

H.—On some British species of the genus *Cenanthe*. By
 JOHN BALL, B.A., M.R.I.A. &c.*

THE paper by Mr. Coleman (Annals, xiii. p. 188) has induced me to endeavour to throw light upon some of the doubtful species of *Cenanthe*. The *C. fluviatilis*, Colem., I gathered six years since near Cambridge, and also near Ely, but never having found a flowering specimen was at a loss how to denominate it. It certainly has much the appearance of a distinct species, but I do not think the characters assigned very satisfactory. I find the fruit of the ordinary *C. Phellandrium* to vary from elliptical to ovate, assuming quite the form figured in Mr. Coleman's plate; the upper leaf in the figure is also seen in *C. Phellandrium*.

I proceed to describe what I believe to be the true *C. pimpinelloides* of Linnæus and the continental botanists. This appears to be rare in Britain, as I have only seen specimens, wanting fruit, gathered in a dry meadow upon red marl near Forthampton, Gloucestershire, by Mr. Edwin Lees. I give the description in Latin.

Cenanthe pimpinelloides.—Radix e fibris plurimis lignosis fasciculatis inferne in napulos parvulos ovoideos incrassatis. Caulis teres, striatus, sulcatus, faretus, sesqui-tripedalis, alterne ramosus. Folia radicalia bipinnata: pinnulis inciso-dentatis trifidisve, omnibus acutis, petiolo sesqui-bipollicari basi in vaginam expanso; caulina infra pedunculum imum conformia pinnulis angustioribus; se-

* Read before the Botanical Society of Edinburgh, 11th April 1844.

quentia pedunculos elongatos rigidos amplectentia vagina petiolarum successive breviori, pinnata pinnulis linearibus tripartitis simplicibusve, inferioribus valde elongatis; suprema caulium et pedunculorum linearia elongata. *Pinnule foliorum omnium margine cartilagineo minute denticulato in mucronem producto*. Umbellæ solitariae, terminales, 6—15-radiatæ, convexæ; accessorie primarium æquantes aut superantes. Involucrum universale nunc nullum, nunc 1—6-phyllum; foliis setaceis, inæqualibus, umbella multo brevioribus. Umbellulæ multifloræ, densæ; floribus externis sæpe sterilibus longius pedicellatis, internis subsessilibus. Involucella polyphylla; foliolis lineari-lanceolatis, acuminatis, inæqualibus, pedicellos florigeros exteriores subæquantibus. Petala inæqualia, præsertim florum sterilium, lata, obcordata, ad medium fissa, alba nervis coloratis: segmenta marginis calycini liberi lato-lanceolata, inæqualia, duo exteriora longiora. Diachenium.....

An *Cenanthe* gathered in the island of Ischia, which seems to be the *C. pimpinelloides* of Bertoloni (Fl. Ital. iii. 236), differs in having the pinnules of all the stem-leaves linear, the sheaths longer, and sometimes wants the sterile external florets. The diachenium is of nearly equal thickness throughout, crowned with the erect persistent calyx, and somewhat longer than the stiff, slightly diverging styles; the very short adpressed pedicels forming a callous ring at the base. I have this form also from near Pisa.

What principally distinguishes this plant is the mucronate pinnules of all the leaves; besides which it differs from *C. Lachenalii* in the fruit and the involucella, and from *C. silaifolia* and *C. peucedanifolia* in many obvious points. *C. Jordani*, Ten., which I have gathered near Præstum, differs mainly by the very crowded umbel, and the longer sheathing petioles. I do not find all the leaves bipinnate, as Bertoloni describes them, the upper-stem leaves being pinnate with very long linear segments, and ultimately simple linear elongate; my plant, so far, looking like an intermediate variety.

I have no doubt as to the identity of the Gloucestershire plant with the foreign ones above mentioned, and the Toulouse specimen referred to by Mr. Babington (Man. Br. Bot. 130) seems to agree with my description, so that *C. pimpinelloides* must resume its place in the flora of Britain.

