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CONDUCTED BY

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"Omnes res creatæ sunt divinæ sapientiæ et potentiæ testes, divitiæ felicitatis humanæ:—ex harum usu *bonitas* Creatoris; ex pulchritudine *sapientia* Domini; ex œconomiâ in conservatione, proportione, renovatione, *potentia* majestatis elucet. Earum itaque indagatio ab hominibus sibi relictis semper æstimata; à verè eruditis et sapientibus semper exculta; malè doctis et barbaris semper inimica fuit."—LINNÆUS.

"Quel que soit le principe de la vie animale, il ne faut qu'ouvrir les yeux pour voir qu'elle est le chef-d'œuvre de la Toute-puissance, et le but auquel se rapportent toutes ses opérations."—BRUCKNER, *Théorie du Système Animal*, Leyden, 1767.

. . . . . The sylvan powers
Obey our summons; from their deepest dells
The Dryads come, and throw their garlands wild
And odorous branches at our feet; the Nymphs
That press with nimble step the mountain-thyme
And purple heath-flower come not empty-handed,
But scatter round ten thousand forms minute
Of velvet moss or lichen, torn from rock
Or rifted oak or cavern deep: the Naiads too
Quit their loved native stream, from whose smooth face
They crop the lily, and each sedge and rush
That drinks the rippling tide: the frozen poles,
Where peril waits the bold adventurer's tread,
The burning sands of Borneo and Cayenne,
All, all to us unlock their secret stores
And pay their cheerful tribute.

J. TAYLOR, *Norwich*, 1818.

CONTENTS OF VOL. II.

[FOURTH SERIES.]

NUMBER VII.

NUMBER VIII.

NUMBER IX.

NUMBER X.

NUMBER XI.

NUMBER XII.

PLATES IN VOL. II.

vestigations of the two forms have proved their identity*. Quoy and Gaimard's species, as is well known, is from the Moluccas, and not from the Philippines. Gray ought therefore, at any rate, to have given this habitat also. However, I do not make this observation in order to preserve a "species," but because I should be sorry to lose Owen's beautiful name *Euplectella aspergillum*, which, in its specific denomination, gives a simple translation of the name "regadera," invented by the people, and therefore certainly better characterizes this animal than the common Latin expression "speciosa," or Gray's English popular name "Venus's Flower-basket."

Würzburg, January 19, 1867.

IV.—*Contributions to the Study of the Entomostraca.*

By George Stewardson Brady, C.M.Z.S. &c.

[Plates IV. & V.]

Under this title I propose to give, from time to time, descriptions of new species and remarks on any other points of interest connected with the Entomostraca which may chance to come under my notice.

No. I. *Ostracoda from the Arctic and Scandinavian Seas.*

The specimens dealt with in the present paper have been derived from mud and sand procured by the captains of whalers from the Arctic seas, and from dredgings made on the coast of Norway by David Robertson, Esq., of Glasgow, to whom, in conjunction with the Rev. H. W. Crosskey, I am indebted for the opportunity of describing the following species.

In the 'Transactions of the Zoological Society' I have already (vol. v. 1865) described several Arctic species which were obtained from Dr. Sutherland's dredgings. But the nomenclature of that memoir requires rectification. I now give an amended list of the species there noticed:—

Hunde Islands, Baffin's Bay, 60–70 fathoms.

Cythere tuberculata (*G. O. Sars*).
—— emarginata (*G. O. Sars*).
—— costata, *Brady*.
—— septentrionalis, *Brady*.
Cythere limicola (*Norman*) (= C. areolata, *Brady, loc. cit.*).
—— angulata ? (*G. O. Sars*) (= C. clathrata, *var.* nuda, *Brady, loc. cit.*).
Cytheridea papillosa, *Bosquet*.

* Dr. Gray, in the 'Proceedings of the Zoological Society' for 1867, has not only acknowledged the distinctness of the species, but has formed of it a second section of the family Euplectelladæ. According to him, *Alcyoncellum speciosum* (Q. & G.) constitutes a genus distinct from *E. corbicula*.

Cytheridea pulchra, *Brady*.
—— oryza, *Brady*.
Bythocythere simplex (*Norman*) (= Jonesia simplex, *Brady*, *loc. cit.*).
Cytheropteron latissimum (*Norman*) (= Cythere latissima, *Brady*, *loc. cit.*).
Cytherura clathrata, *G. O. Sars*.
Paradoxostoma variabile (*Baird*).

Cumberland Inlet, 15½ fathoms.
Lat. 66° 10′ N., long. 67° 15′ W.
Cythere dunelmensis (*Norman*).
Cytheropteron montrosiense, *C. B. & R.*
—— vespertilio (*Reuss*).
—— inflatum, *C. B. & R.*
Cytherura undata, *G. O. Sars*.

