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Article/Chapter Title: Contributions to British Carcinology. II. On species

of Ostracoda new to Great Britain

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Page(s): Page 43, Page 44, Page 45, Page 46, Page 47, Page 48, Page

49, Page 50, Page 51, Page 52, Plate II, Blank, Plate III, Blank

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Fig. 8. Branch of C. eximiu, with a sac at the extremity of a stem, which by its position appears to have withdrawn the nutriment from an adjoining part, staying the growth of a shoot, which is seen as a short rounded lobe.

Fig. 9. Branch of C. eximia, with a sac at the extremity of a stem.

Fig. 10. Early form of parasitical young, at that period of its existence when it has moulted for the first time and got rid of the rudimentary legs and their appendages, being now entirely destitute of legs.

Fig. 11. Further stage, or that period at which it is found free, having

effected its escape from the sac.

PLATE V.

Figs. 12 & 13. Portions of females, mature and immature, showing the form and growth of the false feet or "egg-carriers."

Fig. 14. Parasitical young in an advanced stage, and as found doubled up

in the sac.

- Figs. 15, 16, & 17. Various stages in the development of the claws: viz., 15, whilst within the sac; 16, shortly after escape; and 17, when mature.
- Fig. 18. Mature male Phoxichilidium coccineum,

X.—Contributions to British Carcinology. By the Rev. Alfred Merle Norman, M.A.

II. On Species of Ostracoda new to Great Britain.

Fam. Cypridæ.

Subfam. I. CYPRINÆ (Dana). Genus Cypris (Müller).

Cypris punctillata, n. sp. Pl. II. figs. 11-14.

Forma subovalis; altitudo maxima ante medium sita; margo dorsalis valde arcuatus, ventralis in medio incurvatus. Forma desuper spectata ovata, in medio latissima, extremitates versus eodem modo parum attenuata. Latitudo altitudoque fere æquales. Basis lata, ad extremitates convexa, trans medium impressa atque concava. Valvarum superficies undique pilis obsita, cellulisque rotundatis numerosissimis excavata. Margo valvarum interior antice et postice latus, lamellosus; lamella sulco profundo excavata; antice et postice aculeis fimbriatus. Color saturate viridis. Long. 7/80 unc.; alt. 4/80 unc.

Habitat stagna limpida prope Sedgefield in regione Dunelmensi.

Carapace subobovate; dorsal margin boldly arched; ventral margin incurved centrally; the highest part of the valves situated a little before the middle. Surface everywhere clothed with long hairs, and sculptured with closely arranged roundish cells. The superior portion of the anterior extremity is margined with a row of eight spines; and the inferior portion of the posterior extremity in the right valve is margined with about five spines. The lowest of these posterior spines is considerably

larger than the others, and in size and appearance corresponds with a similarly situated tooth in Cyprideis torosa, and with that present in the left valve of Notodramas monacha (Cypris monacha, Baird). Possibly these teeth serve as guides to the right adjustments of the valves, and prevent the margin of the one from over-

lapping the margin of the other too far when closed.

The form of the carapace, when viewed from above, is ovate; and the valves (which are so tumid that the diameter and height are nearly equal) have their greatest convexity in the centre. The base, or ventral surface, is broad, rounded towards the extremities, but in the centre hollowed out and flattened, giving the carapace a pinched-in appearance at that part. The front and hinder margins are produced internally into broad plates, these plates being channelled by a deep groove.

Colour deep green. Length $\frac{7}{80}$ inch; height $\frac{4}{80}$ inch.

This fine species may perhaps be most readily known by the peculiar pinched-in and flattened surface of the centre of the ventral margin; and this character is evident in all stages of growth. The young, as is usually the case among the Ostracoda, have the posterior extremity very much narrower in proportion to the anterior than is the case in more fully developed individuals. The only British Cypris which equals the present species

in size is C. clavata (Baird).

I first found Cypris punctillata in the autumn of 1860, in the parish of Sedgefield, co. Durham, in a piece of clear water known as the Forge Dam. It was there associated with Alona quadrata; Peracantha truncata; Pleuroxus trigonellus; Cypris compressa, minuta, Westwoodii, and bistrigata (Jurine); Candona lucens and serrata (Norman); Cyprideis torosa, and other more common Entomostraca. During the past summer, I have met with it in extreme abundance in a second habitat—a pond about two miles distant from the first locality, where it lives in company with Daphnia Schæfferi and other species.

