REPORT

ON THE

OSTRACODA

COLLECTED BY

PROFESSOR HERDMAN, AT CEYLON, IN 1902.

BY

ANDREW SCOTT, A.L.S.,

RESIDENT FISHERIES ASSISTANT IN THE MARINE LABORATORY AT PIEL, BARROW-IN-FURNESS.

[WITH TWO PLATES.]

THE OSTRACODA forming the subject of this report were, with a few exceptions, found amongst the sand and *débris* washed out of the vessels containing other groups of the Ceylon collection. Pelagic species were occasionally taken in the tow-nettings made during the examination of the pearl banks, and also in the series of plankton collections taken during the outward and homeward journeys. Samples of mud and sand from various pearl banks were also examined, but these yielded no members of this group. Some of the material had been preserved in formol, which had apparently a bad effect on the delicate shells of these creatures. In some cases the lime salts had been partly or entirely dissolved out, making the identification a work of much difficulty.

The Ostracoda are represented by 77 species belonging to 22 genera. Thirty-five of the above number appear to be undescribed, and are now added to the Ceylon Fauna, and figured in the plates.

A considerable amount of work has already been done and a good deal of information published relating to the Ostracoda of Ceylon. Professor BRADY has one paper in 'The Journal of the Linnean Society' (vol. xix., No. 114, 1886) which deals entirely with Ceylonese Entomostraca. It contains descriptions of new and other marine species dredged in 2 fathoms off Kalpentyn, in the Gulf of Manaar. Descriptions of other species are given by Professor BRADY in reports published in the 'Transactions

of the Zoological Society.' The valuable work on the Ostracoda collected by the "Challenger" is indispensable in dealing with tropical forms. 'The Monographs on the North Atlantic and North-Western European Ostracoda,' by Professor BRADY and Dr. NORMAN, are also of much service. The splendid work of Dr. G. W. MÜLLER, published by the Naples Zoological Station, is a mine of information, as the anatomical details of the animals are fully illustrated, and the positions of many hitherto incompletely described species are thus firmly established. Finally, every paper dealing with marine Ostracoda from foreign localities requires to be consulted, and this has been done as far as possible in the present case; but it is not considered necessary to give references under the species, or to add a list of the literature, as the authors named and the papers made use of are well known to all workers at the group.

I am much indebted to Professor BRADY, F.R.S., for looking over the identifications made and for assistance given with some doubtful species. My father, Dr. T. SCOTT, has also helped me greatly with the work of classifying the undescribed forms. Owing to the absence of the appendages, the exact positions of one or two of the new species, which happened to be only empty shells, are at present uncertain.

It is almost impossible to find good descriptive names in certain genera of Ostracoda which are not pre-occupied, and geographical terms are apt to prove misleading. So I have named the new species of *Cythere* and *Cytherella* in honour of some of the officials and naturalists connected with Ceylon and its pearl fisheries who were mentioned in Professor HERDMAN'S Introduction to these Reports.

SECTION I.: MYODOCOPA.

FAMILY: ASTEROPIDÆ.

Asterope oculata, BRADY.

In washings from young pearl oysters collected from Cheval Paar, February and March, 1902, and from Muttuvaratu Paar, November 19th, 1902; also in general washings from invertebrates from Gulf of Manaar. Ten females and four males were found altogether. Professor BRADY records it from the surface at Trincomalee, and from Cruz Bay.

Asterope quadrata, BRADY.

Three females were present in the washings from invertebrates dredged on the pearl banks. This species was described from specimens collected at Lyttelton Harbour, New Zealand.

Asterope arthuri, STEBBING.

Specimens of this fine species were taken by the tow-net in 6 to 10 fathoms at Karativo Paar on March 10th, 1902, and at 9 fathoms at 9 P.M. on Vankali Paar,

March 13th, 1902. On the latter date there was much phosphorescence in the water. STEBBING describes it in Dr. ARTHUR WILLEY'S "Results," Crustacea, Part v.

Cyclasterope similis, BRADY.

Two females in general washings from dredged invertebrates from Gulf of Manaar. Java Sound is the only previous locality given for the species.

FAMILY: CYPRIDINIDÆ.

Cypridina faveolata, BRADY.

One specimen, from the pearl banks in the Gulf of Manaar. It has hitherto been recorded only from the China Sea, where a single example was found.

Pyrocypris chierchiæ, MÜLLER.

This species appeared to be generally distributed throughout the area investigated and has been found in the following places:—Muttuvaratu, West Cheval, South-south-west of Silavaturi, off Kalpentyn Island, at Galle, in washings from young pearl oysters, and from the general washings from dredged invertebrates from the Gulf of Manaar.

According to Professor BRADY, this and other species of *Pyrocypris* occur in immense numbers in tropical seas, and seem to contribute a very large share to the phosphorescence of these regions. MÜLLER states that as many as twenty thousand of the above species have been taken in a single haul, and attributes their light-producing power to the labial papillæ which so far appear to be peculiar to the genus.

Codonocera cruenta, BRADY.—Plate II., figs. 43 to 45.

A single specimen of this peculiar ostracod was taken in the collection made by Professor HERDMAN on the homeward journey when west of Minikoi, in the Indian Ocean. In Professor BRADY'S description of the animal it is stated that the post-abdominal laminæ have only three ungues. In the present specimen there are distinctly four, the fourth, however, being very small (Plate II., fig. 43). The specimen was a male. The peculiar filaments on the antennules ending in bell-shaped disks (fig. 44) and the muscular hand of the antenna (fig. 45) are noteworthy characters; size, 1·73 millims.

Professor BRADY'S single specimen was taken at Pulo Penang.

FAMILY: SARSIELLIDÆ.

Sarsiella ornithoides, BRADY.

One specimen of this distinct form was found in the collection made at Karativo Paar on March 10th, 1902.

The only other locality for the species is Trincomalee.

Sarsiella carinata, n. sp.—Plate I., figs. 1 and 2; Plate II., figs. 40 and 41.

Shell membranous, thin and flexible, seen from the side subrhomboidal, height equal to about two-thirds of the length. Anterior extremity truncate, and provided with a prominent protuberance at the beginning of the dorsal curve; posterior narrower, deeply excavated, bounded above and below by prominent projections; dorsal margin boldly arched, highest behind the middle, whence it slopes rapidly towards the large projection; ventral margin nearly flat, except at the posterior end, where it is deeply sinuated; seen from above elongated, widest in the middle, width considerably less than half the length; anterior extremity narrow, emarginate; posterior wide, terminating in one median and two lateral protuberances. The dorsal and ventral margins are in the form of a continuous ridge with radiating lines, two longitudinal ribs of a similar structure run parallel to, but at a considerable distance within the margins, both terminating posteriorly in protuberances; ventral margin adorned with four protuberances of various sizes; in addition to these, there are two between the ventral margin and the lower ridge and one on the surface of the lower posterior projection. Surface of the shell marked with numerous circular depressions, which have four or five short setæ round the outside; dorsal and ventral margins ciliated; size, 1·1 millims.