Davis's Straits.
Lat. 67° 17′ N., long. 62° 21′ W.
6 feet below low-water mark.
Cythere lutea, *Müller*.
—— villosa (*G. O. Sars*).
—— finmarchica (*G. O. Sars*).
—— borealis, *nov. sp.*
—— emarginata (*G. O. Sars*).
—— angulata (*G. O. Sars*).
—— pulchella, *Brady*.
—— tuberculata (*G. O. Sars*).
—— concinna, *Jones*.
Cytheridea papillosa, *Bosquet*.
Cytherura rudis, *nov. sp.*
Paradoxostoma variabile (*Baird*).

Iceland (in shell-sand).
Cythere lutea, *Müller*.
—— borealis, *nov. sp.*
—— emarginata (*G. O. Sars*).

Cythere borealis, nov. sp. (Plate IV. figs. 1–4, 6, 7.)

Carapace of female, seen laterally, subreniform, highest in the middle; greatest height equal to more than half the length: anterior extremity obliquely rounded; posterior subtruncate, somewhat emarginate above the middle: superior margin arched, inferior sinuated in front of the middle. Outline, as seen from above, ovate, widest in the middle, extremities obtusely mucronate; width equal to half the length. The right valve differs from the left in shape, being higher, with the dorsal margin more boldly arched, distinctly excavated in front of the eyes, and much more conspicuously emarginate behind. The hinge-joint is formed, in the left valve, by a crenulated median bar, with a moderately strong anterior tooth-like process; in the right valve by a small anterior tooth and a slightly crenulated posterior projection. The shell of the male is longer and narrower, with the anterior margin produced downwards and numerously serrated. Surface of the valves covered with shallow, rounded (and often distant) pits, but not at all ridged or tuberculated. Colour yellowish brown. Upper antennæ robust, six-jointed, fourth and fifth joints coalescent, last four joints armed with strong, flexuous, apical spines; flagellum of lower antennæ in the female short and robust. Feet long and strong; second joint of last foot shorter than the two succeeding joints, terminal claws long and pectinated on the concave border. Male copulative organs of moderate size, posterior segment obtusely triangular. Length $\frac{1}{29}$ inch.

Hab. Lat. 67° 17′ N., long. 62° 21′ W. Six feet below low-water mark.

This species is very closely related to *C. emarginata*, Sars, but is altogether destitute of the peculiar angulated ridge which runs across the hinder portion of the valves in that species; the surface-markings are also less sharply cut and less angular. The valves are precisely similar to those of *C. emarginata* in lateral outline; and, as in the following species, it is most difficult to say positively whether the differences which have been pointed out are dependent upon habitat only, or upon more deeply seated innate causes. These often recurring cases tend strongly to impress one with the idea, though they certainly do not prove the fact, of a community of descent. Many of the less-strongly sculptured examples of this species appear very distinct; but others approach *C. emarginata* very closely, and some occupy apparently an intermediate position between that species and *C. finmarchica*, to which latter species the dorsal aspect of *C. borealis* bears great resemblance.

Cythere pulchella, Brady. (Plate V. figs. 18–20.)

Cythere pulchella, Brady, Monog. Recent Brit. Ostrac. p. 404.

Carapace of the female, as seen from the side, subreniform; greatest height situated in the middle, and equal to more than half the length: anterior extremity broadly rounded; posterior narrowed, obliquely subtruncate: superior margin boldly arched, highest near the middle; inferior sinuated in the middle: seen from above ovate, widest a little behind the middle; width scarcely equal to half the length, extremities obtusely pointed. Shell-surface covered with closely set, rounded, shallow puncta; colour reddish-brown. The hinge-teeth of the right valve form two projecting ridges, which end abruptly at their terminal extremities, but slope gradually towards the middle of the hinge-line, and are crenulated on their edges. The flagellum or urticating seta of the second antenna in the female is biarticulate, long and slender; the upper antenna armed at the apices of the four last joints with slender, slightly curved spines, third and fourth joints coalescent. The mandibular palp bears three curved plumose setæ. Feet short and stout, their terminal claws much dilated at the base, nearly straight in the middle, and suddenly curved (almost hooked) at the apex. Length $\frac{1}{38}$ inch.

It is with some hesitation that I accord to this a specific rank as distinct from *C. rubida*, feeling by no means certain that the last-named species may not be a dwarfed southern

form of the present, which seems to be a peculiarly Arctic species. The points of difference are chiefly these: *C. pulchella* has a more boldly arched dorsal margin, is considerably larger, and its greatest width is placed behind the middle; its hinge-teeth are also much better developed; the terminal claws of all the feet differ remarkably in their conformation from those of *C. rubida*, and the urticating setæ are also of different type: it is, indeed, chiefly this latter character which induces me to keep the two species separate. From *C. villosa* it may be distinguished by the colour of the shell, its much more delicate punctation and greater tumidity, as well as by its less-angular lateral outline. The single specimen which obtained *C. pulchella* a place in my monograph of the British Ostracoda was small and probably immature; and as the fine series of specimens obtained by Mr. Crosskey from Davis's Straits afforded an opportunity for a more complete examination, both of the external and internal characters of the species, I have thought it well in this place to redescribe it from the Arctic specimens. It may be noted that the fossil glacial specimens are somewhat intermediate in character between these and *C. rubida*.