Cypris aculeata (Lilljeborg). Pl. II. figs. 7-10.

Cypris aculeata, Lilljeborg, om de inom Skane förkom. Crust. af Ord. Cladocera, Ostracoda och Copepoda, p. 117, tab. 11. figs. 15, 16.

Forma brevis et alta, reniformis; margo dorsalis valde arcuatus, ad apicem rotundatum fere in medio situm assurgens; margo ventralis leviter sinuatus. Forma desuper spectata elongato-ovata, antice angustior, acuminata. Latitudo maxima altitudine multo minor, pone medium sita. Basis convexa. Valvarum superficies aculeis arcuatis pilisque intermixtis admodum hispida, cellulis numerosissimis excavata. Color cæruleo-viridis. Long. 2/80 unc.

Habitat regionem Dunelmensem prope Sunderland et Stockton.

Carapace reniform, very high in proportion to its length,

covered all over with very numerous cells, and clothed with a hispid covering of intermixed hairs and arched spines. The spines are most evident near the dorsal margin, but there are none fringing the anterior and posterior margins (the only position which spines occupy in the last-described species). The dorsal margin is greatly arched, rising to a rounded summit, which is situated nearly in the centre of the valves: ventral margin slightly incurved centrally.

The form of the carapace, viewed from above, is elongated ovate, slightly narrower in front than behind, and in no part more than slightly convex; so that the height greatly exceeds the diameter. The inferior antennæ have four long and two

short slightly plumose filaments. The base is convex.

Colour dark blue-green. Length $\frac{2}{80}$ inch.

Cypris aculeata, now first added to the British fauna, has been well described and figured by Lilljeborg. I received the species, in the early part of the summer, from Mr. G. S. Brady, the friend to whom I am moreover indebted for his most kind assistance in illustrating this paper. Mr. Brady found it in a pond connected with the pumping-engine of the Monkwearmouth Colliery, near Sunderland. The water in this pond is of very variable temperature, but generally sufficiently hot to steam copiously. At the time the species was taken, the water was found by trial to be "over 100° Fahr." This high temperature seemed favourable to the development of Entomostraca; and the luxury of a warm bath was shared by C. aculeata with C. strigata(?) and vidua, Candona reptans, Cyclops quadricornis and Daphnia vetula. Mr. Brady has since taken the species in Hylton Dene, which is also in this county, and remarks that the "specimens from this locality showed the same lively habits, and in the same manner kept generally near the surface, as those from the hot-water reservoir. It seems," he adds, "quite a gregarious species, and swarms upon any little vegetable tuft it may find in a bottle, seeming to avoid the soil as much as possible. It is by far the most active species of the genus that I have seen." It has been found during the autumn in a third locality, by myself, namely, in Cowpen Marshes, near Stockton-on-Tees.

Cypris monstrifica, n. sp. Pl. III. figs. 4 & 5.

Forma oblonga; margo dorsalis subrectus, ventralis aliquantum incurvatus; margines antici et postici rotundati; altitudo vix major ante medium. Forma desuper spectata maxime irregularis, in medio constricta, hinc utrinque umbones porrecti maximam efficiunt latitudinem; extremitates compressiores. Valvarum superficies duobus processibus umbonalibus conspicuis instructa, extremitatesque versus multis aculeis armata. Color arenarius. Long. vix $\frac{3}{8.0}$ unc.

Forsitan Candona. Animal inspicere non potui; sed, ut naret, dum vivebat nullo modo conatum est.

Aquas habitat limpidas ad Fleckney in regione Leicestrensi.

The valves of this species are oblong, with rounded extremities, their dorsal margin nearly straight, their ventral slightly incurved centrally; the front portion of the valves is slightly higher than the hinder, while the centre, in consequence of the concavity of the ventral margin in that part, is the lowest part of the valves; their surface is very irregular, punctured, elevated at two points (one on either side of the centre) into conspicuous tuberculiform processes, and armed anteriorly and posteriorly with short but strong spines. The form of the carapace, as viewed from above, is narrow in the centre, on either side of which it swells out into the tumid tubercular processes, and then slopes away to subcompressed extremities.