Three specimens, all males, were found in washings from deep-water dredgings off Galle. The antennules have the characteristic dense brush of long fine hairs; post-abdomen with five marginal ungues, increasing in length from the first to the last, which is about five times as long as the first; margins spinulose.

Sarsiella gracilis, n. sp.—Plate I., figs. 3 and 4; Plate II., fig. 37.

Shell membranous, thin and flexible; seen from the side subcircular, height equal to fully two-thirds of the length; anterior extremity broadly rounded, crenate, with a distinct notch near the middle; posterior truncate, with a wide triangular process above and below; dorsal and ventral margins rounded, the former sloping rapidly at its posterior end; seen from above, oblong subovate, widest near the posterior end, width slightly less than one-third of the length; anterior extremity obtusely rounded, posterior truncated, with a median process; surface of the shell slightly ciliated, covered with small impressed puncta; anterior and ventral margins ciliated; size, 1·34 millims.

Two specimens were found in a dredging from 100 fathoms, off Galle, and one in the general washings from invertebrates from Gulf of Manaar. All were mature females with ova. The postabdomen has three stout ungues with spinulose margins, and three short plumose setæ.

Sarsiella similis, n. sp.—Plate I., figs. 5 and 6; Plate II., fig. 38.

Shell thin and flexible, subcircular, height fully two-thirds of the length; seen from the side anterior extremity rounded, crenate, with a slight notch in the centre,

posterior truncate, with distinct projections above and below; dorsal and ventral margins boldly convex; seen from above subovate, fully twice as long as broad, anterior extremity narrow, posterior widely truncate, with a small median process; for the greater part the sides are nearly parallel, converging rapidly towards the anterior end; surface of the shell slightly ciliated, covered with small impressed puncta, the valves have four or five longitudinal ribs at the posterior and a number of radiating lines at the anterior extremity; anterior and ventral margins ciliated; size, 0·93 millim.

A number of ova-bearing females were found in washings from Muttuvaratu Paar and in the general washings from Gulf of Manaar. The species resembles the last in general shape, but is distinguished by the longitudinal ribs. The postabdomen (Plate II., fig. 38) is much narrower, and the ungues more spinulose.

Sarsiella crispata, n. sp.—Plate I., figs. 7 and 8; Plate II., fig. 39.

Shell thin and flexible; seen from the side subcircular, broadly rounded in front, slightly narrowed and produced into a wide ciliated beak posteriorly; seen from above broadly ovate, widest just behind the middle, twice as long as broad; anterior extremity narrow, posterior truncate, with one median and two lateral projections; surface covered with large impressed puncta, valves with a number of conspicuous ridges, the two near the posterior end of the dorsal margin forming distinct projections, anterior and ventral margins crenate and ciliated, with a corrugated line a little within; size, 0·8 millim.

About a dozen mature females were obtained in the same material as the previous species. Postabdomen (fig. 39) with four stout spinulose ungues of different lengths.

Sarsiella tumida, n. sp.—Plate I., figs. 9 and 10; Plate II., fig. 42.

Shell membranous, thin and flexible. Seen from the side subcircular, slightly longer than wide; anterior extremity broadly rounded, with a small beak in the centre; posterior truncate and produced into a wide beak at the lower angle; dorsal and ventral margins boldly convex, the dorsal forming a distinct hump in the centre; seen from above broadly ovate, widest slightly in front of the middle, width equal to less than two-thirds of the length, narrow in front, rectangularly truncate behind, with a distinct median projection; surface of the shell devoid of sculpture, but having a large fold near the posterior end of the dorsal margin; anterior and ventral margins ciliated; size, 1·26 millims.

Two mature females of this species were found in the general washings from dredged invertebrates. The postabdomen is narrow and furnished with five spinulose ungues, the longest being about five and a half times the length of the shortest.

Future investigation may show this form to be the female of *Sarsiella carinata*, as the comparative lengths of the ungues on the postabdomen of both species are nearly alike, but in the meantime it is thought best to keep them separate.

FAMILY: HALOCYPRIDÆ.

Conchœcia magna, CLAUS.

Two specimens belonging to this species were taken in the tow-netting collected in the Suez Canal, between Port Saïd and Suez, on the outward journey.

Conchœcia clausii, G. O. SARS (?).

Two specimens apparently belonging to this species occurred in the above collection, but their very poor condition makes their identity uncertain.

Conchœcetta acuminata, CLAUS.

One specimen in the above collection, one from near Perim Island in the Red Sea, and a third from the middle of the Indian Ocean.

Halocypris concha, CLAUS.

This species occurred in a number of the collections taken between the Mediterranean and Ceylon on both journeys, and also on the pearl banks in the Gulf of Manaar.

SECTION II.: PODOCOPA.

FAMILY: CYPRIDÆ.

Macrocypris decora (BRADY).

In general washings from invertebrata and in washings from sponges dredged in the Gulf of Manaar.

Macrocypris orientalis, BRADY.

In general washings from invertebrata from the Gulf of Manaar.

Macrocypris similis, BRADY.

Also in general washings from invertebrata from the Gulf of Manaar.

Macrocypris maculata (BRADY).

In the general washings from the Gulf of Manaar and in washings from Cheval pearl oysters.

Pontocypris robusta, n. sp.—Plate I., figs. 17 and 18.

Shell seen from the side subtriangular, the height being equal to slightly more than half the length, anterior extremity moderately broad and obliquely rounded, posterior attenuated and almost acuminate; dorsal margin boldly arched, highest in the middle, sloping with a steep curve backwards, and more gently towards the front; ventral margin deeply sinuated well in front of the middle. Seen from above the

outline is ovate, acuminate in front and rounded behind, greatest width in the middle and equal to fully two-fifths of the length; shell white, polished, with minute setæ and impressed puncta; the valves are marked with five lucid spots arranged in a semicircular manner; size, 0·82 millim.

A few specimens from the general washings from Gulf of Manaar; from Cheval pearl oyster washings; and from Gulf of Manaar sponges.

