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II.

A MONOGRAPH OF THE MARINE AND FRESHWATER OSTRACODA OF THE
NORTH ATLANTIC AND OF NORTH-WESTERN EUROPE. SECTION I.
PODOCOPA. BY GEORGE STEWARDSON BRADY, M.D., F.R.S., F.L.S., AND
THE REV. ALFRED M. NORMAN, M.A., D.C.L., F.L.S.

(PLATES VIII. TO XXIII.)



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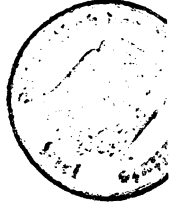
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(Communicated by PROFESSOR HADDON.)

[Read MARCH, 1868.]

WE propose to include in this memoir all the species of Podocopa known to us as inhabiting the Arctic Seas, the North Atlantic Ocean, and North-Western Europe. We have regarded the North Atlantic as terminating at 35° N., thus excluding the tropical species of the West Indies and Gulf of Mexico. The Mediterranean is not included, as a consideration of all the forms belonging to that area would have too greatly extended our work. In North-Western Europe we embrace Scandinavia, Denmark, Holland, Belgium, Germany, Austria, France, and the British Islands.

The marine species of Norway have been studied by Professor G. O. Sars and Dr. Norman; those of Sweden by Professor Lilljeborg. Little has been done with respect to the marine species of Denmark and Germany since the time of O. F. Müller, except that a few species have been carefully investigated by Dr. Zenker and Dr. Wilh. Müller. Our knowledge of Dutch marine Ostracoda has been derived from the examination by Dr. Brady of material dredged by Mr. E. C. Davison in the rivers Maas and Scheldt. The Ostracoda of the coasts of Belgium and France have not been studied, except that a large number of interesting forms have rewarded the investigations of the Marquis de Folin, and Dr. Norman in the Fosse de Cap Breton in the Bay of Biscay. The expeditions of the British Government, in H. M. SS. *Porcupine*, *Lightning*, and *Triton*, have afforded valuable material with respect to the Ostracodan fauna of the depths of the Atlantic. With the exception of Greenlandic forms, which are known to us from mud and sand procured from whalers, from the dredgings of Dr. Sutherland, and from the expedition of the

Alert, Discovery, and Valorous, little is known of truly Arctic species. The Ostracoda of the American side of the Atlantic have not been studied, and our endeavours to procure material from that portion of the area have hitherto failed. A few species from the Gulf of St. Lawrence were described, some years ago, by Dr. Brady, but nothing whatever is known of the species which inhabit the coasts of the United States.

The freshwater Ostracoda have been more or less studied in Norway by G. O. Sars; in Sweden by Lilljeborg; in Denmark by no one since the time of O. F. Müller; in Holland not at all; in Belgium by Plateau; in Germany by Koch, Zaddach, and Wilh. Müller; and a few species have also been kindly forwarded to us by Herr Poppe; in England by Baird, our old friend Mr. D. Robertson, Mr. Scott, and ourselves. At the time when the MS. of this paper was sent to the printer we knew absolutely nothing of the inland Ostracoda of France; but these are now being worked at by Professor R. Moniez, of Lille, who has published two or three short but interesting Papers upon them.

The distribution of living species, as far as known, is briefly recorded, whether within or beyond the district with which we are more immediately concerned; and the same method has been adopted with respect to species occurring in post-tertiary deposits.

The present memoir, though embracing a larger area, is intended to supplement the account of the British species given in "A Monograph of the recent British Ostracoda," published by Professor G. S. Brady in the Transactions of the Linnean Society (vol. xxvi., 1868). The species referred to in that work are therefore not here re-described or figured, except in the few cases where it was considered that the illustrations in the "Monograph" were scarcely sufficient to distinguish the species from more recently discovered forms.

For the same reason the synonymic references given in that "Monograph" will not be found here, though we have thought it convenient briefly to mention such synonyms; so that in these pages the full synonymy may be found, without an undue repetition of references. A list of the principal Works and Papers on the Ostracoda of the area embraced in this memoir is given at the end.

Without the kindly co-operation of many others, this work must have been far less complete than we have now been able to make it.

Mr. D. Robertson has most kindly placed his very extensive collection of Ostracoda, including some undescribed forms, at our disposal; and we are indebted to Mr. T. Scott and the late Dr. Malcolmson for the communication of new or interesting forms.

To our ever kind friend, Professor G. O. Sars, of Christiania, we are greatly indebted for much valuable help. Not only has he supplied us with specimens of many Norwegian species described by himself and otherwise unattainable, but,

when unable to send specimens, has most liberally given us outline drawings for reproduction in our illustrations.

Professor Seeliger of Königsberg has rendered valuable assistance to the cause of science in generously entrusting to our care the types of Zaddach's species preserved in the Museum of that town, and thus synonymy has been rectified in a way which could not otherwise have been done.

Our sincere thanks for the communication of specimens and information are also due to Professor Lilljeborg of Upsala, Dr. Wilhelm Müller of Greifswald, Herr Poppe of Vegesack, Professor Moniez of Lille, Professor Orley of Budapest, and Professor Heller of Innsbrück.

Lastly, we owe much to the kindness of our friend, the Marquis de Folin, who has not only placed at our disposal many Ostracoda dredged by himself in his important investigations in the Fosse de Cap Breton, but also some highly interesting *Myodocopa* procured from great depths by the French expeditions of the *Travailleur* and *Talisman*.

The mark (!) after a locality indicates that we have identified specimens from that place, or the types of the author after whose name it is placed.

OSTRACODA.

Section I.—Podocopa.

Fam. I.—CYPRIDIDÆ.

Shell generally thin and horny; valves equal or but slightly unequal in size, surface usually smooth, or simply punctated; ventral margins more or less sinuated; hinge margins edentulous. Eyes simple, usually confluent, sometimes wanting. Antennules (first antennæ) slender, usually seven-jointed, very flexile, usually provided with a number of long hairs forming a dense brush. Antennæ (second antennæ) pediform, geniculated, four- or five-jointed, clawed at the apex, second joint mostly bearing an apical brush of hairs. Mandibles strong, apex strongly toothed, palp four-jointed, with a setiferous branchial plate at the base. Two pairs of maxillæ, the first pair four-digitate; its external branch distinctly two-jointed, bearing a large setiferous branchial plate; second pair small, composed of a single prehensile lobe and a palp, which in the female is

generally simple, rarely pediform, is in the male prehensile. Two pairs of feet dissimilar in structure, the anterior pair strong, ambulatory, directed downwards, and having a long curved apical claw; posterior bent backwards within the shell, and not used for motion. Caudal rami usually well developed, elongated, very mobile, and bearing two or three apical claws. Intestine forming two dilatations, of which the anterior is provided with cœcal appendages. Generative organs large, and of complex structure, and partly extended within the valves; in the male frequently a complex whorled sac (?ejaculatory organ) connected with the testis; copulatory organs symmetrical, and of moderate size.

Fam. II.—BAIRDIIDÆ.

Shell generally hard and calcareous, valves unequal, surface smooth, hinge toothless. No eyes. Antennules scarcely geniculated, seven-jointed; first two joints elongated, the rest very short, but beset with long hairs. Antennæ pediform, five-jointed, clawed, but destitute of a setose brush. Mandibles large; biting extremity incurved, and strongly toothed; palp well developed; branchial appendage small, and bearing only a few non-ciliated setæ. First pair of maxillæ only adapted for mastication; second pair, as well as the two following pairs of appendages, ambulatory, pediform, and directed downwards. Two pairs of branchial plates, one attached to the first, the other to the second pair of maxillæ. Caudal rami well developed, though not large; linear, clawed. Ovaria and testes not extended within the valves; whorled sac wanting. Copulative organs of the male moderately large and complex. Animal not adapted for swimming.

We follow Professor G. O. Sars in dividing the old group, Cyprididæ, into two families, Cyprididæ and Bairdiidæ, the chief points of distinction being found in the structure of the second and fourth pair of "post-oral appendages" (second maxillæ and second pair of feet); also in the absence of a whorled sac in the males of the Bairdiidæ, and in their very unequally-valved shell.

Fam. III.—DARWINULIDÆ.

Antennæ destitute of swimming setæ and of poison gland and duct. Mandible-palp three-jointed; the basal joint large and densely setiferous. Two pairs of jaws, the first bearing a large branchial plate, the second a smaller branchial plate and a pediform palp. Two pairs of feet external to the valves. Post-abdominal lobes sub-conical, small.

Fam. IV.—CYTHERIDÆ.

“Shell mostly hard, calcareous, usually with an uneven surface, either sparingly clothed with hairs or altogether bare; hinge generally toothed. Eyes more or less separated, sometimes wanting. Antennules sub-pediform, geniculate at the base; five- to seven-jointed; beset with short setæ, which are partly spine-like. Antennæ strong, pediform, curved, four- or five-jointed, with two terminal claws; basal joint bearing a long setiform, biarticulate flagellum, which conveys a duct from a poison-gland; second joint destitute of a setose brush. Mandibles usually strong, enlarged and toothed at the apex; palp well developed, directed forwards, and bearing on the posterior margin strong, curved setæ, and a poorly-developed branchial appendage. First pair of post-oral appendages more or less maxilliform; three following alike, pediform, directed downwards, adapted for walking. One pair of branchial laminae attached to the maxillæ. Caudal rami obsolete, forming two rounded, setiferous lobes; copulatory organs of the male large and complex: in addition to which there is a curious bifurcate appendage between the feet of the first pair; ovaria and testes not produced between the valves; no mucous gland. Animal incapable of swimming.” (G. O. Sars.)

Fam. V.—PARADOXOSTOMATIDÆ.

Shell thin and fragile, smooth; contact margins imperfectly closed in front, allowing of the protrusion of the mandibles. Poison glands large; noticating setæ large and stout. Mandibles slender and styliform, adapted for piercing, enclosed in a suctorial sheath formed by the coalesced labrum and labium; palp without a branchial appendage. First pair of maxillæ bearing a branchial plate, which is provided with two setæ.

Fam. I.—CYPRIDIDÆ.

Genus I. — CYPRIA, Zenker.

Limbs longer and more slender than in *Cypris*; swimming setæ of the antennæ few (usually five) in number, and of great length. Apical joint of the mandible-palp very long and slender. Principal apical seta of the second foot very long—about as long as the entire limb. In the male the second pair of jaws is prehensile and somewhat different on the two sides (right and left); the whorled sac is cylindrical, and bears seven whorls of filaments, the two terminal whorls chitinous, rigid, and composed of few (seventeen); the other five of very numerous and fine filaments; the upper extremity of the organ forms a dilated blind pouch, the lower (distal) extremity forming a funnel-shaped sac, which leads into the *vas deferens*; copulative organs of moderate size. Zoosperms longer and more slender than in *Cypris*; arranged in two compact coils over the back of the animal. Eyes large, not widely separated, united at the base; ovarian tubes of female having a double curve.

[*Type*.—*Cypria exsculpta* (Fischer) = *C. punctata*, var. *striata*, Zenker.]

The species of *Cypria* are all small, and ovate or reniform in outline. They form two groups, one containing *C. exsculpta* and *C. ophthalmica*, in which the valves are sub-compressed, the other embracing the remaining forms, which are all very tumid.

1. *Cypria exsculpta* (S. Fischer).

(Plate XI., figs. 1-4.)