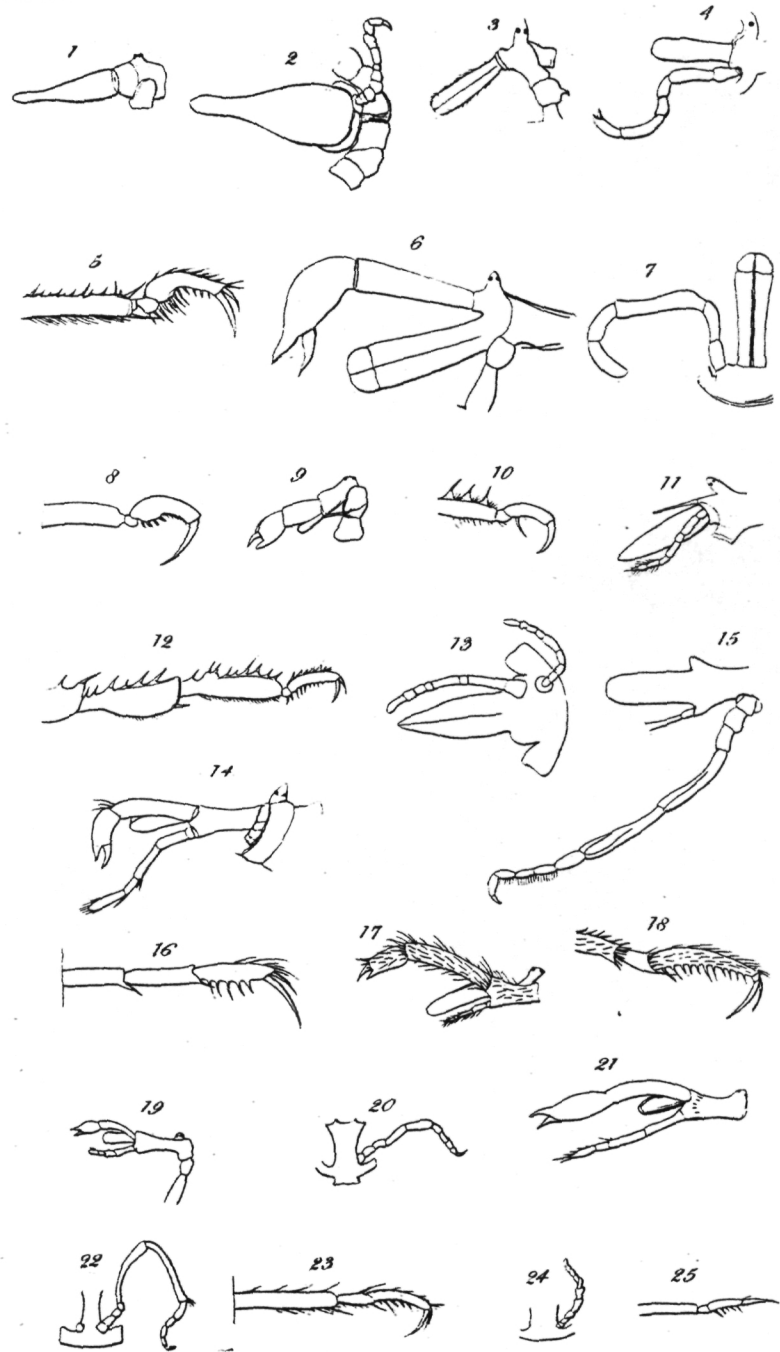
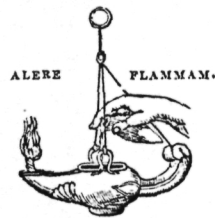
I next come to the *C. peucedanifolia* of Smith, Hooker, Babington, and all British botanists, but not of Pollich, or the principal foreign writers. I agree with Bertoloni in confirming the opinion of Bieberstein (Fl. Tauro-Caucas. iii. 232), that his *C. silaifolia* is the *C. peucedanifolia* of Smith (Eng. Bot. t. 348). I found this plant in a salt-marsh near Portmarnock, county Dublin, Ireland, and have received it from the banks of the

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END OF THE FOURTEENTH VOLUME.

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Andrieux del.

Araneiform Crustacea.

J.D.C. Sowerby, sculp.