At first it was thought this might be a form of *Pontocypris trigonella*, G. O. SARS, but a comparison with the figures given in the '"Challenger" Report,' in the report 'On the Entomostraca from the Gulf of Guinea,' by my father, and in the 'Monograph on the North Atlantic and North-western European Ostracoda,' by BRADY and NORMAN, shows that it is distinct.

Pontocypris elegans, n. sp.—Plate I., figs. 19 and 20.

Shell seen from the side oblong, compressed, subreniform, the height being equal to rather less than one-third of the length; anterior extremity obliquely rounded, posterior produced and subacute at the ventral angle; dorsal margin moderately arched, greatest height slightly in front of the middle, and sloping gently towards each extremity; ventral margin deeply sinuated in the middle; seen from above compressed, ovate, widest in the middle, width about one-fourth of the length, acuminate in front and slightly rounded behind; shell white, polished, with a few minute impressed puncta; the valves are marked with a circular patch of lucid spots and three smaller detached ones; size, 0·6 millim.

A few specimens were found in the same washings as the previous species.

Pontocypris rostrata, n. sp.—Plate I., figs. 21 and 22.

Shell seen from the side subtriangular, greatest height nearly equal to half the length; anterior extremity broadly rounded, almost truncate, posterior produced, subacute in the centre; dorsal margin boldly arched, highest slightly in front of the middle, sloping very gently towards the front, but rapidly to the posterior; ventral margin sinuated in front of the middle, becoming convex near the posterior end where it turns up to join the extremity; seen from above ovate, greatest width in the middle and about equal to one-third of the length, acuminate in front and behind, sides distinctly compressed in front, forming a beak-like process; shell white and polished, valves unequal, the right being slightly smaller than the left; size, 0·64 millim.

In washings from sponges dredged in the Gulf of Manaar.

Pontocypris tumida, n. sp.—Plate I., figs. 30 and 31.

Shell seen from the side subovate, the height being rather more than half the length; anterior extremity rounded, somewhat depressed, posterior subacute; dorsal margin boldly arched, highest in the middle, ventral slightly sinuated in front of the middle; seen from above ovate, widest behind the middle, length equal to two and

a half times the width, right valve smaller than the left; shell white, smooth, and polished; size, 0·97 millim.

In general washings and in washings from Gulf of Manaar sponges.

Erythrocypris herdmani, n. sp.—Plate I., figs. 15 and 16.

Shell seen from the side subtriangular, the height being about equal to half of the length; anterior extremity broadly rounded, posterior attenuated and subacuminate; dorsal margin strongly arched, almost angular at its highest point, forming a distinct hump, greatest height considerably in front of the middle, and sloping with a steep curve to both extremities, ventral margin slightly sinuated; seen from above ovate, width fully two-fifths of the length, greatest width about one-third from the anterior extremity, extremities obtusely pointed, rather more acute in front than behind; valves yellowish, smooth, and shining, covered with numerous short rigid hairs, the left valve has a distinct tooth at its posterior end; size, 0·85 millim.

Specimens were found in general washings from Gulf of Manaar, in washings from Cheval pearl oysters, and Manaar sponges, and on Karativo Paar. This species, which is easily distinguished from any of those already described, is named in compliment to Professor HERDMAN, whose labours on the Ceylon pearl banks have added an extensive chapter to our knowledge of the tropical marine fauna.

Bairdia villosa, BRADY.

In general washings from invertebrates from the Gulf of Manaar.

Bairdia attenuata, BRADY.

In general washings from invertebrates from the Gulf of Manaar.

Bairdia woodwardiana, BRADY.

In general washings from invertebrates from the Gulf of Manaar.

Bairdia amygdaloides, BRADY.

In general washings from invertebrates from the Gulf of Manaar.

Bairdia faveolata, BRADY.

In the general washings and in washings from Cheval pearl oysters.

Bairdia hirsuta, BRADY.

In general washings, in washings from Cheval pearl oysters, and from Karativo Paar.

All these species of *Bairdia* are new to the fauna of Ceylon.

Bairdia inornata, n. sp.—Plate I., figs. 11 and 12.

Shell seen from the side subreniform, height equal to more than half the length; anterior extremity obliquely rounded, posterior produced in the middle into an obtusely angular beak; dorsal margin boldly arched, highest in the middle and sloping steeply towards the extremities, slightly sinuated at the anterior and posterior ends, ventral margin deeply sinuated in the middle; seen from above compressed, ovate, widest in front of the middle and nearly three times longer than wide, extremities obtuse, subtruncate; colour almost black, with one or two lighter bands; surface of the valves covered with closely set, short, stiff setæ; posterior end of the ventral margin finely serrate; right valve smaller than the left; size, 0·74 millim.

A few specimens in general washings from invertebrates from Gulf of Manaar.

Bairdia robusta, n. sp.—Plate I., figs. 13 and 14.

Shell seen from the side subtriangular, height equal to fully two-thirds of the length; anterior extremity obliquely rounded, posterior produced in the middle into an obtusely angular beak; dorsal margin greatly arched, highest slightly in front of the middle, ventral nearly straight; seen from above broadly ovate, length fully one and a half times the width, extremities subacute, posterior more so than the anterior; shell white, polished, closely beset with black setæ; anterior and posterior extremities with a dense fringe of setæ; size, 0·87 millim.

In general washings from invertebrates from Gulf of Manaar. This species resembles *Bairdia villosa*, BRADY, but is much more tumid and obtuse.

Anchistrocheles bradyi, n. sp.—Plate I., figs. 34 and 35.

Shell seen from the side reniform, height slightly less than half the length; anterior extremity wide, obliquely subtruncate, posterior broadly rounded, slightly produced in the middle; dorsal margin gently and evenly curved, highest behind the middle, ventral sinuated in front of the middle; seen from above the outline is elongated, with parallel sides, nearly four times longer than wide; both extremities acute, anterior more so than the posterior; shell smooth, thin and fragile; size, 0·9 millim.

In dredged material from 6 fathoms to 10 fathoms, Karativo Paar.

The species resembles *Anchistrocheles fumata*, BRADY, in general appearance, but is easily recognised by the more acute extremities, as seen from the dorsal aspect. I have great pleasure in naming it after Professor BRADY, to whom we remain indebted for much help both in this group and in the Copepoda.

Pseudocythere minuta, n. sp.—Plate I., figs. 28 and 29.