1858. *Cypris elegantula*, Lilljeborg, De Crust. ex ord. tribus, p. 206 (non *C. elegantula*, Fischer).

1854. *Cypria exsculpta*, Fischer, Beitrag zur Kenntniss der Ostracoden, p. 18, pl. xix., figs. 86-98.

1854. *Cypria punctata*, var. *striata*, Zenker, Monog. der Ostracoden, Archiv für Naturgeschichte, p. 77, pl. iii., figs. 1-6.

1868. *Cypris striolata*, Brady, Mon. rec. Brit. Ostrac., p. 372, pl. xxiv., figs. 6-10.

1880. *Cypris granulata*, Robertson, Fresh and Brackish Water Ostracoda of Clydesdale, p. 18 (junior.)

Additional localities.—This is a widely-distributed species, and has been met with in many localities in the East Anglian district (G. S. B. & D. R.): Osmere, near Whitchurch, Shropshire (G. S. B.): at Lochmaben; Cumbrae; Upper Braide, Farne Loch, Edinburgh; Possil Marsh, Glasgow; and canal at Peterhead; in lochs near Dumfries, and in the Isle of Lewis (D. R.); at Hairmyres, near East Kilbride;

in moor tarns at Glenluce, and in Whitefield Loch, Wigtonshire; Loch Aber, Kircudbrightshire; Newbiggin, Northumberland; Seaton Carew, Co. Durham; and Kibworth, Leicestershire (A. M. N.)

Distribution.—Sweden (Lilljeborg!); Prussia (Zenker); Russia (S. Fischer); France (Moniez).

2. *Cypria ophthalmica* (Jurine).

(Plate xi., figs. 5–9.)

1820. *Monoculus ophthalmicus*, Jurine, Hist. des Monocles, p. 178, pl. xix., figs. 16, 17.
 1838. (?) *Cypria punctata*, Koch, Deutschl. Crustac., H. 21, p. 23, fig. 23 (*non C. punctata*, Jurine).
 1837. *Cypria tenera*, idem, ibidem, H. 12, p. 3.
 1835. *Cypria compressa*, Baird, Trans. Berw. Nat. Club, vol. i., p. 100, pl. iii., fig. 16.
 1851. *Cypria elegantula*, Fischer, Ueber das Genus Cypria, p. 161, pl. x., figs. 12, 13.
 1868. *Cypria compressa*, Brady, Mon. rec. Brit. Ostrac., p. 372, pl. xxiv., figs. 1–5; pl. xxxvi., fig. 6.
 1872. *Cypria ovum*, Fric, Die Krustenthiere Böhmens, p. 228.
 1875. *Cypria compressa*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 123, pl. i., figs. 5, 6.

One of the commonest of British species, occurring everywhere in ditches, ponds, and lakes, both freshwater and brackish.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Belgium (Plateau); Germany (Koch and Wilh. Müller); Geneva (Jurine); Russia (S. Fischer); Bohemia (Fric); France (Moniez), also recorded by him as *C. joanna*; Transylvania (Daday).

Fossil.—England, Scotland.

3. *Cypria lævis* (O. F. Müller).

1785. *Cypria lævis*, Müller, Entom., p. 52, pl. iii., figs. 7–9.
 1820. *Monoculus ovum*, Jurine, Hist. des Monocles, p. 179, pl. xix., figs. 18, 19.
 1835. *Cypria minuta*, Baird, Trans. Berw. Nat. Club, i., p. 99, pl. iii., fig. 9;
 and Brit. Entom., p. 155, pl. xviii., figs. 7, 8.
 1837. *Cypria brunnea and lepidula*, Koch, Deutschlands Crustaceen, H. x., 5 and 6.
 1844. *Cypria vulgaris*, Zaddach, Syn. Crust. Pruss. Prod., p. 35.
 1851. *Cypria pantherina*, Fischer, Abhandl. über das Genus Cypria, p. 163, pl. xi., figs. 6–8.
 1853. *Cypria ovum*, Lilljeborg, De Crust. ex ord. tribus, p. 113, pl. x., figs. 13–15.
 1868. *Cypria ovum*, Brady, Mon. rec. Brit. Ostrac., p. 373, pl. xxiv., figs. 31–34, 43–45; and pl. xxxvi., fig. 8.
 1868. *Cypria ovum*, Claus, Beiträge zur Kenntniss der Ostracoden, Entwicklungsgeschichte von Cypria, pl. i., figs. 1–5.
 1874. *Cypria ovum*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 125, pl. i., figs. 29–31.

Common in Great Britain and Ireland, in fresh and brackish water.

Distribution.—Norway (Sars); Sweden (Lilljeborg!); North Germany! (Poppe); Denmark (Müller); Belgium (Plateau); France (Moniez); Prussia (Zaddach!); Switzerland (Jurine); Russia (Fischer); Hungary (Orley); Finland (Cajander); Transylvania (Daday).

Fossil.—England, South Wales (Cardiff); var. ? Sicily (Seguenza).

There is great difficulty in disentangling the synonymy of this and the following species. The colouring of Koch's figures of *C. brunnea* and *C. lepidula* is very characteristic of this species, though the outline, as seen from above, is represented as much too tumid.

4. *Cypria serena* (Koch).

1838. *Cypria serena*, Koch, Deutschlands Crustaceen, H. xxi., 22.
 1838. *Cypria fuscata*, Koch, id., ibid., H. xxi., 21.
 1844. (?) *Cypria rubida*, Zaddach, Synops. Crust. Prussic. Prod., p. 36.
 1851. *Cypria scutigera*, Fischer, Abhandl. über das Genus Cypria, p. 162, pl. xi., figs. 3-5.
 1854. *Cypria ovum*, Zenker, Monog. der Ostracoden, p. 79, pl. iii. v.
 1868. *Cypria levis* Brady, Mon. rec. Brit. Ostrac., p. 374, pl. xxiv., figs. 6-8.
 1874. *Cypria levis*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 126, pl. i., figs. 25-28.
 1874. *Cypria ovum*, Heller, Unters. über die Crustaceen Tirols, p. 89.
 1880. *Cypria ovum*, Wilh. Müller, Zeitsch. für gesamt. Naturwiss., vol. vi., p. 221, pl. iv., fig. 11.

Common in ditches, slow streams, and lakes.

Distribution.—Norway (Sars); Sweden (Lilljeborg!); Belgium (Plateau); France (Moniez); Prussia (Zaddach); Pomerania (Wilh. Müller!); Tyrol (Heller); Hungary (Orley); North Germany (Poppe!).

Fossil.—Scotland, England.

No specimens of *C. rubida* exist in Zaddach's collection.

5. *Cypria joanna* (Baird).

1868. *Cypria joanna*, Brady, Mon. rec. Brit. Ostrac., p. 375.

This species is unknown to us.

Genus II.—CYCLOCYPRIS, n. g.

(Κύκλος, a circle.)

Like *Cypria*, except in the structure of the mandible—which has the terminal joint of the palp short—and the whorled sac of the male, the whorls of which are composed of very numerous and excessively fine and long filaments; the extremities of the cylinder are not dilated, nor are they provided with circlets of stout setæ, as in *Cypria*, nor is there any distinct central axis; the whole organ is enveloped in a capacious capsule.

Cyclocypris globosa (G. O. Sars).

(Plate XIV., figs. 1, 2; Plate XI., figs. 10–18.)

1844. (?) *Cypris incana*, Zaddach, Syn. Crust. Pruss. Prod., p. 88.1868. *Cypris globosa*, G. O. Sars, Om en i Sommeren 1862 foretagen Zoologisk Reise i Christianias og Trondhjems Stifter, p. 27.1868. *Cypris cinerea*, Brady, Mon. rec. Brit. Ostrac., p. 374, pl. xxiv., figs. 39–42; pl. xxxvi., fig. 7.1874. *Cypris cinerea*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 126, pl. ii., figs. 6, 7.

Shell of the male very tumid; seen laterally, ovate or sub-ovate; highest near the middle; height equal to two-thirds of the length; extremities rounded, the anterior somewhat the narrower of the two; dorsal margin gently arched in the middle, sloping steeply behind, but more gradually towards the front; ventral margin almost straight. Seen from above, the outline is broadly ovate; greatest width equal to the height, and situated behind the middle; broadly rounded behind, abruptly tapered and subacuminate in front. Surface smooth and polished for the most part, but on the ventral margin and at the extremities clothed with numerous short hairs, intermingled with which are a few of excessive length; at the posterior ventral angle is a very dense growth of short hairs. Colour, brown, or yellowish-brown, with darker cloudings. Length, 0·84 mm. The long setæ of the antennæ are only two or three in number. Female unknown.

The specimens from which the description in the "Monograph of recent British Ostracoda" was drawn up were immature, and the description and figures consequently faulty. We have therefore here re-described the species from full-grown examples.

Additional localities.—Isle of Lewis, and Lochmaben (D. R.); ditches by side of Loch Ascog; side of Greenan Loch; and pools above high-water mark, West Loch Tarbert (Mr. T. Scott): Broomley Lough, Northumberland (A.M.N.): ditch near Barlay Loch, Kirkeudbrightshire; and pools at head of Easedale, Westmoreland (G. S. B.) No specimens of *C. incana* exist in Zaddach's collection.

Distribution.—Norway (G. O. Sars).

Fossil.—Scotland (Crofthead).

Genus III.—SCOTTIA, n. g.

Shell not unlike that of the tumid forms of *Cypria*. Setæ of the antennæ extremely short, not reaching even to the base of the claws. Whorled sac of the male as in *Cyprois*. Limbs short and stout; claws of the caudal rami very stout, short, and twisted.

Scottia browniana (Jones).

(Plate IX., figs. 23, 24; Plate XI., figs. 19–25.)

1856. *Cypris browniana*, Jones, Mon. Tertiary Entom., p. 13, pl. i., figs. 1, a-d.

Shell short, high, and very tumid; seen laterally sub-ovate, highest behind the middle; height equal to more than half the length; anterior extremity obliquely, posterior more evenly rounded and broader; dorsal margin forming a somewhat flattened arch, the hinder slope steeper than that in front; ventral margin only slightly sinuated. Seen from above, broadly ovate, widest in the middle, breadth equal to the height; ends very broadly rounded, and nearly equal; end view almost circular. Surface smooth and polished, with a few scattered minute hairs, which are only with difficulty seen; shell pellucid, irregularly pencilled with dark markings; the brown colour of the animal also visible through the shell. Setose brush of the antenna consisting of only three or four very short, simple hairs; terminal claws armed with a comb-like tuft of short, rigid setæ, extending over the middle of the inner margin for about one-half of its length, and ending abruptly at each extremity. The two claws of each caudal ramus are provided with a similar arrangement; but the tuft is not more than one-fourth of the length of the claw, and the secondary marginal setæ are only very finely pectinated. The second maxilla bears a 6-setose branchial plate, and, in the male, has a strongly-falcate claw. The first pair of feet bear (instead of one) two long falcate ungues at the apex.

Mr. Thomas Scott has recently sent us this species, which he found in pools near Loch Fadd, in the Island of Bute. Its occurrence in a recent state is of great interest, as it has hitherto been known only from Professor Rupert Jones's description of the fossil shell. We have pleasure in naming the genus after Mr. Scott, in acknowledgment of his careful and industrious observations of marine and freshwater invertebrata.

Fossil.—Clacton, in Essex (T. R. Jones).

Genus IV.—CYPRIS, Müller.