Hab. Lat. 67° 17′ N., long. 62° 21′ W. Six feet below low-water mark.

Cythere Robertsoni, nov. sp. (Pl. IV. figs. 5, 8–10.)

Shell of the female compressed, subcuneiform, much higher in front than behind; greatest height situated at the anterior third, and equal to rather more than half the length: extremities obliquely rounded; anterior broad, posterior narrowed: superior margin straight, sloping steeply from before backwards; inferior sinuated in the middle, curving upwards behind. Seen from above, compressed, oblong, with nearly parallel sides; anterior extremity acuminate, posterior suddenly tapered, obtusely pointed; width much less than half the length. End view ovate, widest in the middle. Shell of the male much narrower; surface of the shell covered with closely set angular pittings; colour yellowish. Length $\frac{1}{52}$ inch.

This very distinct and pretty little species was dredged by Mr. D. Robertson, at Drobak, Christianiafiord, in a depth of 30–35 fathoms. I have much pleasure in dedicating it to its discoverer.

Cytheropteron vespertilio (Reuss). (Plate V. figs. 6, 7.)
—— *montrosiense*, C. B. & R. (Plate V. figs. 1–5.)
—— *inflatum*, C. B. & R. (Plate V. figs. 8–10.)

Our knowledge of these species is derived chiefly from fossil

specimens found in the Scottish glacial clays. The description of them is therefore left for a "Monograph of the British Posttertiary Entomostraca," which is now in preparation for the Palæontographical Society, by Messrs. Crosskey and Robertson, in conjunction with the present writer. I have, however, thought it desirable to give here figures drawn from the recent Arctic specimens, the joint occurrence of these (the only known recent specimens) being of very considerable interest in connexion with their distribution in the fossil state.

Cytheropteron pyramidale, nov. sp. (Plate V. figs. 11–14.)

Carapace tumid, subpyramidal; seen from the side, subrhomboidal, highest in the middle, greatest height equal to more than half the length; anterior extremity obliquely rounded, posterior narrowed and produced in the middle: superior margin very strongly arched, highest in the middle, and sloping steeply towards each extremity; inferior convex, bending upwards behind. Outline, as seen from above, subhexagonal, widest behind the middle, suddenly and sharply acuminate in front, strongly mucronate behind; width and height equal. End view triangular, sides very slightly convex. Shell-surface marked with conspicuous fossæ, which are arranged in transverse curved rows; ventral surface sculptured with interrupted longitudinal furrows. Length $\frac{1}{45}$ inch.

Dredged by Messrs. Robertson and Crosskey in 25–30 fathoms, amongst mud, at Drobak, Christianiafiord.

This species, though in general appearance approaching very closely *C. latissimum*, differs considerably in the proportions of the carapace, being much more tumid when seen from above; the sculpturing of the surface is also much deeper and more distinct, especially on the ventral aspect, and the sides are less convex; the contours are also altogether less rounded than in its neighbour species.

Cytherura rudis, nov. sp. (Plate V. figs. 15–17.)

Carapace, seen laterally, subrhomboidal, nearly equal in height throughout; height equal to more than half the length: anterior extremity obliquely rounded, posterior produced in the middle into an obscurely angular beak; superior margin very slightly arched, inferior almost straight: seen from above, the outline is ovate, widest in the middle, sharply pointed in front, mucronate behind; greatest width equal to half the length. End view subpentagonal, widest in the middle; the ventral surface concave, keeled in the middle. Surface of the valves covered with rather large angular

pits, and having a sharply angular ridge or crest just within and parallel to the ventral margin. Colour white. Length $\frac{1}{52}$ inch.

Two specimens only in the gathering from Davis's Straits. In shape these agree very closely with Sars's *C. atra*; but the sculpture and colour of the shell would seem to be different. The description "valvulæ distincte et sat regulariter reticulatæ, areola mediana obsoleta. Testa tota colore saturatissime atro insignis" does not apply here. The sculpturing of *C. rudis*, is too decided to be called mere reticulation; and there is no trace of coloration of any kind in our specimens.

EXPLANATION OF THE PLATES.

Plate IV.

Fig. 1. *Cythere borealis* (female), from left side.
Fig. 2. The same, from above.
Fig. 3. The same (male), from left side.
Fig. 4. The same (male), from below.
Fig. 6. The same, outline of left valve (female).
Fig. 7. The same, outline of right valve (female).
} ×40.