Colour light drab. Length not quite $\frac{3}{80}$ inch.

I have not been able to examine the animal, which possibly may hereafter prove to be a Candona. It made no attempt to swim during the day or two it was kept alive in a glass vessel.

Cypris monstrifica approaches in outline Cypris bistrigata (Jurine), but the sculpturing of the two species is very distinct. It was taken in the canal at Fleckney, in Leicestershire, in August 1856.

Genus Candona, Baird.

Candona serrata, n. sp. Pl. II. figs. 1-6.

Forma elongata, aliquantum cuneiformis; margo dorsalis antice valde elevatus, inde ad extremitatem posteriorem descendens; ventralis subrectus; extremitates rotundatæ; altitudo maxima ante medium sita, ita ut antica pars quam postica multo est altior. Forma desuper spectata compressa; antica pars posticæ æqualis; latitudo maxima mediana. Valvarum superficies foveolis impressa sparsisque pilis obsita; ad extremitates inferne aculeis brevibus, crassis, externe directis marginata. Color cinereus, macula centrali ovali, atque zona marginali pallidis pictus. Long. 5/80 unc.; lat. vix 3/90 unc.

Habitat stagna limpida prope Sedgefield in regione Dunelmensi.

Valves elongated, somewhat cuneiform; dorsal margin greatly raised in front, thence gradually descending to the posterior extremity; ventral margin nearly straight; anterior and posterior margins rounded; point of greatest height situated in front, the hinder portion of the valves being much narrowed. Surface of valves irregularly marked with slightly impressed grooves, and clothed with scattered hairs; lower portions of the anterior and

posterior margins edged with spines, which are short and directed upwards and outwards, and are in number eight to ten in front, and about seven behind. Viewed from above, the carapace is compressed, widest in the middle, and gradually and equally narrower towards the extremities. The height greatly exceeds the breadth. The filaments of the superior antennæ are very long. The ground-colour is an ashy brown painted with a central patch and a marginal zone of a pale buff. Length $\frac{5}{80}$ inch; breadth not quite $\frac{3}{80}$ inch.

Found in extreme abundance among Zygnema nitidum, in October 1860, in the Forge Dam at Sedgefield—the same habitat which, as already mentioned, first gave the Cypris punctillata.

This year the species was comparatively scarce.

It is not without considerable misgivings that I have placed this species provisionally in the genus Candona. It undoubtedly belongs to that genus as first constituted by Dr. Baird, and has close relationship with our common species, Candona reptans. Prof. Lilljeborg has, however, taken Candona lucens as the type of the genus, and having shown that the anatomical features of the former species are inconsistent with those of the latter, has excluded Candona reptans from among the Candona, and inserted it in the genus Cypris, of which, together with Cypris lucida (Koch) and Cypris Jurinii (Zaddach), he has made it a section. This section is characterized by having "the setæ attached to the interior of the third joint of the inferior antennæ short, and not reaching to the apex of the nails of the last joint." According to Lilljeborg's arrangement, therefore, the present species would fall into his Section B of the genus Cypris. It is not improbable that further observation may point out the expediency of constituting a new genus to receive these intermediate forms. Notwithstanding the length of the filaments of the superior antennæ, the shortness of those of the inferior antennæ render Candona serrata, like Candona reptans, utterly unable to sustain itself in the water. It is remarkably active, however, on its feet, and runs with great agility.

Subfam. II. CYTHERINÆ (Dana).

Genus Cythere (Müller).

Cythere marginata, n. sp. Pl. III. figs. 10-12.

Forma subquadrangulata, antice altior, postice aliquantum humilior, hic rotundata, illic oblique rotundato-truncata; margines ventralis et dorsalis subrecti. Forma desuper spectata rhomboïdes; latera subparallela, ad extremitates subito conniventia. Latitudo altitudine aliquantum minor. Valvarum superficies rugosa, cellulis ovalibus non profunde impressis sculpta. Valvarum commissura

lata, vittam elevatam fingens, processuque triangulari externe conspicuo ad partem cardinis anteriorem instructa. Long. vix $\frac{3}{80}$ unc. Habitat fretum, qui Firth of Clyde vocatur, in Scotia occidentali.