Shell seen from the side oblong, subquadrate, slightly higher in front than behind, height slightly less than half the length; anterior extremity rounded, with one or two tooth-like projections near the middle; posterior oblique, subtruncate, much compressed, produced at the upper angle into a broad, blunt beak, lower angle also produced, but the beak is much smaller; dorsal margin almost flat, highest near the

anterior end, sloping very slightly towards the posterior, ventral margin slightly sinuated in front of the middle; seen from above ovate, widest in the middle, tapering to the extremities, both of which are acuminate, the posterior much attenuated; width equal to less than half the length; shell marked with numerous puncta arranged in fairly regular, slightly curved, longitudinal rows. Size, 0·35 millim.

A single specimen in general washings from dredged invertebrates from Gulf of Manaar.

Paradoxostoma cingalense, BRADY.

One or two specimens in general washings from dredged invertebrates from Gulf of Manaar. Off Kalpentyn is the only previous locality given for the species.

Paradoxostoma attenuatum, n. sp.—Plate I., figs. 32 and 33.

Seen from the side pear-shaped, about two and a half times longer than broad; anterior extremity very narrow, rounded, posterior broad and truncate, sloping inwards, forming a distinct tooth at the junction with the lower margin; dorsal margin boldly arched, highest considerably behind the middle, ventral margin sloping outwards from the anterior extremity; very slightly sinuated, convex at the widest part; seen from above much compressed, with acute extremities, greatest width in the middle, length four and a half times the width; shell amber coloured, smooth and transparent; size, 0·6 millim.

In washings from Gulf of Manaar sponges.

Paradoxostoma stebbingi, n. sp.—Plate II., figs. 1 and 2.

Shell seen from the side pear-shaped, two and a half times longer than broad; anterior extremity narrow, obliquely rounded, posterior subacute in the centre; dorsal margin boldly and evenly arched, highest slightly behind the middle; ventral margin sinuated near the anterior extremity; seen from above compressed, ovate, widest in the middle, and nearly four times longer than broad, extremities acute; shell smooth, white and semi-transparent; size, 0·6 millim.

In general washings from dredged invertebrates.

I name this species after the Rev. T. R. R. STEBBING.

Xestolebris margaritea, BRADY.

In the general washings, in washings from Cheval pearl oysters and Gulf of Manaar sponges, and in a dredging from Karativo Paar.

Xestolebris tumefacta, BRADY.

In the general washings from Gulf of Manaar.

Xestolebris aurantia, BAIRD.

Also in the general washings. The specimens were first identified as *Xestolebris*

margaritea, but Professor BRADY says he cannot distinguish them from our native *Xestolebris aurantia*.

Xestolebris variegata, BRADY.

In the general washings, and in washings from Cheval pearl oysters.

Xestolebris faveolata, BRADY.

In a dredging from Karativo Paar, 6 to 10 fathoms.

Xestolebris squamigera, n. sp.—Plate I., figs. 23 to 25; Plate II., figs. 28 and 29.

Shell seen from the side somewhat siliquose, two and a half times longer than broad. Anterior extremity very narrow, rounded, posterior subacute; dorsal margin boldly arched, highest a little behind the middle, sloping rapidly and evenly to the anterior end; posteriorly the slope is more abrupt and almost truncate; ventral margin nearly straight, slightly sinuated in front of the middle; seen from above the outline is broadly ovate; width about three-fifths of the length, and widest behind the middle; anterior extremity subacute, distinctly sinuated, and expanding rapidly; posterior extremity broadly rounded; seen from the posterior end the valves are deeply concave; valves slightly unequal; shell smooth, white and polished, with numerous whitish spots scattered over the surface; size, 0·52 millim.

In the general washings and in washings from Gulf of Manaar sponges. The drawings on Plate I. represent an ova-bearing female; the antennule and antenna are shown on Plate II., figs. 48 and 49.

Xestolebris irrasa, n. sp.—Plate II., figs. 5, 6 and 46, 47.

Shell seen from the side ovate, height fully two-thirds of the length; anterior extremity narrow, posterior broad, both well rounded; dorsal margin boldly arched, highest in the middle, ventral very slightly convex, with slight sinuations at the extremities; seen from above ovate, widest behind the middle, width fully two-thirds of the length, extremities obtusely pointed in front, wider and more rounded behind; surface of the shell marked with numerous concentric spinulose ridges, and clothed with short stiff setæ; colour yellowish; size, 0·53 millim.

In the general washings and in washings from Gulf of Manaar sponges. The figures represent a female shell, the antennule and antenna being shown by figs. 46 and 47.

Xestolebris tumida, n. sp.—Plate II., figs. 3 and 4.

Shell seen from the side broadly pear-shaped, scarcely one and a half times longer than broad, extremities well rounded, anterior much narrower than the posterior; dorsal margin greatly arched, highest behind the middle; ventral slightly sinuated in front and convex behind; seen from above broadly ovate, rather longer than broad, compressed and pointed in front, broadly rounded behind; greatest width behind the

middle; shell smooth, white, with numerous whiter spots on its surface; size, 0·6 millim.

In general washings from the Gulf of Manaar.

The species resembles *Xestolebris variegata*, but is much more tumid.

Paracytheridea perplexa, n. sp.—Plate I., figs. 26 and 27.

Shell seen from the side subrhomboidal, two and a half times longer than broad; anterior extremity obliquely rounded, with three median teeth; posterior produced into a median triangular beak; dorsal margin highest in front, sloping downwards towards the posterior in an irregularly sinuous line; ventral margin slightly convex in front, rising with a gentle slope posteriorly, deeply notched at the hinder end, and then suddenly produced into a curved triangular tooth-like process; seen from above the outline is much like that of a Trilobite, very wide and rounded in front; narrowing slightly posteriorly, then rapidly converging to form a wide triangular end; greatest width much in front of the middle, and equal to three-fourths of the length; surface of the shell marked with large puncta, and in side view with obliquely transverse ridges; size, 0·65 millim.

A few specimens in the general washings from dredged invertebrates from Gulf of Manaar.

The species resembles *Paracytheridea depressa*, G. W. Müller, but differs in the termination of the lateral margins as seen from above. In *P. depressa* the margins end in a distinct tooth projecting at nearly right angles to the sides.

Cytherura concinna, n. sp.—Plate II., figs. 7 and 8.

Shell seen from the side subrhomboidal, with a well-marked dorsal ridge, height equal to half the length; anterior extremity obliquely rounded, posterior broadly beaked above the middle; dorsal margin rugged, broken by a few small blunt projections, sloping gently upwards towards the posterior, ventral convex in the middle; seen from above broadly triangular, greatest width much behind the middle and equal to two-thirds of the length; anterior extremity rounded and produced into a blunt median beak; posterior very wide, subtruncate, and produced into a large median process, its margin forming a distinct flexuous ridge coursing between the outer and inner margins of each valve; surface of the shell marked with numerous puncta, and with a distinct depression in the centre of each valve; size, 0·53 millim.