Fig. 5. *Cythere Robertsoni* (female), seen from left side.
Fig. 8. The same, seen from above.
Fig. 9. The same, seen from below.
Fig. 10. The same, seen from front.
} ×84.

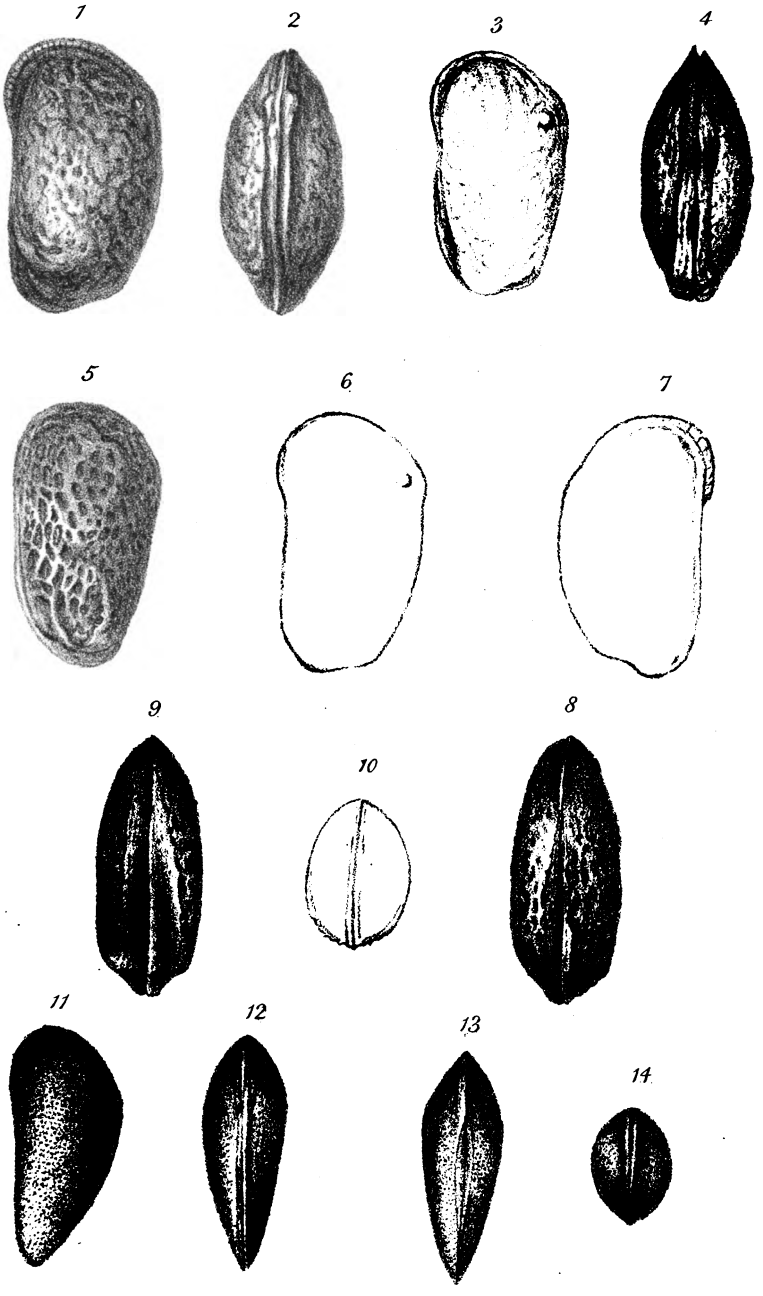
Fig. 11. *Pontocypris attenuata*, seen from left side.
Fig. 12. The same, seen from above.
Fig. 13. The same, seen from below.
Fig. 14. The same, end view.

[The description of *Pontocypris attenuata* (a southern species) will be given in a subsequent paper.]

Plate V.