Carapace subquadrangular, higher in front; anterior margin obliquely truncate, with rounded corners; the inferior margin produced the furthest; posterior margin rounded; dorsal and ventral margins nearly straight. Surface rough and sculptured with large oval cells. Form, as seen from above, somewhat lozenge-shaped; the sides nearly parallel throughout the greater part of their length, and at the extremities uniting to each other at a considerable angle. The breadth is less than the height, though the carapace is very tumid. The margins of the valves are at their junction raised and flattened into the form of an encircling rib; and the anterior extremity of the hinge is furnished with a triangular process which gives a marked character to the external surface of the valves in that part. The length is not quite $\frac{3}{80}$ inch.

I found this species in 1854, in Lamlash Bay, in the Firth of

Clyde.

Cythere badia, n. sp. Pl. III. figs. 13-15.

Forma elongata, arcuata; margo dorsalis convexus, ventralis concavus, anticus et posticus rotundatus. Altitudo per totam longitudinem fere æqualis. Forma desuper spectata subcompressa. Latitudo maxima in medio sita, altitudine multo minor. Valvarum superficies rugosa, irregulariter sculpta, hic depressa, illic elevata. Color badius. Long. 2/80 unc.

Habitat zonam littoralem ad Penzance in regione Cornubiensi.

Carapace reniform, elongated; dorsal margin much arched; ventral incurved; anterior and posterior margins rounded; height nearly equal throughout the length. Outline, seen from above, subcompressed, broadest in the middle, but the greatest breadth falls very short of the height. Surface of the valves rough and irregularly sculptured with ridges and furrows. Colour chestnut-brown. Length $\frac{2}{80}$ inch.

This is a very small species. Seen under a single lens, it more nearly resembles *C. reniformis* than any other previously described species; but the form is more arched, narrower in proportion to its length, and of more equal height throughout. When looked at with a higher power, the sculpture of the valves,

moreover, is found to be entirely different.

I met with this species in rock-pools between tide-marks at Penzance, in May 1855.

Cythere contorta, n. sp. Pl. II. fig. 15.

Forma elongata, fabæformis; margines dorsalis, anticus et posticus arcuati; margo ventralis ante medium valde incurvatus, post medium

subrectus; altitudo maxima pone medium sita. Forma desuper spectata compressa, in medio latissima, ad extremitates gradatim æqualiter diminuens. Latitudo altitudine multo minor. Valvarum superficies lævis, margaritacea, polita, sparse et minute punctata, zona ciliorum prope marginem sita circumdata. Color albidus. Long. vix 3/80 unc.

Habitat mare ad Berwick in regione Northumbriensi.

Elongated bean-shaped; dorsal, posterior, and anterior margins rounded; ventral margin deeply concave before the middle; the highest part of the valves is towards the posterior extremity. The form, as seen from above, is compressed, the breadth gradually and equally diminishing from the centre to the extremities. The greatest diameter is greatly surpassed by the height. The surface of the valves is smooth, polished, and pearly, merely impressed with a few scattered punctures; encircling the valves at a short distance from their margin, runs a fringe of cilia ranged in single file, which forms a marked characteristic in the species. Colour white. Length not quite $\frac{3}{80}$ inch.

Found among shell-sand at Berwick-on-Tweed, Sept. 1857.

Cythere (Bairdia) inflata, n. sp. Pl. III. figs. 6-8.

Bairdia subdeltoidea, var., T. R. Jones, Entomost. Cretaceous Formation of England, p. 23, and Entom. Tert. Formation, p. 52.
Cythere subdeltoidea, Brit. Mus. Cat. Brit. Crust. p. 108.
Bairdia subdeltoidea, A. White, Pop. Hist. Brit. Crust. p. 293.

Forma ovalis, maxime tumida; margines omnes arcuati; antice aliquantum altior. Forma desuper spectata ovalis, in medio latior, ad extremitates paulum diminuens. Latitudo altitudoque fere subæquales. Basis valde convexa. Valvarum superficies omnino lævis, nisi minutissimis punctis subtiliter perforata. Valvarum commissura et in ventrali et in dorsali aspectu maxime sinuata. Color albus. Long. vix 4 unc.; alt. 2 unc.