[Type, *C. pubera*, Müller.]

1. *Cypris fuscata*, Jurine.

(Plate XII., figs. 3, 4.)

Synonyms: *C. hispida*, Baird; *C. oblonga*, Brady; *C. fusca*, Baird, *et auct. plur.*

1820. *Cypris fuscata*, Jurine, Hist. des Monocles de Genève, p. 174, pl. xix., figs. 1, 2.
 1821. (?) *Cypris fusca*, Straus Durckheim, Mém. des Mus. d'Hist. Nat., vii., p. 59, pl. i., figs. 1-16.
 1837. (?) *Cypris adusta* Koch, Deutschlands Crustaceen, H. ii. 3.
 1838. *Cypris galbinea*, Koch, Deutschlands Crustaceen, H. xxi. 19 (junior).
 1844. *Cypris fuscata*, Zaddach, Synopsis Crust. Prussicorum Prodromus, p. 92.
 1853. *Cypris fuscata*, Lilljeborg, De Crust. ex ord. trib. Clad. Ostrac. et Coped., p. 114, pl. x., figs. 6-9;
 pl. xii., fig. 5.
 1868. *Cypris fusca*, Brady, Mon. rec. Brit. Ostrac., p. 362, pl. xxiii., figs. 10-15.

One of the most abundant British species.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Denmark (? Müller); Belgium (Plateau); Prussia (Zaddach!); Pomerania (Wilh. Müller!); Geneva (Jurine); Tyrol (Heller); Bohemia (A. Fric); Hungary (Orley); Russia (S. Fischer); Normandy (Moniez); Italy (Saccardo); Transylvania (Daday).

It is remarkable that, as far as we are aware, this common species has not yet been found in a fossil state.

We think that there can be no doubt that Koch's *C. galbinea* represents the young of this species. Types of Dr. Baird's *Candona hispidu* are in Dr. Norman's collection.

2. *Cypris incongruens*, Ramdohr.

(Plate XII., figs. 8, 9.)

Synonyms: *M. ruber et aurantius*, Jurine, *et auct.*

1844. *Cypris aurantia*, Zaddach, Syn. Crust. Pruss. Prod., p. 37.
 1844. (?) *Cypris ophthalma*, Koch, Deutschlands Crustaceen, &c., H. 36, p. 17 (junior).
 1855. *Cypris aurantia*, S. Fischer, Beitrag zur Kenntniss der Ostracoden, p. 650, pl. i., figs. 29-31,
 60, 61.
 1868. *Cypris incongruens*, Brady, Mon. rec. Brit. Ostrac., p. 362, pl. xxiii., figs. 16-22.

Additional localities.—Seaton Delaval, Northumberland; Rainton and Seaton-Carew, Co. Durham; Weston-on-the-Green, Oxfordshire (A. M. N.), near Staithe, Yorkshire (G.S.B.)

Apparently generally distributed through the British Islands, but most commonly in slightly brackish water: in such situations it often occurs abundantly and of large growth.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Belgium (Plateau); France (Moniez); Prussia (Zaddach!); Pomerania (Wilh. Müller!); Geneva (Jurine); Hungary (Orley); Bavaria, Sicily, Russia, Madeira, and Egypt (S. Fischer); Botanical Gardens, Palermo (A. M. N.); Finland (Cajander); Transylvania (Daday).

Lilljeborg is of opinion that the present species is the *C. fusca* of Straus-Durckheim. It is true that the figure more closely resembles the outline of *C. incongruens*, but the description and name *fusca* more closely apply to *C. fuscata*, Jurine, under which species we have referred to it as a doubtful synonym.

3. *Cypris pubera*, O. F. Müller.

Synonym: *C. cuneata*, Baird (junior), and *C. punctillata*, Norman.

1785. *Cypris pubera*, O. F. Müller, Entomotraca, p. 56, pl. v., figs. 1-5.
 1820. *Monoculus oratus*, Jurine, Hist. des Monocles, p. 170, pl. xvii., figs. 5, 6 (junior).
 1844. *Cypris pubera*, Zaddach, Syn. Crust. Prussic. Prod., p. 34.
 1844. *Cypris striata*, Zaddach, Syn. Crust. Pruss. Prod., p. 32 (junior).
 1851. *Cypris pubera*, S. Fischer, Ueber das Genus Cypris, p. 154, pl. viii., figs. 1-8.
 1858. *Cypris pubera*, Lilljeborg, De Crust. ex ord. tribus, p. 109, pl. x., figs. 1-5.
 1868. *Cypris punctillata*, Brady, Mon. rec. Brit. Ostrac., p. 365, pl. xxvi., figs. 1-7; pl. xxxvi., fig. 11.
 1868. *Cypris pubera*, Heller, Unters. über die Crustaceen Tirols, p. 83.

Additional localities.—Town Hill Loch, Dunfermline (D. R.): Hemsworth Dam, Yorkshire; freshwater pond on Seaton Marsh, Co. Durham (G. S. B.). The British Museum collection contains specimens from Highgate Ponds, marked *C. tristriata*.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Denmark (O. F. Müller); Belgium (Plateau); France (Moniez); Prussia (Zaddach!); Pomerania (Wilh. Müller, *in litt.*); Geneva (Jurine); Tyrol (Heller!); Hungary (Orley); Russia (S. Fischer); Finland (Cajander); France (Moniez!); Italy (Saccardo); Transylvania (Daday).

4. *Cypris virens* (Jurine).

Synonym: *C. tristriata*, Baird.

1898. *Cypris gibberata*, Koch, Deutschlands Crustaceen, &c., H. xxi., 20 (junior).
 1844. *Cypris virens*, Zaddach, Syn. Crust. Pruss. Prod., p. 35.
 1844. *Cypris pilosa*, Zaddach, Syn. Crust. Pruss. Prod., p. 36 (= *var. ventricosa*, B. and R.)
 1851. *Cypris ornata*, Fischer, Ueber das Genus Cypris, p. 157, pl. ix., figs. 7-10.
 1868. *Cypris virens*, Brady, Mon. rec. Brit. Ostrac., p. 364, pl. xxiii., figs. 23-32; pl. xxxvi., fig. 1.
 1870. *Cypris ventricosa*, Brady and Robertson, Ann. Nat. Hist., ser. 4, vol. vi., p. 12, pl. iv., figs. 1-3.
 1872. *Cypris pubera*, Fric, Die Krustenthiere Böhmens, p. 226.
 1875. *Cypris virens*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 124, pl. ii., figs. 27, 28.
 1887. *Cypris Helena*, Moniez, Note sur des Ost. Clad. et Hydrachnides observes en Normandie (Bull. Soc. d'études scient. de Paris), separate copy, p. 2.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Belgium (Plateau); Prussia (Zaddach); Pomerania (Wilh. Müller, *in litt.*); Geneva (Jurine); Bohemia (Fric); Hungary (Orley!); France (Moniez); Transylvania (Daday).

Fossil.—Scotland.

One of the commonest and most widely distributed of British freshwater species.

It is an inhabitant of grassy pools and ditches which dry up in the summer. We do not remember to have ever found it in a large sheet of water.

Koch has not apparently met with the adult form, but there can be little doubt that his *C. gibberula* is the young state of *C. virens*.

A large variety, with the row of bead-like tubercles on the anterior margin largely developed, is var. *monilifera* of Brady. This was found by Mr. T. Scott in pools near Loch Ascog, in Bute, and near Paisley; it occurs also in gatherings from the English Fen district, and may be looked upon as a sub-brackish variety.

A still more interesting variety is the *C. ventricosa* (B. and R.), which has recently been re-described from Normandy, as *C. helena*, by Prof. Moniez, to whose kindness we are indebted for specimens. As far as we can judge also from the examination of Zaddach's type specimens of *C. pilosa*, Zaddach (*non* Müller), which are not in good order, it is also the same form. Var. *ventricosa* is more ventricose than the typical *C. virens*, shorter in proportion to the length, and considerably higher, and more broadly rounded at the posterior extremity; but the connexion with the type is shown by the general characters, and especially by the presence, a little within the anterior border, of the row of tubercles, peculiarly characteristic of that species. In clean specimens these tubercles may generally, though not always, be found more or less distinctly developed. An intermediate form has been found by A. M. N. in a pond in Lumley Dene, Co. Durham.

5. *Cypris elliptica*, Baird.

(Plate ix., figs. 5, 6; Plate xii., fig. 12.)

1820. (?) *Cypris unifasciata*, Jurine, Hist. des Monocles, p. 176, pl. xix., figs. 9, 10 (junior).

1846. *Cypris elliptica*, Baird, Trans. Berw. Nat. Club, n., p. 152, 1846; Ann. and Mag. Nat. Hist., xvii., p. 414, pl. ix., fig. 2; Nat. Hist. of Brit. Entom., p. 158, pl. xix., fig. xii.

1850. *Cypris hirsuta*, Fischer, Ueber das Genus Cypris, p. 159, pl. x., figs. 6-8.

Shell seen from the side, sub-ovate, inclining to sub-triangular, highest near the middle; height equal to more than half the length; anterior extremity broadly and evenly rounded, posterior narrowed and rounded; dorsal margin boldly arched, highest in the middle, sloping with a gentle curve to the front, and more steeply

backwards; ventral margin slightly sinuated in the middle. Seen from above, ovate twice as long as broad, widest in the middle, anterior extremity tapered and acuminate, posterior rather broadly rounded. Surface smooth, beset with a few fine, long hairs. Colour greenish, marked irregularly with darker blotches. Length, 1·3 mm.

Found in a pond in Foxton Lane, Sedgfield, Co. Durham (A. M. N.); pond at Highgate, July, 1846 (Baird!); pond at Stocksfield, Northumberland, Mr. H. B. Watson (G. S. B.)

Distribution.—Sweden (Lilljeborg!); Sergiefskoje, Russia (S. Fischer).

The Foxton Lane specimens are larger than the Swedish ones of Professor Lilljeborg, but do not differ materially in other respects. The hirsute character is absent; but as the specimens had been kept in the dry state and loose in a box for twenty-five years, it is not wonderful that delicate hairs should have disappeared. We have examined Dr. Baird's types, which are in the British Museum Collection, and believe them to be identical with the Swedish specimens of Professor Lilljeborg.

6. *Cypris reticulata*, Zaddach.

(Plate VIII., figs. 1, 2; Plate XI., figs. 5–7.)

1837. *Cypris tricincta*, Koch, Deutschlands Crustaceen, &c., X. 1 (*junior?*).
 1844. *Cypris reticulata*, Zaddach, Synops. Crust. Prussic. Prodr., p. 24 (*junior*).
 1844. *Cypris insignis*, idem, ibidem, p. 31 (? *partim*).
 1851. *Cypris affinis*, Fischer, Ueber das Genus *Cypris*, p. 32, pl. x., figs. 9–11.
 1865. *Cypris tessellata* (in part), Brady, Monog. rec. Brit. Ostrac., p. 336, pl. xxiii., figs. 39–45.
 1883. *Cypris affinis*, Lilljeborg, International Fisheries Exhib., London, Sweden Cat., p. 146.

Shell sub-ovate, tumid; seen from the side, sub-reniform; highest in the middle; height equal to half the length; extremities well rounded and nearly equal; superior margin well arched, almost gibbous in the middle; inferior very gently sinuated; seen from above, the outline is regularly ovate, twice as long as broad, the greatest width being in the middle; anterior extremity narrower than the posterior, and acuminate, the left valve being produced to a sharp point. End view nearly circular, except that the ventral margin is produced into a strong keel. Surface of valve smooth, glistening, bearing scattered appressed hairs; colour, pale brownish-green. Length, 1·0 mm.