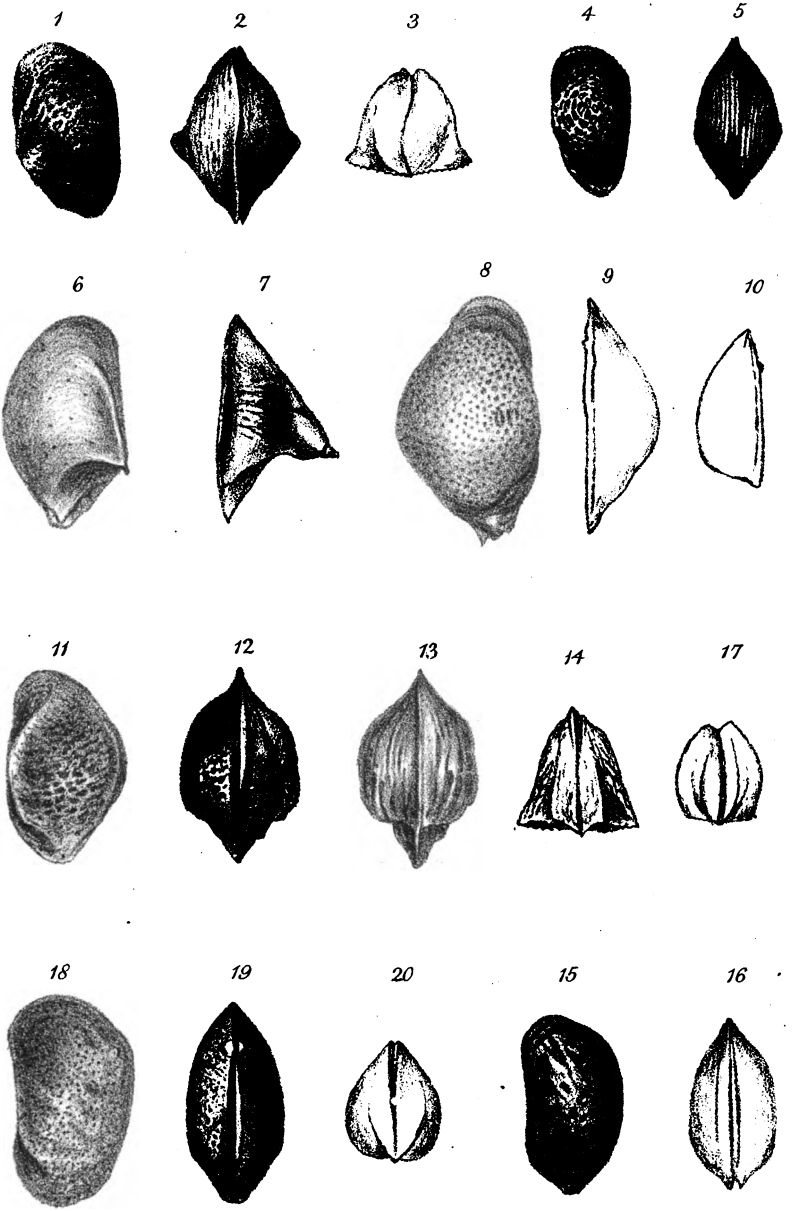
Fig. 1. *Cytheropteron montrosiense* (adult female), seen from left side.
Fig. 2. The same, seen from above.
Fig. 3. The same, end view.
Fig. 4. The same (young?), seen from left side.
Fig. 5. The same, seen from below.
Fig. 6. *Cytheropteron vespertilio*, right valve, seen from outside.
Fig. 7. The same, seen from above.
Fig. 8. *Cytheropteron inflatum*, right valve, seen from outside.
Fig. 9. The same, seen from above.
Fig. 10. The same, end view.
Fig. 11. *Cytheropteron pyramidale*, seen from left side.
Fig. 12. The same, seen from above.
Fig. 13. The same, seen from below.
Fig. 14. The same, seen from behind.
Fig. 15. *Cytherura rudis*, seen from left side.
Fig. 16. The same, seen from above.
Fig. 17. The same, seen from the front.
} ×50.

Fig. 18. *Cythere pulchella* (female), seen from left side.
Fig. 19. The same, seen from above.
Fig. 20. The same, seen from the front.
} ×40.