Habitat fretum, qui Firth of Clyde vocatur, in Scotia occidentali.

Carapace oval, so tumid in every part as to be nearly cylindrical; all the margins convex; a little lower behind than in front. The form, as seen from above, is oval; the sides very convex, the point of greatest breadth in the centre. The height and breadth are nearly the same. The base is very convex. Surface of the valves very smooth, fine punctures being the only sculpture which the microscope reveals. A marked characteristic of the species consists in the strongly waved line which the junction of the valves presents both on the ventral and dorsal margins. The shell is pure white. Length not quite $\frac{4}{80}$ inch; breadth $\frac{2}{80}$ inch.

Found by myself, in 1854, among shell-sand dredged in Lamlash Bay,—a locality whence Mr. T. Rupert Jones has also

procured the species.

Mr. Jones, in his 'Monograph of the Entomostraca of the Cretaceous Formation of England,' has referred the above-described form to his Bairdia subdeltoidea, of which he would consider it a variety. I cannot acquiesce in this opinion. The differences between the typical Bairdia subdeltoidea and Cythere (Bairdia) inflata are so marked that, even were the two forms found living side by side in the same water, I should not hesitate to consider them distinct, unless connecting intermediate forms made it evident that a more than usual latitude must be allowed to the variations in this species. With how much greater reason, then, must we consider them distinct when the two forms are separated from each other not only by the great diversity of structure, but also by the geological æons which have elapsed between the period of the Chalk formation and the present time.

Cythere (Bairdia) mytiloïdes, n. sp. Pl. III. figs. 1-3.

Forma angusta, elongata, mytiloïdes (et figura et colore); margo dorsalis arcuatus, ventralis subrectus; antice multo altior, hine ad extremitatem attenuatam posticam gradatim diminuens. Forma desuper spectata compressa, lanceolata, ante medium latior. Latitudo altitudine multo minor. Valvarum superficies lævis, perpaucis pilis modo obsita. Valvarum commissura vix sinuata. Color purpureo-badius. Long. circiter 3 unc.

Habitat fretum, qui Firth of Clyde vocatur, in Scotia occidentali.

Carapace narrow and produced, highest in front, and thence tapering gradually to a nearly pointed posterior termination; the ventral margin is nearly straight, and the dorsal margin slopes with a gentle curve to meet it behind. The form, as seen from above, is lanceolate and compressed, the widest part situated before the middle. The breadth is much less than the height. Surface of valves nearly smooth, with merely a few closely appressed hairs, which seem, moreover, to be confined to the hinder part of the shell. The juncture of the valves forms a slightly waved line. Colour purplish brown. Length about $\frac{3}{80}$ inch.

In form, in colour, and in general appearance, this species is

very like a young mussel-shell.

Found amongst shell-sand dredged in Lamlash Bay, 1854.

Genus Cythereis (Jones).

Cythereis fimbriata (Roemer). Pl. III. fig. 9.

Brit. Mus. Cat. Brit. Crustacea, p. 109. Cytherina fimbriata, Roemer, Jahrb. (fid. Jones).

Forma oblonga; margo dorsalis concavus, ventralis subarcuatus; margines posticus et anticus oblique truncati, ita ut ventralis margo utrumque versus dorsalem longitudine superat. Valvarum superfi-

51

cies in medio lævis, undique margine elevato circumdata, processibusque linguiformibus, inferne et postice maxime conspicuis fimbriata. Color albescens. Long. vix $\frac{4}{80}$ unc.

fimbriata. Color albescens. Long. vix 4/80 unc. Habitat fretum, qui Firth of Clyde vocatur, in Scotia occidentali.

Carapace oblong; the dorsal margin concave; ventral margin a little convex, extending beyond the dorsal margin at both extremities; anterior and posterior margins obliquely truncate. Surface of valves smooth in the middle, but surrounded by a raised rim, from whence proceed at various parts, but more especially on the inferior and posterior margins, large flattened linguiform processes. The extremities of the dorsal margin are raised so as to form rounded protuberances. My specimen is whitish in colour, but has a bluish tinge, and may perhaps be bleached. Length not quite $\frac{4}{80}$ inch.

Found by Mr. T. R. Jones at Arran, and by myself among sand dredged off the Isle of Cumbrae, both localities being in

the Firth of Clyde.