British localities.—Johnston Loch; Possil Marsh; Bishop Loch; side of Paisley Canal; Mill Loch, Lochmaben; Baron Loch, Peebles (D. R.): Hairmyres, near East Kilbride; and Foxton, near Sedgfield, Co. Durham (A. M. N.): Boldon Flats, near Sunderland; Fenham; and pools north of Seaton Sluice, Northumberland (G. S. B.).

Distribution.—Sweden (Upsala), (Lilljeborg!); Sergiefskoje, near Peterhof, Russia (S. Fischer); Prussia (Zaddach!).

C. affinis comes very near to *C. fusca* and *C. obliqua*, but is more tumid than the former, as well as somewhat different in lateral outline. From the latter it may be known by the valves not being obliquely placed, nor the shell punctated. Moreover, the curious inequality of the two valves, that of the left side being elongated and overlapping in front, gives the species a special peculiarity of its own.

The "tessellated" forms referred in the "Monograph" to *C. tessellata*, Fischer, are really immature examples of one or more species, chiefly of *C. affinis*, Fischer, a species which, in its adult form, has only recently been recognized as British. Tessellation seems to arise from the presence, in the substance of the shell, of symmetrically arranged lacunæ, which become, as age advances, filled up and obliterated by deposit of calcareous matter. Rapidity of growth is probably favourable to the production of the tessellated structure, and may account for its occasional appearance in shells of full size, which, as a rule, possess none of it. In *C. affinis* the tessellation is found in shells of almost full size; and as the shell remains always very thin, it is probable that growth here is unusually rapid. *C. strigata* occurs in little grassy spots, which dry up again very quickly after rain; its great size thus necessitates rapid growth, and remains of tessellation may be seen at times even in the adult. The character of the tessellation varies considerably in different species; but, in one form or another, we have observed it in the young of *C. virens*, *C. pubera*, *C. obliqua*, *C. affinis*, *C. fuscata*, *C. incongruens*, *C. prasina*, *C. crassa*, and *E. strigata*, and these are all the true Cyprides of which we have in our collections the very young stages to examine. *Erpetocypris reptans*, though it inhabits localities similar to those of *E. strigata*, and is probably of equally rapid growth, seems to form an exception to the rule, having in all its stages a perfectly structureless shell. For varieties of tessellation, see Plate xii.

The *C. insignis* of Zaddach is represented in his collection by two forms, one of which is certainly referable to the species now under consideration; the other probably to *C. dromedaria*. But his description, "superficiis marginisque læves," is not correct as applied to the former and tessellated form. Zaddach quotes doubtfully as a synonym, *Monoculus unifasciatus*, Jurine, which species is also recorded by M. Plateau from Belgium, but without description or figure.

7. *Cypris obliqua*, Brady.

(Plate XII., fig. 10.)

1868. *Cypris obliqua*, Brady, Mon. rec. Brit. Ostrac., p. 364, pl. xxiii., figs. 33-38.

Additional localities.—Lewis; Isle of Skye; Bute; Cumbrae; Derwentwater (D. R.): Nostell Lake and Hemsworth Dam, Yorkshire; Blackmere, Shropshire; White Loch, Kirkcudbrightshire; High Cross Tarn, Coniston (G. S. B.): Horsey

Mere and Whittlesea (G. S. B. and D. R.): Crag Lake, Northumberland (A. M. N.)

Apart from difference of shape, the punctate shell of this species helps to distinguish it from the two preceding species.

Distribution.—France (Moniez! recorded by him as *C. unifasciata.*)

8. *Cypris gibbosa*, Baird.

1868. *Cypris gibbosa*, Brady, Mon. rec. Brit. Ostrac., p. 366.

This species is unknown to us. Dr. Baird's description may perhaps be taken to refer either to *Cypris prasina* or *Cypris flava*.

9. *Cypris prasina*, Fischer.

1850. *Cypris strigata*, Baird, Brit. Entom., p. 157 (*non* Müller).

1855. *Cypris prasina*, Fischer, Beitrag zur Kenntniss der Ostracoden, p. 644, pl. xix., figs. 9-13.

1868. *Cypris salina*, Brady, Mon. rec. Brit. Ostrac., p. 368, pl. xxvi., figs. 8-13.

1870. *Cypris fretensis*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 13, pl. iv., figs. 7-9.

1874. *Cypris salina*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 124, pl. i., figs. 17-19.

The typical form of this species must, we think, be taken to be the banded variety described in the "Monograph of Recent British Ostracoda." In Fischer's description certain markings are noticed somewhat vaguely, but are not given in the figures accompanying his memoir, and the specimen on which *C. fretensis* was founded is destitute of markings altogether, but is otherwise indistinguishable from *C. salina*; the characters on which the separation was made now appear to us insufficient to mark a distinction of species.

Additional localities.—Several East Anglian localities have yielded the unbanded (*fretensis*) form—River Deben, Breydon Water, Lake Lothing, Somerton Broad, Whittlesea Dyke (B. and R.); Dykes on Cardiff Moor (Mrs. Robertson); Isle of Lewis (D. R.); Rainton, Co. Durham (A. M. N.)

Distribution.—Fischer's specimens were found near Palermo. Professor Lilljeborg has found it in Sweden (!), and we have specimens collected by Mr. E. C. Davison in the river Scheldt; by the Marquis de Folin, in Adour Maritime, France; and by Prof. Moniez at Lille; Pomerania (Wilh. Müller!).

Fossil.—Scotland (Crofthead).

10. *Cypris* (?) *cambrica*, Brady and Robertson.

(Plate VIII., figs. 12, 13.)

1872. *Cypris* (?) *cambrica*, Brady and Robertson, Ann. Nat. Hist., ser. iv., vol. ix., p. 55, pl. ii., figs. 3, 4.

Shell seen from the side, sub-triangular; greatest height situated behind the middle, and equal to half the length; anterior extremity obtusely, posterior rather obliquely rounded; superior margin boldly arched, slightly gibbous behind the middle; inferior almost straight. The outline, as seen from above, is elongated, with equally tapering acuminate extremities; greatest width in the middle, and considerably less than half the length. Shell thin, semi-transparent, yellowish. Length .75 mm.

We are unable to add anything to what was previously written respecting the single specimen (an empty shell) on which this species was founded. The specimen was taken off Penarth Head, South Wales, on a muddy bottom, and may very probably have been washed down from fresh water.

11. *Cypris ornata*, O. F. Müller.

(Plate VIII., figs. 8, 9.)

1785. *Cypris ornata*, Müller, Entomostraca, p. 51, pl. iii., figs. 4-6.1820. *Monoculus ornatus*, Jurine, Hist. Nat. des Monocles., p. 170, pl. iii., figs. 4-6.1838. *Cypris conchacea*, Koch, Deutschlands Crustaceen, &c., H. xxi., 12, 13, 14.1844. *Cypris ornata*, Zaddach, Synops. Crust. Prussic. Prodr., p. 83.1853. *Cypris ornata*, Lilljeborg, De Crust. ex ord. tribus, p. 110, pl. x., figs. 19, 20; pl. xii., fig. 4.

Cypris ornata has been described by Müller, Jurine, and Lilljeborg, and these three authors seem to have had in view the same species; but Fischer appears not to have seen the true *C. ornata*, and describes under that name specimens referable to *C. virens*, which indeed he erroneously identifies with *C. ornata*.

Shell, seen from the side, oblong, sub-reniform, higher in front than behind; greatest height situated a little in front of the middle, and equal to half the length; extremities rounded, posterior much narrowed; superior margin much elevated in front of the middle, thence sloping with a gentle curve backwards; inferior sinuated in the middle. Seen from above, the outline is oblong-ovate, about twice as long as broad, widest in the middle, extremities acuminate and nearly equal. When placed in a favourable light under the microscope, the shell, especially towards the two extremities, exhibits a strongly reticulated epidermic covering.

the surface smooth and shining, bearing a few scattered hairs; variously coloured, but usually pale green, variously banded with dark green and orange. The setæ of the antennæ are well developed. Length 2·3 mm.

This is certainly one of the finest of European Ostracoda, both as to size and colouring. Those which come nearest in external appearance are *E. reptans*, and *E. strigata* to which it bears not a very distant relation in size, shape, and colour. The well-marked anterior elevation of the shell, and its greater width, are characters sufficiently distinctive, apart from the structure of the antennæ.

British localities.—The only known British specimens of this species were taken in a pond at Shotton Hall, Co. Durham, in May, 1855 (G. S. B.)

Distribution.—Sweden (Lilljeborg!); Denmark (Müller); Belgium (Plateau); France (Moniez); Prussia (Zaddach!); Pomerania (Wilh. Müller!); Switzerland (Jurine); Hungary (Orley); Transylvania (Daday).

12. *Cypris clavata*, Baird.

(Plate IX., figs. 15, 16.)

1858. *Cypris clavata*, Lilljeborg, De Crust. ex ord. tribus, p. 121, pl. xi., figs. 5-7 (but not synonyms).

1868. *Cypris clavata*, Brady, Mon. rec. Brit. Ostrac., p. 367.

Shell somewhat wedge-shaped, highest in front of the middle; height less than half the length; anterior extremity very obtuse, almost truncate, very high and broadly rounded; posterior much narrower, rounded, scarcely more than half the height of the anterior; dorsal margin gibbous in front of the middle, thence sloping with a long and tolerably even declination to the posterior extremity; ventral margin slightly incurved centrally, and a little convex at the extremities. Seen from above, lanceolate; breadth scarcely more than one-third the length; both extremities narrow, the anterior the narrower. Colour (in spirits) pale green, clouded with yellow, and two darker oblique lines behind the middle. Valves sparingly setose. Length 2·4 mm. The setæ of the antennal swimming brush reach to the apex of the claws, as in the typical Cyprides. The species cannot therefore be identified with *C. parabolica* (Koch), which, according to that author, is unable to swim.

The foreign specimen of this remarkably fine Cypris, from which we have drawn up the foregoing description, and which we have figured, is one of Lilljeborg's types, and was taken by him, June 6, 1852, at Nöbbelöf, near Lund, Sweden. We have also received examples, taken at Greifswald, in Pomerania, from Herr Wilh. Müller. There seems not the slightest reason to doubt that Lilljeborg was right in assigning his specimens to the *C. clavata* of Baird. It closely accords with figure and description of that species.

Dr. Baird found *C. clavata* "in a pond near Copenhagen Fields, July, 1836." That spot has long been built over. *C. clavata* has not since been found in our islands; but it must be remembered that those who have been working at the freshwater Ostracoda have almost entirely confined their investigations to Scotland and the North and East of England. Much yet remains to be done in the South and West.

13. *Cypris fischeri*, Lilljeborg.

(Plate x., figs. 3, 4; Plate xii., fig. 2.)

1851. *Cypris fasciata*, Fischer, Ueber das Genus Cypris, p. 151, pl. v., gs. 9-12; pl. vi., figs. 1, 2; and pl. xi., fig. 9 (non *C. fasciata*, Müller).

1888. *Cypris fischeri*, Lilljeborg, International Fisheries Exhibition, London, Sweden Cat., p. 146.