G. S. Brady del. et lith.

W. West imp.



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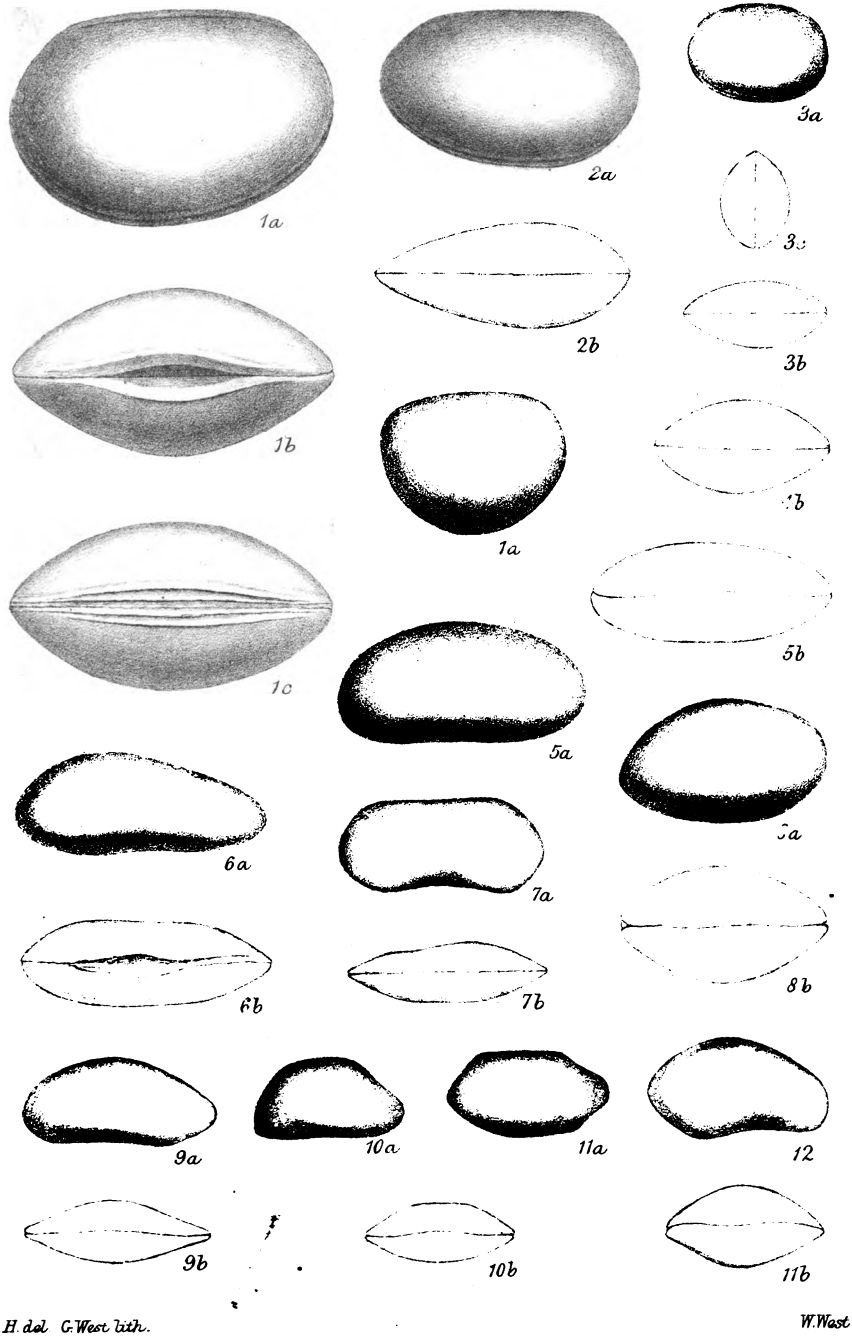

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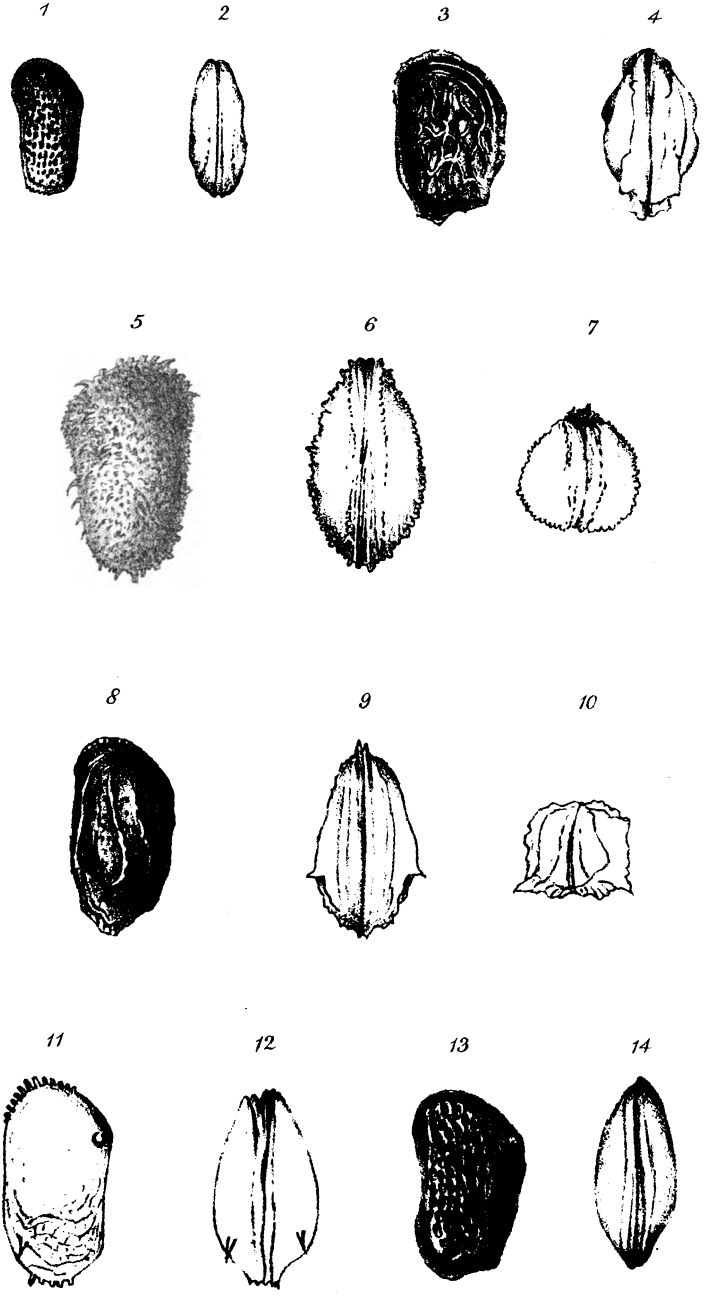
Silurian Entomostraca.