One or two specimens in general washings from dredged invertebrates from Gulf of Manaar.

Loxoconcha anomala, Brady.

In general washings, in washings from Cheval pearl oysters, and in a dredging from Karativo Paar.

Loxoconcha alata, Brady.

From the same material as the previous species.

Loxoconcha papillosa, Brady.

In general washings from Gulf of Manaar.

Loxoconcha sculpta, Brady.

In washings from Gulf of Manaar sponges.

Loxoconcha australis, Brady.

In the general washings and in washings from Gulf of Manaar sponges.

Cythere bimammillata, Brady.

In washings from Gulf of Manaar sponges.

Cythere darwini, Brady.

In the general washings, in washings from Gulf of Manaar sponges, and in a dredging from Karativo Paar.

Cythere inconspicua, Brady.

In washings from Cheval pearl oysters.

Cythere ovalis, Brady.

In the general washings, in washings from Cheval pearl oysters, and in a dredging from Karativo Paar.

Cythere polytrema, Brady.

In general washings from Gulf of Manaar.

Cythere rectangularis, Brady.

In general washings from Gulf of Manaar.

Cythere ruperti, Brady.

In the general washings and in washings from Gulf of Manaar sponges.

Cythere stimpsoni, Brady.

In a dredging from Karativo Paar.

Cythere subcuneata, Brady.

In general washings from Gulf of Manaar.

Cythere knoxi, n. sp.—Plate II., figs. 9 and 10.

Shell seen from the side elongated, subsigmoid, height equal to half the length,

extremities toothed; anterior extremity broad and obliquely rounded, posterior narrower, rounded off below, and obscurely angulated above; dorsal margin sinuated in the centre, highest in front and sloping towards the posterior, ventral sinuated in the middle; seen from above pear-shaped, greatest width near the posterior end, and equal to more than half the length, the outline between the widest point and the anterior end shows two distinct constrictions; shell surface marked with coarse impressed puncta; each valve seen from the side shows two distinct grooves; size, 0·56 millim.

In the general washings and in washings from Cheval pearl oysters.

Named after Captain ROBERT KNOX, 20 years a captive in Ceylon in the seventeenth century.

Cythere chalmersi, n. sp.—Plate II., figs. 11 and 12.

Shell seen from the side subsigmoid, height equal to half the length, extremities corrugated but not toothed; anterior extremity very obliquely rounded, posterior narrower, and broadly rounded; dorsal margin highest at the anterior end, nearly flat, with a gentle slope towards the posterior; ventral sinuated in the middle; seen from above pear-shaped, outline irregular, and marked by three constrictions, widest near the posterior end, greatest width equal to about half the length; anterior and posterior ends with strong thickened lips, the posterior forming a distinct protuberance; surface of the shell marked with moderately coarse impressed puncta, and near the extremities with a row of circular depressions; seen from the side, the valves show three distinct grooves; size, 0·7 millim.

In the general washings and in washings from Gulf of Manaar sponges.

Named after Dr. A. J. CHALMERS, Professor in the Medical College, Colombo.

Cythere imthurni, n. sp.—Plate II., figs. 13 and 14.

Shell seen from the side oblong, subquadrangular, height slightly less than half the length; extremities smooth, anterior extremely broad and obliquely rounded, with an internal row of subcircular markings; posterior narrower, rounded above and truncate below; dorsal margin highest at the anterior end, nearly flat, with a gentle slope towards the posterior, ventral deeply sinuated near the middle; seen from above rather wedge shaped, with nearly parallel sides, deeply constricted near the posterior end, length about two and a half times the width; anterior margin acuminate with projecting thickened lips, posterior almost truncated, projecting slightly in the centre; surface of the shell marked with large irregular impressed puncta, and, when viewed from the side, with a deep hollow near the posterior; size, 0·5 millim.

In the general washings, in washings from Cheval pearl oysters, and from Gulf of Manaar sponges.

Named after the Honourable E. F. IM THURN, Lieutenant-Governor of Ceylon during the pearl oyster investigation in 1902.

Cythere thompsoni, n. sp.—Plate II., figs. 15 and 16.

Shell seen from the side oblong, subquadrangular, height rather more than half the length; anterior extremity wide and obliquely rounded, with about a dozen short thick teeth, posterior slightly narrower, almost truncate, with five or six short stout teeth; dorsal margin deeply sinuated in the middle, highest at the anterior end, ventral margin slightly sinuated near the anterior end; seen from above broadly ovate, with irregular outline, width rather more than half the length, widest near the posterior end; anterior extremity obtuse, with two mucronate processes, posterior wide, truncated, with broad, tooth-like median projections; surface of the shell marked with large regular ridges and deep depressions, which become very conspicuous in dead shells; size, 0·73 millim.

In the general washings and in washings from Gulf of Manaar sponges.

This well-marked species is named in memory of my friend and fellow-worker, the late Mr. ISAAC C. THOMPSON, F.L.S., who was jointly responsible with me in the preparation of the "Report on the Copepoda," published in the first volume of this work.

Cythere donnani, n. sp.—Plate II., figs. 17 and 18.

Shell seen from the side subsigmoid, height equal to half the length; anterior extremity wide and very obliquely rounded, with about fourteen small teeth on the lower margin, posterior narrow, slightly produced in the centre, with four small teeth below the middle; dorsal margin sinuated in the middle, highest at the anterior and rounded off towards the posterior, ventral sinuated, convex in front and behind; seen from above broadly ovate, width slightly less than half the length, with rounded extremities, slightly produced into thickened lips, widest near the posterior, and slightly sinuated in the middle; surface of the shell marked with a number of fairly regular longitudinal ridges and rows of impressed puncta; size, 0·98 millim.

In washings from Cheval pearl oysters, and from Gulf of Manaar sponges.

Named after Captain DONNAN, Inspector of the Pearl Banks in 1902.

Cythere willeyi, n. sp.—Plate II., figs. 19 and 20.

Shell seen from the side oblong, subquadrangular, height equal to rather more than half the length; anterior extremity wide and very obliquely rounded, with about seventeen short stout teeth, posterior much narrower, bluntly rounded, with four short teeth on the lower margin; dorsal margin very slightly sinuated in the middle, highest in front, and rounding off posteriorly, ventral sinuated slightly in front of the middle; seen from above broadly ovate, with irregular outline, width rather more than half the length, widest in front of the middle; anterior extremity obtuse, with two mucronate processes, posterior widely triangular; surface of the shell marked with large irregular puncta, and a distinct dorsal ridge; size, 0·8 millim.