Shell of female long, siliquose, highest behind the middle; height, scarcely more than one-third the length; anterior extremity broadly and a little obliquely rounded, most produced below; posterior extremity narrower than the anterior, greatest projection below the centre, and here a slight appearance of angularity, thence sweeping upwards and backwards to about one-third the length of the valves, where they attain their greatest height; dorsal margin consisting of the just described sweep behind, a central portion straight or even slightly concave, and in front of this, at the commencement of the anterior slope, another very slight situation; ventral margin slightly concave centrally; left valve larger than the right, which falls short of, and closes markedly within, it at the posterior extremity. Seen from above, three times as long as broad, with nearly parallel sides; termination in front acute, the sides there gradually converging; behind narrowly rounded, the overlapping of the left valve is very evident by its projection. Colour (in spirit specimens), pale green, blotched with yellow centrally. The shell is furnished with long but scattered setæ, very conspicuous on the margin. Length 2 mm.

Specimens not quite adult are of nearly equal height throughout, with the dorsal line much straighter. It is from such a specimen that Fischer's figure appears to have been taken.

The antennæ are furnished with long plumose setæ at the end of the third joint. The abdominal rami (as correctly figured by Fischer) have the hinder side of the distant half of the limb minutely pectinate, with very microscopic spinules, and both claws have also very finely-pectinated edges.

The above description and the figures are made from specimens exhibited by Professor Lilljeborg at the International Fisheries Exhibition, which were found by him at Upsala, Sweden, June 7, 1882. The only other examples known are those taken by Fischer in Russia.

14. *Cypris trigonella*, Brady.

1868. *Cypris trigonella*, Brady, Mon. rec. Brit. Ostrac., p. 369, pl. xxv., figs. 41-44.

The only known specimens of this species are those mentioned in the "Monograph," as found by A. M. N., in a gathering made by the late Mr. George Barlee.

The French specimens recorded by Prof. Moniez under this name we find, from examples kindly sent to us, to be the young stage of *C. virens*.

15. *Cypris crassa*, Müller.

(Plate VIII., figs. 10, 11.)

1785. *Cypris crassa*, Müller, Entomostraca, p. 61, pl. vi., figs. 1, 2.

1844. *Cypris ovata*, Zaddach, Syn. Crust. Prussic. Prodr., p. 37 (*non* Jurine).

1851. *Cypris dromedarius*, S. Fischer, Ueber das Genus *Cypris*, p. 153, pl. vii., figs. 5-9.

1888. *Cypris dromedarius*, Lilljeborg, International Fisheries Exhibition, London, Sweden Cat., p. 146.

Shell seen laterally, sub-reniform; greatest height situated near the middle, and equal to half the length; anterior extremity wide, obtuse, only very slightly rounded; posterior much narrower, produced and moderately rounded; the dorsal margin is not very strongly arched, and presents two gibbous elevations, the anterior being the more prominent of the two; there is a rather steep incurved slope towards the posterior extremity; ventral margin deeply sinuated in the middle. Seen from above, ovate, more than twice as long as broad; widest in the middle; extremities produced and sharply mucronate. Swimming setæ of antennæ well developed. Shell-surface smooth, shining, and delicately reticulated. Length, 2·1 mm.

This species is described from specimens in Dr. Norman's collection, taken in Sweden by Professor Lilljeborg.

Distribution.—Sweden (Lilljeborg!); Russia (Fischer).

16. *Cypris bispinosa*, Lucas.

1868. *Cypris bispinosa*, Brady, Mon. rec. Brit. Ostrac., p. 366, pl. xxvi., figs. 14-17.

Additional locality.—In a pool in a small island at Valentia, Ireland (A. M. N.).

This splendid species in the three localities in which it has occurred has been taken near the sea. It is probable, therefore, that it is an inhabitant only of water which is slightly brackish.

ADDITIONAL SPECIES RECORDED FROM N.-W. EUROPE, UNKNOWN TO US.

Cypris rubra (Jurine).

Plateau (p. 57) records this from Belgium. Jurine's description of *Monoculus ruber* is very brief, as follows: "Il diffère de l'orangé (i. e. *Cypris incongruens*) par une couleur moins vive, par une transparence moindre dans la coquille, et surtout par une large zone colorée qui latraverse dans le milieu. Longueur, $\frac{3}{4}$ de ligne."

The figure (pl. xviii., figs. 3, 4, Jurine), is very like that of *C. aurantia* (= *incongruens*), the only difference appearing to be a somewhat greater sinuation of the ventral margin. We doubt its specific distinctness.

Cypris quadripartita, Plateau.

Cypris quadripartita, Plateau, Les Crustacés d'eau douce de Belgique, p. 56, fig. 28.

M. Plateau gives the following description:—Valves seen laterally, almost exactly elliptical; seen from above moderately wide in the middle, and narrower in front than behind; seen endwise, the outline is triangular, with rounded angles, the upper angle corresponding with the hinge-line. (The figure shows a deep furrow in the middle of the ventral, and a shallow one on the dorsal margin.) Valves covered with short hairs and finely punctured; setæ of the antennæ and of the first pair of feet very short. Length, 1.3 mm. Colour, pale green, mottled with yellow, a line of dark brown along the dorsal margin, and another transversely across the middle of each valve. Those lines divide the surface into four equal parts, whence the name *quadripartita*.

M. Plateau found this species only once in the neighbourhood of Ghent.

Cypris strausii, Plateau.

Cypris Strausii, Plateau, Les Crustacés d'eau douce de Belgique, p. 55, fig. 26.

M. Plateau gives the following characters for this species:—Shell elongated, enlarged at the extremities, concave in the middle of the back; colour brown or grey, or almost white; valves marked with small brown patches; surface clothed with hairs; antennæ provided with very short setæ; ova with yellowish-brown nuclei. Length, 1.3 mm.

This species is quite unknown to us, and was found, in the month of May, by Professor Plateau at Sclayn (Namur) in ditches by the road between Namur and Andenne. It may be noted that M. Plateau's figure is not unlike *Limnicythere sancti-patricii*: it is, however, twice as large as the last-named species, and differs also in other respects.

Genus V.—*ERPETOCYPRIS*, n. g.

(From *έρπετόν*, a creeping thing.)

General characters of the animal closely approaching those of *Cypris*; but the setæ of the third joint of the lower antennæ are short, not nearly reaching the apex of the terminal claws, and are not plumose. The second pair of jaws have branchial plates, as in *Cypris*. The power of swimming is lost, and the habits of the animals, which creep along the bottom, are thus very different from those of *Cypris*.

[Type.—*Erpetocypris reptans* (Baird).]

1. *Erpetocypris reptans* (Baird).

(Plate XIII., fig. 27.)

Synonym: *C. virescens*, Brady.

1850. *Candona similis*, Baird, Brit. Entom., p. 162, pl. 19, figs. 2, 2a (*pullus*).
 1868. *Cypris reptans*, Mon. rec. Brit. Ostrac., p. 370, pl. xxv., figs. 10-14; pl. xxxvi., fig. 4.
 1870. *Cypris ornata*, Heller, Untersuch. über die Crustaceen Tirols, p. 92.
 1872. *Cypris reptans*, Fric, Die Krustenthiere Böhmens, p. 226, fig. 24, a-b.
 1872. *Candona similis*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. ix., p. 52, pl. i., figs. 1, 2.
 1875. *Cypris reptans*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 128, pl. ii., figs. 31, 32.

This is a common British species.

C. ornata of Heller is, as shown by specimens kindly sent to us by Professor Heller, not the true *C. ornata*, but the present species.

The caudal rami have the posterior margins fringed with minute setæ arranged in six quite separate pectinated series of about eighteen each.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Prussia (Willh. Müller, *in litt.*); Tyrol (Heller!); Bohemia (Fric); Palermo (A. M. N.); Lac d'Ossegor, Etang de la Négresse, etc., near Bayonne, S.W. France, Marquis de Folin (G. S. B.); Transylvania (Daday).

Fossil.—England.

2. *Erpetocypris strigata* (O. F. Müller).

(Plate VIII., figs. 14, 15.)

1785. *Cypris strigata*, O. F. Müller, Entomostraca, p. 54, pl. iv., figs. 4-6.
 1838. *Cypris lutaria*, Koch, Deutschlands Crustaceen, H. 21, p. 15 (*variety*).
 1844. *Cypris Jurinii*, Zaddach, Synops. Crust. Pruss. Prod., p. 36.
 1851. *Cypris Jurinii*, Fischer, Ueber das Genus Cypris, p. 152, pl. vi., figs. 3-9; pl. vii., figs. 1-4.
 1853. *Cypris Jurinii*, Lilljeborg. De Crust. ex ord. tribus, p. 110, pl. x., figs. 19-22; pl. xii., fig. 4.
 1853. *Cypris lucida*, id., ib., p. 122, pl. xxv., figs. 7-10 (*variety*).
 1870. *Cypris ornata*, Brady (*non* Müller), Nat. Hist. Trans. Northumb. and Durham, vol. III., p. 364, pl. xiv., figs. 1-3.
 1883. *Cypris strigata*, Lilljeborg, Cat. International Fisheries Exhibition, London, Sweden Cat., p. 147.

Shell elongated, not much higher in front than behind; seen from the side, sub-ovate, broadly rounded in front, slightly narrower behind; superior margin evenly and moderately arched, highest in the middle; inferior nearly straight; height equal to rather more than half the length. Seen from above, oval, widest in the middle, and tapering evenly towards the ends, which are pointed; the anterior rather more obtuse than the posterior; width somewhat less than the height. End view almost circular. Surface of the shell smooth, variously banded with pale yellow and green. Setose brush of the antennæ very short, almost rudimentary. Length, 2·5 mm.

We have here taken as the type of *E. strigata* Swedish specimens so named by Professor Lilljeborg, which are now in the collection of Dr. Norman.

British localities.—Duddingston Loch, Ponds near Taymouth Castle and Port Glasgow, Mr. T. Scott (G. S. B.); Thornton Hall, Lanarkshire; Isle of Cumbrac; Burnside Loch, near Glasgow; Little Loch, near Barhead; and Hayston Dam, Peebles (D. R.); grassy pools at Tilmire, near York (A. M. N.); stream in Fulwell Cemetery, Sunderland (G. S. B.). These last-named specimens were originally referred (*loc. cit.*) to *C. ornata*.

Distribution.—Norway (G. O. Sars!); Sweden (Lilljeborg!); Denmark (Müller); Prussia (Zaddach!); Hungary (Orley); Russia (Fischer).

We have given *C. lucida* of Lilljeborg as a synonym of this species on the authority of the author, who writes to us that he is now convinced that the form described by him is "an example of *C. strigata* somewhat more than usually excavated at the lower margins of the valves."

3. *Erpetocypris fasciata* (O. F. Müller).

(Plate IX., figs. 13, 14; Plate XII., fig. 1.)

1785. *Cypris fasciata*, Müller, Entomostraca, p. 53, pl. iv., figs. 1-3.
 1837. *Cypris ephippiata*, Koeh, Deutschlands Crustaceen, H. 12, figs. 1, 2.
 1844. *Cypris fasciata*, Zaddach, Synops. Crust. Pruss. Prod., p. 34.
 1863. *Cypris angustata*, G. O. Sars, Om en i Sommeren 1862 foretagen Zoologisk Reise i Christianias og Trondhjems Stifter, p. 29.
 1868. *Cypris fasciata*, Claus, Beit. zur Kennt. der Ostrac., Entwick. von Cypris, pl. i., figs. 9-11; pl. ii., figs. 12-21.
 1870. *Cypris fasciata*, Heller, Untersuch. über die Crustaceen Tirols, p. 91.