I have had no opportunity of seeing Roemer's description and figure; and I adopt the name of Cythereis fimbriata from the specimen in the British Museum so named by Mr. T. R. Jones.

EXPLANATION OF THE PLATES.

PLATE II.

Fig. 1. Candona serrata (Norman): valvula sinistra, × 20.

Fig. 2. Eadem, ab imo spectata, × 20. Fig. 3. Eadem, desuper spectata, × 20.

Fig. 4. Eadem: valvularum fragmentum structuram nævosque lucidos ostendens, × 100.

Fig. 5. Eadem: antenna superior, × 100.

Fig. 6. Eadem: antenna inferior vel pediformis, × 100. Fig. 7. Cypris aculeata (Lilljeborg): valvula dextra, × 40.

Fig. 8. Eadem, desuper spectata, × 40. Fig. 9. Eadem, ab imo spectata, × 40.

Fig. 10. Eadem: fragmentum valvularum structuram, setas spinulasque ostendens, × 200.

Fig. 11. Cypris punctillata (Norman): valvula sinistra, × 20.

Fig. 12. Eadem, desuper spectata, × 20. Fig. 13. Eadem, ab imo spectata, × 20.

Fig. 14. Eadem: fragmentum valvularum structuram setasque ostendens, × 100.

Fig. 15. Cythere contorta (Norman): valvula dextra, × 40.

PLATE III.

Omnes hujus tabulæ figuræ ad quadraginta diametros auctæ.

Fig. 1. Cythere (Bairdia) Mytiloides (Norman): valvula dextra.

Fig. 2. Eadem, desuper oblique spectata. Fig. 3. Eadem, ab imo oblique spectata.

Fig. 4. Cypris monstrifica (Norman), à latere visa.

Fig. 5. Eadem, ab imo spectata.

Fig. 6. Cythere (Bairdia) inflata (Norman): valvula sinistra.

Fig. 7. Eadem, desuper spectata. Fig. 8. Eadem, ab imo spectata.

Fig. 9. Cythereis fimbriata (Rœmer): valvula sinistra. Fig. 10. Cythere marginata (Norman): valvula sinistra.

Fig. 11. Eadem, desuper spectata. Fig. 12. Eadem, ab imo spectata.

Fig. 13. Cythere badia (Norman): valvula sinistra.

Fig. 14. Eadem, desuper spectata. Fig. 15. Eadem, ab imo spectata.

Sedgefield, county Durham, December 6, 1861.

XI.—On new Species of Snakes in the Collection of the British Museum. By Dr. Albert Günther.

[Plates IX. & X.]

AFTER the arrangement of the Collection of Ophidians in the British Museum had been completed (in 1858), it became possible to devote particular attention to the acquisition of such species as were desiderata in that Collection. This object has met with great success, not only from the increased number of collections offered for sale, but also from the kind assistance of the keepers of several public collections, who gave up such specimens as were duplicates, and of private gentlemen who had become interested in the subject. Among the former we must mention Th. J. Moore, Esq., of the Liverpool Museum; Prof. Aitken, Curator of the Museum of the medical officers at Fort Pitt; Prof. Peters of Berlin; and finally, the officers of the Smithsonian Institution: of the latter, G. Krefft, Esq. (Sidney); O. Salvin, Esq.; Dr. O. Wucherer; Capt. R. H. Beddome; Ch. N. Buller, Esq.; J. H. Gurney, Esq.; O. Russell, Esq.; Consul Swinhoe, &c.

It would require the space of a supplementary catalogue to enumerate all the new accessions to the Collection in the course of the last three years; it must suffice here to give only a list of those species which had been desiderata, and of those which were new to science and have been described from Museum specimens. It will be seen, from the lists appended, that 100 species

have been added to the Collection.

The Collection of Snakes in the British Museum contains now 611 species, and the typical specimens of 184 of them.

I. List of Species which were formerly desiderata.

*Loxocemus bicolor, Cope. G. Lenox Conyngham, Esq. Wenona plumbea, B. & G. California. Smiths. Instit. Rhinophis oxyrhynchus, Schn. Ceylon. Purchased.



F.S. Brady del.

.I Basires.