In general washings from Gulf of Manaar.

Named after Dr. ARTHUR WILLEY, Director of the Museum at Colombo.

Cythere hornelli, n. sp.—Plate II., figs. 21 and 22.

Shell seen from the side siliquose, height rather less than half the length; anterior extremities narrowed and rounded, smooth; dorsal margin boldly arched, highest in the centre, ventral sinuated in the middle; seen from above wedge-shaped, width less than half the length, widest near the posterior; anterior extremity produced, with two mucronate processes, posterior margins truncate, and produced into a broad triangular projection; surface of the shell marked with a number of curved ridges and rows of impressed puncta; size, 0·53 millim.

In general washings from invertebrata from Gulf of Manaar. Named after Mr. JAMES HORNELL, now Inspector of the Pearl Banks.

Cythere halyi, n. sp.—Plate II., figs. 23 and 24.

Shell seen from the side oblong, quadrangular, height slightly less than half the length, widest in the middle; anterior extremity broadly rounded, with one tooth below the centre; posterior produced into a wide triangular beak; dorsal margin flat, with a corrugated margin, highest at the extremities, ventral slightly convex and irregular; seen from above narrowly ovate, with produced and thickened extremities, widest behind the middle, width considerably less than half the length; surface of the shell marked with numerous impressed puncta and studded with bluntly pointed spines; size, 0·55 millim.

In general washings from invertebrata from Gulf ot Manaar. Named after Mr. HALY, a former Director of the Colombo Museum.

Cythere kelaarti, n. sp.—Plate II., figs. 25 and 26.

Shell seen from the side oblong, subquadrangular, height scarcely equal to half the length; anterior extremity broadly and obliquely rounded, with about 21 short, stout teeth; posterior narrow and subtruncate, with seven short, thick spines; dorsal margin slightly sinuated, highest in front and sloping gently backwards, ventral nearly straight, much contracted at the posterior; seen from above doubly triangular, widest much behind the middle, where the outline is produced into a blunt tooth; width slightly more than half the length; anterior extremity with two, and the posterior with four, spines; surface of the shell marked with numerous impressed puncta, very rough and studded with short, aculeate spines, one triangular tooth near the posterior; size, 0·65 millim.

In general washings from dredged invertebrates from Gulf of Manaar. Named after Dr. KELAART, who investigated the pearl banks in 1857.

Cythere willisi, n. sp.—Plate II., figs. 27 and 28.

Shell seen from the side subquadrangular, with compressed margins, height slightly less than two-thirds of the length; anterior extremity broad and very obliquely rounded,

with seven short, stout teeth on the lower portion; posterior almost rectangularly truncated, produced below the middle, where it bears two teeth and one or two crenulations; dorsal margin highest in front, sloping with a sinuous curve gently backwards; ventral sinuated in front and convex behind; seen from above ovate, with produced emarginate extremities, sharply constricted in the middle and near the posterior end, width equal to half the length; surface of the shell covered with large irregularly angulated fossæ, marked with a strong marginal ridge and an obliquely transverse one, coursing from the posterior towards the anterior extremity; highest at the posterior end; size, 0·73 millim.

In the general washings, in washings from Gulf of Manaar sponges, and in a dredging from Karativo Paar. Named after Dr. J. C. WILLIS, Director of the celebrated Botanic Gardens at Peradeniya, Ceylon.

Cythere colletti, n. sp.—Plate II., figs. 29 and 30.

Shell seen from above subquadrangular with compressed margins, height equal to slightly less than two-thirds of the length; anterior extremity broad and obliquely rounded, with 10 short, stout teeth on the lower portion; posterior narrowed, truncated, produced near the middle into a quadri-crenulate projection; dorsal margin highest in front, sloping rather steeply to the posterior; ventral slightly sinuated in front, convex behind the middle, rising quickly near the posterior, where there is a strong, stout incurved tooth; seen from above doubly triangular, widest slightly behind the middle, width rather more than half the length, the margins near the posterior end are produced into strong teeth; anterior extremity blunt and produced into the mucronate processes, posterior truncate; surface of the shell marked with curved ridges and rows of impressed puncta; each valve has a strong tooth near the lower margin of the posterior end; size, 0·5 millim.

In washings from Gulf of Manaar sponges.

Named after the late Mr OLIVER COLLETT, a well-known naturalist in Ceylon.

Cythere holdsworthi, n. sp.—Plate II., figs. 31 and 32.

Shell seen from the side subrhomboidal, height equal to fully two-thirds of the length; anterior extremity broad and obliquely rounded, posterior truncated, with a small projection in the centre; dorsal margin boldly arched, highest in the middle; ventral convex in the middle; seen from above broadly ovate, widest near the middle, width equal to two-thirds of the length; anterior extremity narrowed and bluntly rounded; posterior broadly rounded, almost truncate; surface of the shell marked with concentric rows of impressed puncta; size, 0·5 millim.

In general washings from dredged invertebrata from Gulf of Manaar.

Named after Mr. HOLDSWORTH, the naturalist who investigated the pearl banks in 1868.

Section III.: PLATYCOPA.

Family: CYTHERELLIDÆ.

Cytherella ondaatjei, n. sp.—Plate II., figs. 33 and 34.

Shell seen from the side subquadrangular, height rather less than two-thirds of the length; anterior extremity broadly rounded, posterior obliquely rounded, sloping steeply inwards; dorsal margin slightly arched, highest behind the middle, ventral deeply sinuated in the middle; seen from above elongate narrow, widest behind the middle, width equal to one-third of the length; anterior extremity bluntly rounded, posterior almost truncated, margins much hollowed above the middle; surface of the shell marked with numerous shining spots, and a conspicuous triangular groove; covered with fine spinules, anterior extremity and ventral margin finely spinulate; size, 0·6 millim.

In a dredging from Karativo Paar.

Named after Dr. Ondaatje, a former naturalist and collector in Ceylon.

Cytherella vraspillaii, n. sp.—Plate II., figs. 35 and 36.

Shell seen from the side subelliptical, height less than two-thirds of the length; valves unequal, left valve larger than the right; anterior extremity rounded, posterior rounded and slightly produced in the centre; dorsal margin slightly arched, highest in the centre; ventral flattened, slightly sinuated; seen from above pear shaped, widest behind the middle, width slightly less than two-thirds of the length, obtusely pointed in front, broadly rounded behind, lateral margins boldly convex; surface of the shell smooth and polished; size, 0·55 millim.