Shell compressed, elongated; seen from the side, sub-triangular, or siliqueose; greatest height in the middle, and equal to somewhat more than one-third of the length; extremities rounded, the posterior much narrowed; dorsal margin gently arched, steeper behind, and slightly incurved just in front of the hinder extremity; ventral nearly straight. Seen from above, the outline is compressed, ovate, thrice as long as broad, widest in the middle, and tapering evenly to the extremities, which are sharply acuminate. The surface of the shell is smooth, white, and marked with two conspicuous transverse green bands, the anterior band generally deeper in colour and more sharply defined than the posterior. Length, 1.55 mm.

The description is drawn from Swedish specimens in the collection of Dr. Brady, for which he was indebted to the kindness of Professor Lilljeborg. It may be noted that the green banding of the shell varies much in different specimens, and that though the anterior band is usually well defined, the posterior one is liable to become a diffuse clouding extending over a considerable portion of the shell; sometimes the two bands are coalescent, the shell taking on a general green colouration, and in other cases the colouring may be almost entirely absent.

The caudal rami have the distal hinder edge smooth, and not minutely pectinated, as in *C. fischeri*, while the claws are very strongly pectinated, instead of minutely so, as in the case of *C. fischeri*.

Distribution.—Norway (G. O. Sars, as *C. ephippiata*); Sweden (Lilljeborg!); Denmark (Müller); Prussia (Zaddach!); Pomerania (Will. Müller!); Tyrol (Heller!); Hungary (Orley); Bedestresser See, North Germany, S. A. Poppe! (G. S. B.)

4. *Erpetocypris serrata* (Norman).

1868. *Cypris serrata*, Brady, Mon. rec. Brit. Ostrac., p. 371, pl. xxv., figs. 15-19; pl. xxxvi., fig. 3.
 1880. *Cypris bicolor*, Wilhelm Müller, Zeits. für ges. Naturwissensch., Bd. vi., p. 236, pl. iv., figs. 24-26.
 1886. *Cypris zenkeri* (Toth and Chyzer), Orley, Ueber die Entomostraken Fauna von Budapest, p. 7.
 (Temieszetrajzi Füzetek., vol. x.)

Additional localities.—Whittlesea; River Nene at Peterborough (G. S. B. & D. R.).

Distribution.—Arnstadt, Thüringen (Wilh. Müller!), Hungary (Orley!); France (Moniez); Transylvania (Daday).

We are indebted to Herr Wilh. Müller for types of his *C. bicolor*, and to Professor Orley for types of the *C. zenkeri* of Toth and Chyzer. Herr Müller has already himself referred *C. bicolor* to the present species, of which also *C. zenkeri* is another synonym. The spirit-preserved specimens of the latter are of paler hue than British examples, the ground colour being light green; the spines of the anterior margin are not developed, as in the types, but the backward-directed spines of the posterior margin are present as usual.

5. *Erpetocypris tumefacta* (Brady and Robertson).

(Plate VIII., figs. 5-7; Plate XIII., fig. 18.)

1870. *Cypris tumefacta*, Brady and Robertson, Ostracoda and Foraminifera of Tidal Rivers, Ann. Nat. Hist., ser. iv., vol. vi., p. 13, pl. iv., figs. 4-6.

Shell very tumid; seen from the side, sub-reniform, somewhat depressed in front; greatest height in the middle, and equal to rather more than half the length; extremities rounded; superior margin boldly arched; inferior gently sinuated in the middle. Seen from above, broadly ovate, acutely mucronate in front, well rounded behind; sides sub-parallel; greatest width situated in the middle, and rather greater than the height. End-view sub-rhomboidal, pointed above, broadly rounded below; sides excessively convex. Shell perfectly smooth, opaque white or cream-coloured, with clouded yellow patches, and sparingly coated with very fine hairs. Three tufts of very short non-plumose antennal setæ, one consisting of four setæ on the penultimate joint, another of seven or eight setæ on the antepenultimate, which also bears a fascicle of about four still smaller setæ. Length, 0.9 mm.

Seen laterally this species is not unlike *C. virens* or *C. incongruens*, but seen from above or endwise the difference of contour is very marked, being very gibbous.

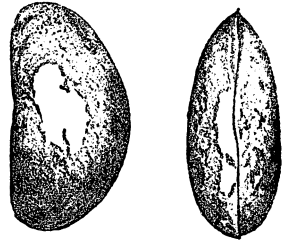
British localities.—The types were found in Northumberland, but it has since been taken in the river Lathkill, Derbyshire, and near Sunderland (G. S. B.), and in the following Scotch localities by D. R.: Cumbræ; Peebles; Lochmaben;

Lochgoon ; Yetholm ; Eaglesham ; and Bishop and Woodend Lochs : near Glasgow ; also near Taymouth Castle ; near Paisley ; in pools near Greenan Loch. In pools by Loch Ascog and Loch Fadd ; and at Tarbert, Loch Fyne (Mr. T. Scott).

Distribution.—Common in the neighbourhood of Christiania, Norway (G. O. Sars *in litt.*).

6. *Erpetocypris robertsoni*, n. sp.

Shell seen from the side, sub-reniform, highest just behind the middle ; height equal to half the length ; anterior extremity evenly rounded, posterior broader and obliquely rounded ; dorsal margin boldly arched, rather depressed in front, the greatest height being behind the middle, forming a bold and steep curve backwards ; ventral margin gently sinuated, and showing a slight protuberance near the middle ; seen from above, regularly ovate, widest in the middle, and nearly thrice as long as broad, compressed and acuminate in front, rounded off behind. Surface of the valves smooth, greenish, mottled with markings of deeper green and brown. Length 1·6 mm.



Erpetocypris robertsoni.

Habitat.—Hayston Dam, Peebles ; and Portree, Isle of Skye (Mr. D. Robertson).

It is very difficult to indicate a distinct line of separation between this species and *E. strigata* on one hand, and *E. olivacea* on the other. The difference in form of shell will be best appreciated if put in tabular form as follows :—

LATERAL VIEW.	DORSAL VIEW.
<i>strigata</i> , highest in front, . . .	extremities nearly equal, moderately compressed, acuminate.
<i>olivacea</i> , highest in middle, . . .	extremities equal, very slightly tapered, broad, sub-acuminate.
<i>robertsoni</i> , highest behind the middle, .	tapered and acuminate in front, rounded behind.

The caudal rami in *E. strigata* have the apical claws long and slender, and between them and the marginal seta there is a considerable interval ; in *E. robertsoni* the two principal claws are short and stout and not much curved, while the marginal seta is very small and slender, and is closely approximated to the rest ; in *E. olivacea* the apical claws are, as in *E. robertsoni*, short and stout, the marginal seta being also very thick, and separated by a short interval from the others.

E. robertsoni has been found only in two localities : Hayston Dam, near Peebles, and in the river at Portree, Isle of Skye. In both places it was taken by our friend Mr. David Robertson, after whom we have much satisfaction in naming it.

7. *Erpetocypris olivacea*, nov. sp.

(Plate I., figs. 3, 4.)

Shell seen from the side, elongated, subreniform, greatest height in the middle, and equal to half the length; anterior extremity evenly, posterior obliquely rounded, dorsal margin forming a flattened arch, and sloping more steeply behind than in front; ventral gently sinuated; seen from above, ovate; more than twice as long as broad, widest in the middle, extremities obtusely pointed and nearly equal; shell smooth and shining, transparent, mottled, deep olive green. Length, 1·4 mm.

This pretty species was found abundantly amongst weeds in the River Lathkill, Derbyshire, in August, 1885 (G. S. B.). Duddingston Loch, near Edinburgh, 1887, Mr. T. Scott!

Genus VI.—CYPRIDOPSIS, Brady.

[Type, *C. vidua* (Müller).]1. *Cypridopsis vidua* (Müller).Synonym: *C. sella*, Baird.1837. *Cypris maculata*, Koch, Deutschlands Crustaceen, &c., H. 10, 2.184(4?). *Cypris strigata*, idem, ibidem, H. 36, 19.1868. *Cypridopsis vidua*, Brady, Mon. rec. Brit. Ostrac., p. 375, pl. xxiv., figs. 27–36, 46.1868. *Cypris vidua*, Claus, Beiträge zur Kenntniss der Ostracoden, Entwicklungsgeschichte von Cypris, pl. i., figs. 6–8.1869. *Cypridopsis obesa*, Brady and Robertson, Ann. Nat. Hist. ser. iv., vol. iii., p. 364, pl. xviii., figs. 5–7.1870. *Cypridopsis obesa*, idem, ibidem, ser. iv., vol. vi., p. 15.1870. *Cypris vidua*, Heller, Unters. über die Crustaceen Tirols, p. 90.1872. *Cypris vidua*, Fric, Die Krustenthiere Böhmens, p. 227.1874. *Cypridopsis obesa*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 128, pl. i., figs. 1–4.

The banded typical form of *C. vidua* is widely distributed in fresh water. The form for which the specific name *obesa* was proposed differs in being devoid of coloured bands, and usually of rather coarser appearance. It occurs commonly in brackish or sub-brackish water, though by no means confined to situations of that kind.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Denmark (O. F. Müller); Prussia (Zaddach!); Switzerland (Jurine); Thuringen (Will. Müller, *in litt.*); Tyrol (Heller); Bohemia (Fric); Hungary (Orley); Russia (Fischer); Botanical Gardens, Palermo (A. M. N.); North Germany (Peppe!); Normandy (Moniez); Transylvania (Daday).

Fossil.—England.

2. *Cypridopsis aculeata* (Lilljeborg).

1868. *Cypridopsis aculeata*, Brady, Mon. rec. Brit. Ostrac., p. 376, pl. xxiv., figs. 16-20; pl. xxxvi., fig. 10.

1898. *Cypris villosa*, Koch, Deutschlands Crustaceen, &c., II. 21, 24.

Additional localities.—Scilly Islands, many of the broads of Norfolk and Suffolk, and dyke at Whittlesea (G. S. B. & D. R.): River Thames; very abundant at Monkton Paper Mills Co. Durham (G. S. B.): Cardiff Moor (Mrs. Robertson): Seaton Delaval, Northumberland; Belfast; Newport, Co. Mayo (A. M. N.): Tarbert, Argyleshire, Mr. T. Scott (G. S. B.): Isle of Skye (D. R.).

Distribution.—Sweden (Lilljeborg!); River Scheldt, Holland, Mr. E. C. Davison (G. S. B.); Finland (Cajander); Transylvania (Daday).

3. *Cypridopsis villosa* (Jurine).

Synonyms: *Cypris westwoodii* and (?) *elongata*, Baird.

1868. *Cypridopsis villosa*, Brady, Mon. rec. Brit. Ostrac., p. 377, pl. xxiv., figs. 11-15; pl. xxxvi., fig. 9.

Additional localities.—Lakes of Mayo and Galway (G. S. B. & D. R.): Newbiggin, Northumberland (A. M. N.): pond near Taymouth Castle, and in pools near Lochs Fadd and Ascog, T. Scott (G. S. B.): Baslow, Derbyshire; Welbourn, Lincolnshire; Loch Fergus, Kircudbrightshire (G. S. B.): Isles of Skye and Lewis (D. R.).