G.S.Brady del. & lith.

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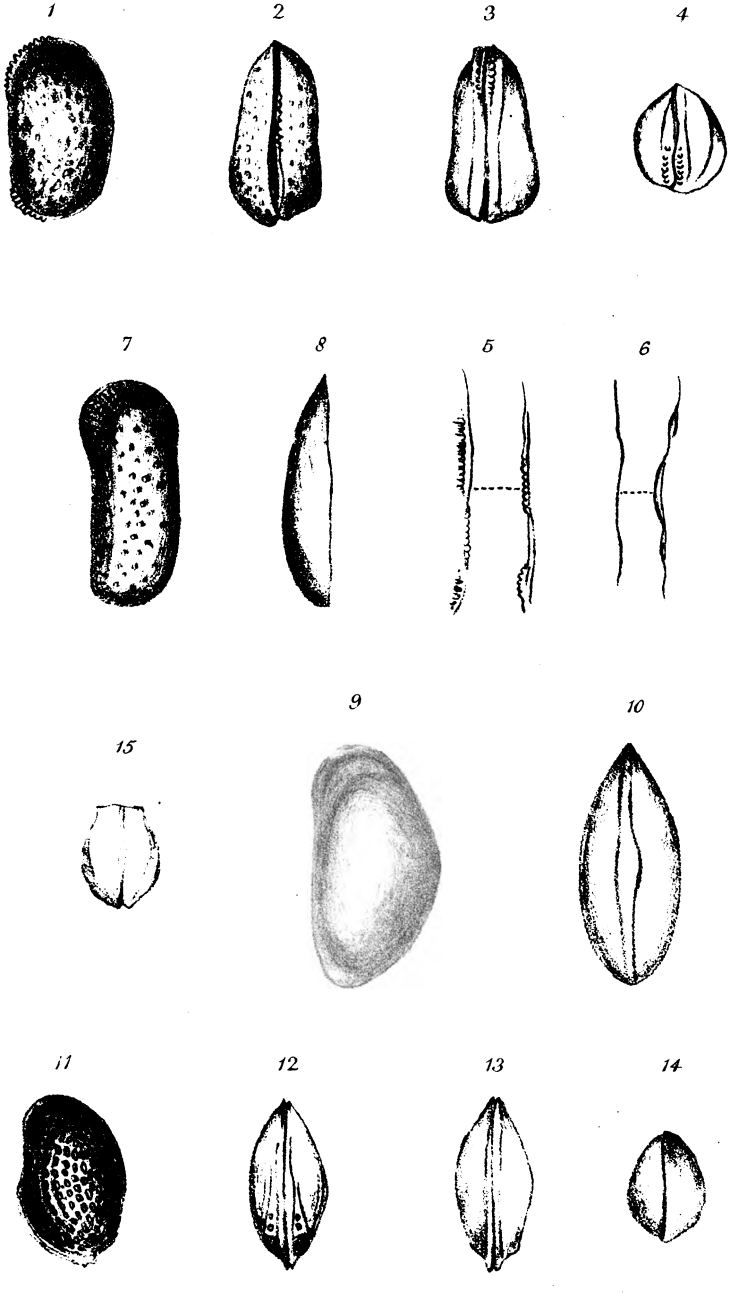
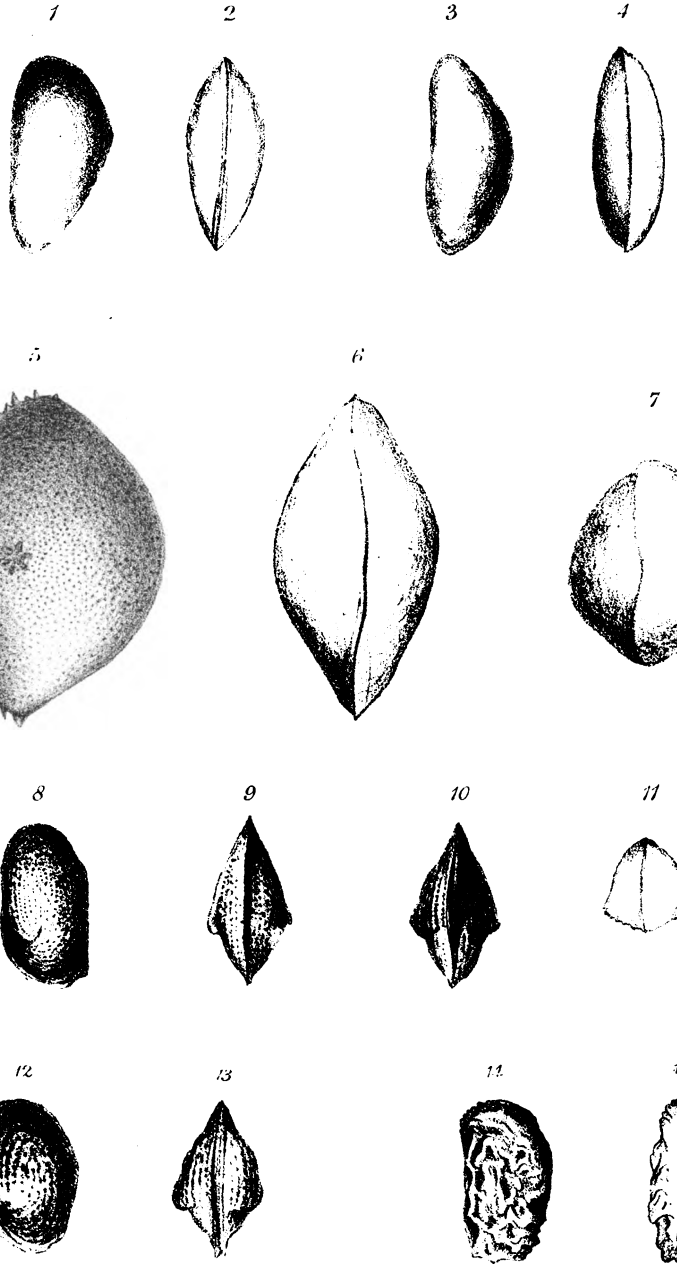