In general washings from dredged material from Gulf of Manaar.

This species is named in honour of Mr. V. Vraspillai, the well-known Adigar of Musali, who has rendered able service in connection with the pearl banks for many years.

EXPLANATION OF PLATES.

PLATE I.

Fig. 1. *Sarsiella carinata*, n. sp., from right side.
„ 2. „ „ „ above. × 45.
„ 3. *Sarsiella gracilis*, n. sp., from right side.
„ 4. „ „ „ above. × 36.
„ 5. *Sarsiella similis*, n. sp., from right side.
„ 6. „ „ „ above. × 45.
„ 7. *Sarsiella crispata*, n. sp., from right side.
„ 8. „ „ „ above. × 57.
„ 9. *Sarsiella tumida*, n. sp., from right size.
„ 10. „ „ „ above. × 37.
„ 11. *Bairdia inornata*, n. sp., from right side.
„ 12. „ „ „ above. × 62.
„ 13. *Bairdia robusta*, n. sp., from right side.
„ 14. „ „ „ above. × 44.
„ 15. *Erythrocypris herdmani*, n. sp., from right side.
„ 16. „ „ „ above. × 50·8.
„ 17. *Pontocypris robusta*, n. sp., from right side.
„ 18. „ „ „ above. × 55·5.
„ 19. *Pontocypris elegans*, n. sp., from right side.
„ 20. „ „ „ above. × 74.
„ 21. *Pontocypris rostrata*, n. sp., from right side.
„ 22. „ „ „ above. × 71.
„ 23. *Xestolebris squamigera*, n. sp., from right side.
„ 24. „ „ „ above. × 90.
„ 25. „ „ „ posterior end.
„ 26. *Paracytheridæa perplexa*, n. sp., from above.
„ 27. „ „ „ right side. × 71.
„ 28. *Pseudocythere minuta*, n. sp., from right side.
„ 29. „ „ „ above. × 134.
„ 30. *Pontocypris tumida*, n. sp., from right side.
„ 31. „ „ „ above. × 45.
„ 32. *Paradoxostoma attenuatum*, n. sp., from right side.
„ 33. „ „ „ above. × 74.
„ 34. *Anchistrocheles bradyi*, n. sp., from right side.
„ 35. „ „ „ above. × 45.

PLATE II.

Fig. 1. *Paradoxostoma stebbingi*, n. sp., from right side.
„ 2. „ „ „ above. × 74.
„ 3. *Xestolebris tumida*, n. sp., from right side.
„ 4. „ „ „ above. × 72.
„ 5. *Xestolebris irrasa*, n. sp., from right side.
„ 6. „ „ „ above. × 72.

Fig. 7. *Cytherura concinna*, n. sp., from above.
„ 8. „ „ „ right side. × 72.
„ 9. *Cythere knoxi*, n. sp., from right side.
„ 10. „ „ „ above. × 72.
„ 11. *Cythere chalmersi*, n. sp., from right side.
„ 12. „ „ „ above. × 61.
„ 13. *Cythere imthurni*, n. sp., from right side.
„ 14. „ „ „ above. × 76.
„ 15. *Cythere thompsoni*, n. sp., from right side.
„ 16. „ „ „ above. × 60.
„ 17. *Cythere donnani*, n. sp., from right side.
„ 18. „ „ „ above. × 37·5.
„ 19. *Cythere willeyi*, n. sp., from right side.
„ 20. „ „ „ above. × 46.
„ 21. *Cythere hornelli*, n. sp., from right side. = ?Tanella dracæ ?
„ 22. „ „ „ above. × 72.
„ 23. *Cythere halyi*, n. sp., from right side.
„ 24. „ „ „ above. × 60.
„ 25. *Cythere kelaarti*, n. sp., from right side.
„ 26. „ „ „ above. × 60.
„ 27. *Cythere willisi*, n. sp., from right side.
„ 28. „ „ „ above. × 47.
„ 29. *Cythere colletti*, n. sp., from right side.
„ 30. „ „ „ above. × 72.
„ 31. *Cythere holdsworthi*, n. sp., from right side.
„ 32. „ „ „ above. × 70.
„ 33. *Cytherella ondaatjei*, n. sp., from right side.
„ 34. „ „ „ above. × 60.
„ 35. *Cytherella vraspillaii*, n. sp., from right side.
„ 36. „ „ „ above. × 60.
„ 37. *Sarsiella gracilis*, postabdomen. × 70.
„ 38. *Sarsiella similis*, „ × 120.
„ 39. *Sarsiella crispata*, „ × 70.
„ 40. *Sarsiella carinata*, „ × 70.
„ 41. „ „ antennule. × 70.
„ 42. *Sarsiella tumida*, postabdomen. × 70.
„ 43. *Codonocera cruenta*, postabdomen. × 70.
„ 44. „ modified seta of antennule. × 110.
„ 45. „ prehensile branch of antenna. × 70.
„ 46. *Xestolebris irrasa*, antennule. × 260.
„ 47. „ antenna. × 156.
„ 48. *Xestolebris squamigera*, antennule. × 260.
„ 49. „ antenna. × 156.