Distribution.—Sweden (Lilljeborg!); Belgium (Plateau); Switzerland (Jurine); Germany (Koch); France (Moniez).

4. *Cypridopsis* (?) *newtoni*, Brady and Robertson.

(Plate VIII., figs. 16, 17.)

1870. *Cypridopsis* (?) *newtoni*, Brady and Robertson, Ann. Nat. Hist., ser. iv., vol. vi., p. 14, pl. vii., figs. 14-16.

1874. *Cypridopsis* (?) *newtoni*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 129, pl. ii., figs. 20, 21.

Carapace, as seen from the side, reniform; greatest height in the middle, and equal to a little more than half the length; extremities rounded, the anterior being the broader of the two; superior margin boldly and evenly arched; inferior sinuated in the middle. Seen from above, compressed, ovate, acuminate in front, rounded behind; greatest width situated near the middle, much less than the height. Surface of the shell punctate, and covered with numerous appressed hairs. Colour, dull green. Length, .85 mm.

Our examples of this species are not numerous, and we have not been successful in finding perfect specimens of the contained animal. The postabdominal rami are rudimentary, as in *Cypridopsis*; but the lower antennæ seem to be destitute of the setose brush, which in that genus is usually very long. The species would therefore appear to be an aberrant one; but without a thorough acquaintance with its internal structure, we think it best for the present to place it in the genus to which it is here assigned. It approaches closely in external appearance to *Cypridopsis villosa* and *Potamocypris fulva*, but is larger than either, more tumid, less strongly arcuate, and coarser in texture than the former; while the almost equal and well-rounded valves, coarsely hispid surface, and ovate form when seen from above, sufficiently distinguish it from the latter.

Habitat.—Hayston Dam, Peebles; Little Loch and Pilmuir Dam, Renfrewshire; Isles of Cumbrae and Bute (D. R.): Rivers Nene and Cam; and dykes on the site of Whittlesea Mere (G. S. B. & D. R.): Loch Ruter, Kirkeudbrightshire (A. M. N.).

Fossil.—England (Whittlesea).

5. *Cypridopsis variegata*, nov. sp.

(Plate VIII., figs. 20, 21.)

Shell seen from the side, sub-reniform, greatest height situated just in front of the middle, and equal to two-thirds of the length; anterior extremity broad, well-rounded; posterior narrower, obliquely truncated; dorsal margin boldly arched, almost gibbous; ventral sinuated in the middle; seen from above, ovate, fully twice as long as broad, extremities sub-acuminate. The right valve is larger and more rounded in outline than the left, which it overlaps (though not so broadly as in *Potamocypris fulva*) on the dorsal, ventral, and posterior margins. The shell is marked throughout with closely-set, small, rounded impressions, and in the Lough Neagh specimens is ornamented with black bands, the ground colour being yellowish. Length, .55 mm.

This species occurred sparingly in several gatherings made years ago, in the English Fen District, by Messrs. Brady and Robertson; but on account of its close resemblance to *Potamocypris fulva* and *Cypridopsis newtoni* it remained undescribed. Specimens recently obtained by Mr. Robertson in the Isle of Skye, and by Dr. Norman from a pool by the side of Lough Neagh, Ireland, by their very characteristic colouring, seem to leave no doubt as to its specific distinctness. The Fen district localities are the following: River Cam, at Ely; River Nene, at Peterborough; and dykes near Whittlesea.

6. *Cypridopsis picta* (Straus).

(Plate x., figs. 30, 31.)

1821. *Cypris picta*, Straus-Durckheim, Mém. sur les Cypris (Mém. du Muséum, vol. vii.), p. 59, pl. i., figs. 17-19.1867. *Cypris picta*, Plateau, Recherches sur les Crust. d'eau douce de Belgique, p. 50.

Shell sub-ovate, tumid; greatest height central, about equal to half the length; anterior extremity narrower than the posterior, well rounded; posterior extremity broadly and evenly rounded; dorsal margin well arched throughout; anterior declination steeper than the posterior; ventral margin sinuated in the middle. Seen from above, ovate; greatest breadth rather behind the middle, equal to the height, or half the length; the meeting of the valves in front is at an acute angle, but the hinder extremity is broadly rounded. Valves finely punctate, with a few scattered hairs. Spirit-preserved specimens are dark-green, with a white transverse band near the front. In such specimens, however, the animal is shrunk up towards the front part of the shell, which perhaps accounts for the apparent absence of two bands behind. Straus says: "Couleur verte, avec trois bandes, grises de terminant en joint en dessous." Length, $\frac{1}{4}$ mm.

We are indebted to Professor G. O. Sars for specimens of this species taken at Christiania, Norway. It has not been found in Britain.

The other recorded localities are: France (Straus-Durckheim); Belgium (Plateau).

C. picta may be distinguished from *C. vidua*, its nearest ally, by its smaller size, lesser obesity—though it is more tumid than the other species of the genus—by the anterior extremity being less high in proportion to the posterior when viewed laterally, and narrower in proportion to the posterior when looked at from above.

Genus VII.—POTAMOCYPRIS, Brady (1870).

[Type, *P. fulva*, Brady.]

Shell compressed; seen from the side, similar to that of *Cypridopsis*; valves unequal, the right much the larger, and overlapping on the dorsal and middle of the ventral margin; dorsal margin of the left valve somewhat flattened, that of the right boldly arched; hingement simple. Antennules seven-jointed, bearing a terminal brush of long, slender setæ. Antennæ geniculated, four-jointed, third and fourth joints bearing numerous setæ, which however are short, not

reaching beyond the middle of the terminal claws; last joint with two strong curved terminal claws, and two or three short, slender setæ. Mandible stout; palp three-jointed, and bearing a single branchial seta near the base. There is no verticillate duct ("glandula mucosa"), and the copulative organ is comparatively small and simple in structure. Feet as in *Cypris*. Caudal rami rudimentary, consisting only of a single slender seta.

Potamocypris fulva, Brady.

(Plate XXII., figs. 13-17.)

1868. *Bairdia fulva*, Brady, Mon. rec. Brit. Ostrac., p. 474, pl. xxviii., fig. 21.

1869. *Bairdia fulva*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 366, pl. xviii., figs. 1-4.

1870. *Potamocypris fulva*, Brady, Nat. Hist. Trans. Northum. and Durham, p. 366, pl. xiv., fig. 4.

1874. *Potamocypris fulva*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 130, pl. i., figs. 20-24.

Originally described from a specimen found in Scarpa Bay, Orkney; and a single valve in shell-sand from Roundstone. It has since that time been found in the following localities: Montrose Basin; Port Glasgow; Kames' Bay, Cumbrae; Birturby Bay; River Liffey, at Dublin (G. S. B. & D. R.): at Fulwell Cemetery, Sunderland; near the mouths of several rivers in Northumberland—Warn Burn, rivers Coquet, Wansbeck, and Blyth; in the canal at Ackworth, Yorkshire (G. S. B.): in dredgings from Rothesay Bay and Cumbrae: off Penarth Head, near Cardiff; in the Isle of Skye, and at Rowan Bridge, Lewis; and in dykes on Cardiff Moor (D. R.). In a pond near Taymouth Castle; in pools near Loch Fadd and Loch Ascog; and at Tarbert, Loch Fyne, Mr. T. Scott (G. S. B.).

It is most likely that the dredged specimens—all empty shells—were washed down out of fresh or brackish water. The only perfect animals (with soft parts intact) were from Fulwell Cemetery and Loch Ascog. In these cases the colour of the shell was green, so that the colourless or dirty yellow valves, as they usually occur, have probably undergone a *post mortem* bleaching.

The shell of this species has already been so abundantly figured that it is unnecessary to give further drawings.

Genus VIII.—AGLAIA, Brady.

[Type, *Aglaiia pulchella*, Brady.]*Aglaiia*, Brady, Les Fonds de la Mer, tome premier, p. 90.

Shell smooth and polished, of nearly equal height before and behind, compressed, sub-cylindrical. Antennules seven-jointed, beset with short setæ. Antennæ robust, and bearing at the extremities of the joints several strong curved setæ, furnished also with a small hyaline vesicle, and on the penultimate joint with a lash of very short setæ. Mandibles slender, divided at the extremity into about five blunt teeth, and furnished with a long and narrow branchial palp. First pair of jaws divided into four digitate segments, and having a distinct branchial appendage; second pair also provided with a branchial lamina and simple conical three-setiferous palp. First pair of feet long, five-jointed, with a very long terminal claw; second pair different from the first, flexuous, four-jointed, last joint armed with three setæ, of which one is very long and finely pectinated on the inner margin. Post-abdominal rami moderately robust, bearing two curved terminal claws, one seta on the anterior and two on the posterior margin. Testes disposed round the body of the animal; verticillate duct elongated, and bearing seven whorls of filaments.

Aglaiia complanata, Brady and Robertson.

(Plate xiv., figs. 28, 29.)

1869. *Aglaiia complanata*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 66, pl. xx., figs. 4, 5.

Carapace, as seen from the side, oblong, sub-reniform, highest about the middle; greatest height equal to less than half the length; extremities rounded; superior margin evenly but slightly arched; inferior almost straight. Seen from above, compressed, ovate, extremities pointed; greatest width in the middle, and not much exceeding one-fourth of the length. Surface of the valves smooth, bearing a few short, scattered hairs; shell thin and fragile; lucid spots arranged in an irregular rosette. Length, .65 mm.

Dredged in Westport Bay, in a depth of four fathoms; also in Roundstone Bay (G. S. B. & D. R.): Birturbuy Bay, Ireland (A. M. N.). The generic description, so far as the soft parts are concerned, is founded upon an examination of a Mediterranean species (*A. pulchella*). We have had no opportunity of seeing the internal parts of *A. complanata*.

Genus IX.—PARACYPRIS, G. O. Sars.

[Type, *Paracypris polita*, G. O. Sars.]*Paracypris polita*, G. O. Sars.

1868. *Paracypris polita*, Brady, Mon. rec. Brit. Ostrac., p. 378, pl. xxvii., figs. 1-4; pl. xxxviii., fig. 2.
 1874. *Paracypris polita*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 131, pl. xv., figs. 9, 10.
 1878. *Paracypris polita*, Brady, Mon. Ostrac. Antwerp Crag, p. 381, pl. lxiii., fig. 5.
 1880. *Paracypris polita*, Seguenza, Le formazioni terziarie nella provincia di Reggio (Calabria), p. 361.
 1880. *Paracypris polita*, Brady, Report Ostrac. "Challenger" Exped., p. 32.
 1883. *Paracypris polita*, Seguenza, Il Quaternero di Rizzolo II. Gli Ostracodi, p. 3.
 1885. *Paracypris polita*, Carus, Prod. Faunæ Mediterraneæ, p. 314.

Additional localities.—The Scilly Islands; Roundstone Bay and Mulroy Lough, Ireland (G. S. B. and D. R.): The Minch; Balmacarra, Sound of Skye; off Tarbert, Loch Fyne, 25 fathoms; Killary Bay (A. M. N.).

Distribution.—Langesund and Flekkefiord, in West Norway, 4-10 fath. (G. O. Sars); off Sartoro, Bergen Fiord, 15-40 fath.; Hardanger Fiord, off Lervig, 20-100 fath.; Fosse de Cap Breton, Bay of Biscay, 180-200 fath.; off Capri, Bay of Naples, 40 fath. (A. M. N.); Vigo Bay, Spain (G. S. B.); Messina (Seguenza); Wellington Harbour, New Zealand, 420 fath., "Challenger" (?) (G. S. B.).