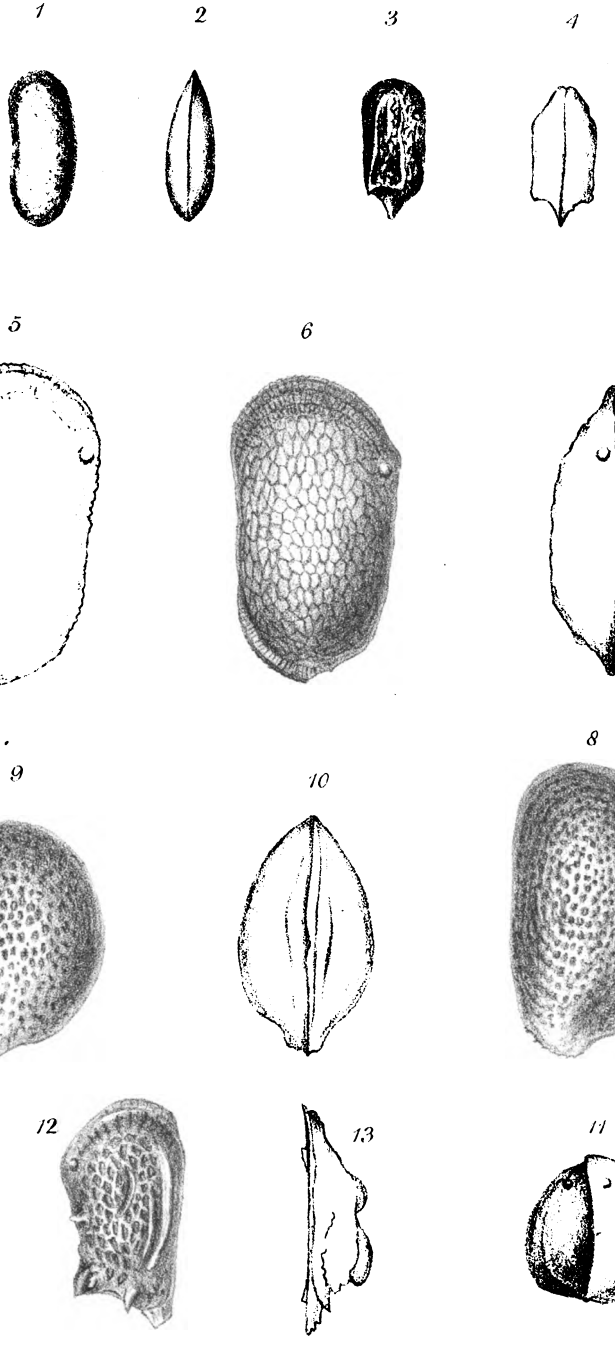


G.S.Brady del. & lith.

W.West imp.





G.S Brady del. et lith.

W West, imp.