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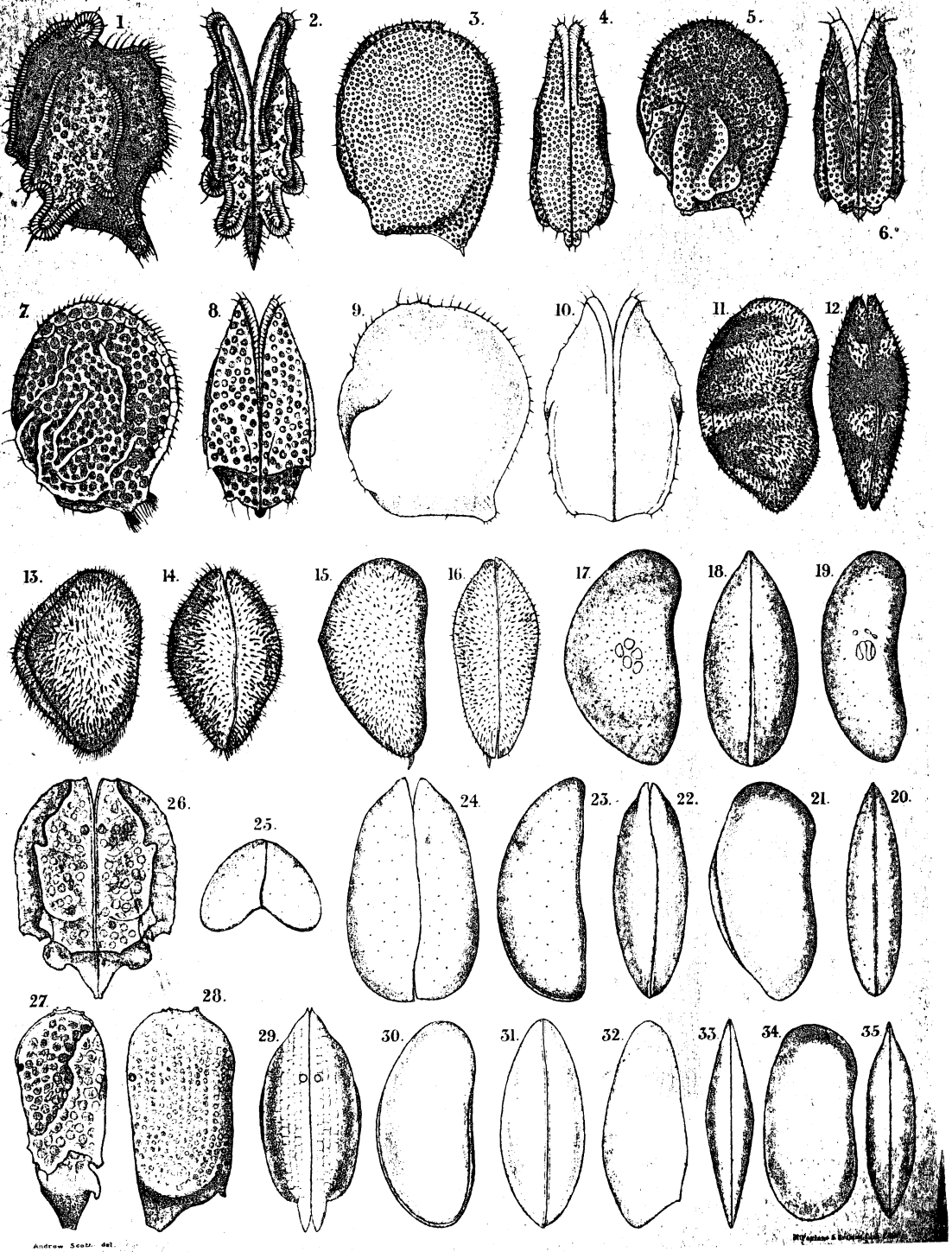

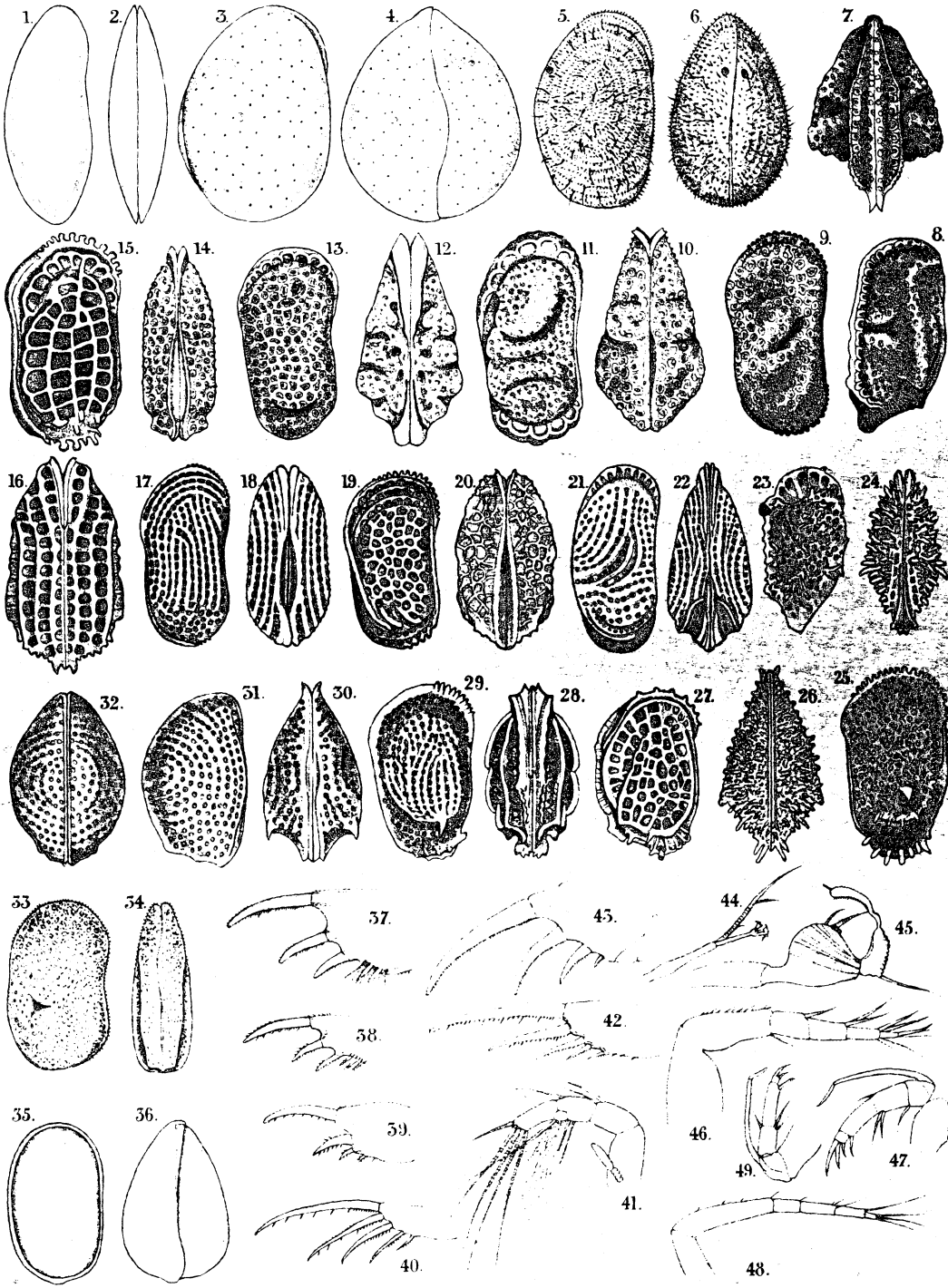
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