Fossil.—Scotland; Norway; Calabria; Sicily.

Genus X.—NOTODROMAS, Lilljeborg.

[Type, *N. monacha* (Müller).]

The characters which distinguish this genus from the following—Cyprois—are as follows:—The shell is usually ribbed or keeled on the ventral surface. The antennæ are not pediform; antepenultimate joint with the usual sensory organ and a brush of very long swimming setæ, which stretch beyond the extremities of those springing from the last joint; penultimate and terminal joints cylindrical and very slender, the latter as long or longer than the preceding, terminating in three slender setæ without claws or spines (*vide* Brady, Monogr., Pl. xxxvii., fig. 3 *b*). Branchial filaments of the mandible not attached to a lamina of their own, but directly to the palp and directed downwards. The second pair of maxillæ without branchial appendages; in the male the palps very strongly developed and different on the two sides. Feet of the first pair small and terminating in three setæ, the middle one claw-like, and about twice as long as the other two. Caudal rami with three claws at or near the extremity.

Notodromas monacha (Müller).

1844. *Cypris monacha*, Zaddach, Syn. Crust. Pruss. Prod., p. 81.
 1887. *Cypris variabilis* (very young), Koch, Deutschlands Crustaceen, &c., H. 10, 8.
 1887. *Cypris leucomela* (young), idem, ibidem, H. 10, 4.
 1897. *Cypris monacha* (adult male), idem, ibidem, H. 11, 1.
 1897. *Cypris bimuricata* (adult female), idem, ibidem, H. 11, 2.
 1897. *Cypris nubilosa* (half-grown), idem, ibidem, H. 12, 4.
 1851. *Cypris monacha*, Fischer, Ueber das Genus *Cypris*, p. 146.
 1854. *Cypris monacha*, Zenker, Monog. der Ostracoden (Archiv für Naturgesch.), p. 80, pl. iii. C.
 1868. *Notodromas monachus*, Brady, Mon. rec. Brit. Ostrac., p. 379, pl. xxiii., figs. 1-9; pl. xxxvii., fig. 3.
 1870. *Notodromas monachus*, Heller, Unters. über die Crustaceen Tirols, p. 78.
 1872. *Cypris monacha*, Fric, Die Krustenthierie Böhmens, p. 228.
 1885. *Notodromas monachus*, Nordquist, Beitrag zur Kenntniss der inneren männlichen Geschlechtsorgane der Cypriden, pls. i., ii., and iv.

Additional localities.—Gumley, Leicestershire; Newport, Co. Mayo (A. M. N.); Lochmaben; Somerton Broad, Norfolk, and Coolbareen Lough, Co. Mayo (G. S. B. and D. R.); in pools by Loch Fadd, Co. Bute (Mr. T. Scott, G. S. B.).

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Denmark (Müller); Belgium (Plateau); Germany (Zenker, &c.); Bohemia (Fric); Switzerland (Jurine); Tyrol (Heller); Hungary (Orley); Russia (Fischer); Finland (Cajander); Normandy (Moniez); Transylvania (Daday).

Genus XI.—CYPROIS, Zenker.

[Type, *C. flava* (Zaddach).]

Shell compressed ventrally, and destitute of ribs or keel. Antennæ stout, the last joint short and very narrow, bearing at the apex a twisted unguiform spine, the distal half of which is pectinated with two series of marginal setæ; also four simple setæ almost half as long as the spine, and two much smaller ones; the penultimate joint bears three long, slender setæ, one of which is pectinated, and in front of these a much stronger twisted and pectinated spine like that of the apical joint, but larger; antepenultimate joint furnished with the usual sensory organ, and at its extremity with a group of long swimming setæ. Second pair of maxillæ provided with a rudimentary branchial appendage of six plumose setæ.* Caudal rami bearing four or five claws at or near the extremity.

* This is not shown in Professor Orley's figures of the organs in *C. madarasi*; indeed he states in the text of his memoir that it is wanting. This, however, is an oversight: it is clearly shown in our preparations, and closely resembles the same organ in *C. dispar*.

The male is smaller than the female (in *C. flava*), and more evenly rounded at the posterior extremity. The palp of the second maxillæ is prehensile and different on the two sides. Reproductive organs as in *Notodromas*.

A grand species, by far the largest of European Podocopa, has been described from Hungary by Professor Orley, under the name *Notodromas madaraszii* (Természeti Füzetek, vol. x., 1886, p. 11, Pls. x. xi.). It is not a true *Notodromas*, and will fall into the present genus as *Cyprois madaraszii*.

The name *Cyprois* was proposed by Zenker as a sub-generic term to include two species, *C. (Notodromas) monacha* and *C. flava*. The two forms agree in the structure of the male reproductive apparatus, but the characters both of the shell and of the contained animal seem to require that they should be placed in different genera. In *Notodromas* the form of the shell in the two sexes is widely different, and quite distinct from that of *Cypris*, whereas in *C. flava* the shell presents no great sexual differences of form. We have, moreover, been favoured by Professor G. O. Sars with specimens of the two sexes of *C. (Cyprois) dentato-marginata*, Baird, raised from Australian mud; and in these the male organs are exactly similar to those of *Cyprois*. It is remarkable that in both cases (*C. flava* and *C. dentato-marginata*) the caudal rami are abnormal in having four rather long marginal setæ attached near the extremity, thus differing from *Cypris*, which has two long terminal and one shorter lateral seta.

Cyprois flava (Zaddach).

(Plate VIII., figs. 18, 19; Plate XII., figs. 13–21, 38.)

1898. (?) *Cypris gibbosa*, Baird, Mag. Zool. and Bot., vol. II., p. 137, pl. v., fig. 15; Nat. Hist. Brit. Entom. (1850), p. 156, pl. xix., fig. 8.
1844. *Cypris flava*, Zaddach, Syn. Crust. Pruss. Prodr., p. 83.
1851. *Cypris dispar*, Fischer, Ueber das Genus *Cypris*, p. 142, pl. i., figs. 1–12; pl. ii., figs. 1–6.
1854. *Cyprois dispar*, Zenker, Monographie der Ostracoden (Archiv für Naturgesch.), p. 81.
1888. *Cyprois dispar*, Lilljeborg, International Fisheries Exhibition, London, Sweden Cat., p. 147.

Shell of the female seen from the side, sub-triangular or sub-reniform; greatest height situated in the middle and equal to two-thirds of the length; anterior extremity broadly and evenly rounded; posterior oblique, steeply sloping, and rounded off at the inferior angle; dorsal margin boldly arched; inferior slightly sinuated in the middle. Seen from above, the outline is sub-ovate, more than twice as long as broad, widest in the middle, much compressed in front, anterior extremity slender, and sharply-pointed; posterior narrow and rounded off, scarcely pointed. Surface smooth and polished, marked with minute polygonal areolæ,

and bearing a very few fine appressed hairs. The hinder half of the valves in the male is occupied by a series of four concentric U-shaped, opaque streaks, with intermediate lines of perfectly pellucid shell, the whole enclosing a peninsula of unmarked shell: these markings coincide with the convolutions of the spermatid tubes (testes) which are apparent through the shell; and curvilinear markings corresponding with the ovarian tubes—entirely opaque and comparatively indistinct—may usually be observed in the same region of the female shell. Length of the male, 1.30 mm.; of the female, 1.75 mm.

Habitat.—Duddingston Loch, near Edinburgh (A. M. N.).

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Russia (Fischer); Hungary (Orley); Prussia (Zaddach!).

Genus XII.—CANDONA, Baird.

[Type, *C. candida* (Müller).]

1. *Candona candida* (Müller).

(Plate x., figs. 1, 2, and 14–23.)

Synonym: *Candona lucens*, Baird.

1837. *Cypris pellucida* (?), Koch, Deutschlands Crustaceen, &c., H. 11, 5.

1868. *Cytheridea zelandica*, Brady, Mon. rec. Brit. Ostrac., p. 428, pl. xxviii., figs. 42–46.

1868. *Candona candida*, Brady, Mon. rec. Brit. Ostrac., p. 383, pl. xxv., figs. 1–9, pl. xxxvi., fig. 13, and pl. xxxvii., fig. 1.

1870. *Candona candida*, var. *tumida*, Brady and Robertson, Ann. Nat. Hist., Ser. 4, vol. vi., p. 16, pl. ix., figs. 13–15.

1870. *Candona candida*, Heller, Untersuch. über die Crustaceen Tirols, p. 94.

1872. *Cypris candida*, Fric, Die Krustenthiere Böhmens, p. 227.

1874. *Candona candida*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 135, pl. ii., figs. 29, 30.

1885. *Cypris candida*, Nordquist, Beitrag zur Kenntniss der inneren männlichen Geschlechtsorgane der Cypriden, p. 25, fig. 27.

Common everywhere throughout the British Isles.

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Denmark (Müller); River Scheldt, Holland (G. S. B.); Belgium (Plateau); Germany (Zenker, Zaddach, &c.); Switzerland (Jurine); Tyrol (Heller); Bohemia (Fric); Hungary (Orley); Russia (Fischer); Lac d'Ossegor, Cap Breton, S.W. France, Marquis de Folin (G. S. B.); Normandy (Moniez!); Transylvania (Daday).

The typical form of this species we take to be that figured as such in the "Monograph of recent British Ostracoda," but variations from the type are very numerous, and two of these seem to require recognition as named varieties—*C. tumida* and *C. claviformis*.

The variety *tumida* (Plate x., figs. 14–17) is much shorter and stouter than the typical form, the greatest height in the female equalling nearly two-thirds of the length; the width more than half the length; the outline, as seen from above, almost elliptical. The male is much higher, and also more tumid than in the ordinary form of the species. Lucid spots arranged in a rosette, five in number, each broadly cuneiform, with its apex directed towards the centre of the group. Intermediate forms are not unfrequently met with, but the tumid variety may usually be distinguished by the rosette-like disposition of the muscle-spots.

The male of the variety *claviformis* (Pl. x., figs. 1, 2) is, seen laterally, very narrow, with an almost straight dorsal line, sloping gently towards the highest part of the shell, which is situated very near the posterior extremity, thence falling steeply backwards; ventral margin very deeply sinuated in the middle; height equal to about half the length. The shell of the female is a little higher in front, the ventral sinuation shallower, and the posterior margin oblique, and not so broadly rounded. A form very closely approaching *C. neglecta*, Sars,* is represented in Plate x., figs. 18–21. Figs. 18, 19 are from shells (female) taken in a canal at Ackworth, Yorkshire. Figs. 20, 21 are from male shells found in a pond at Sunderland. Figs. 22, 23 is a female shell of the ordinary type, but with conspicuous reticulation near the extremities, also from Sunderland.

The ordinary form of *C. candida* occurs commonly in ponds and ditches; the variety *tumida* is most common in rivers and dykes subject to tidal influence, as in the Fen district of Norfolk and Suffolk, in the rivers Nene and Cam, and in the Warn Burn, Northumberland (G. S. B. and D. R.). The variety *claviformis* was found in a pond at Sedgely, county Durham (A. M. N.).

At the time of the publication of the "Monograph," the variety *tumida* was unknown, and the Ostracod named *Cytheridea zetlandica*, having been found in the sea, was taken to belong to the genus to which it was assigned. But as it exactly corresponds with the variety *tumida*, we conclude that it must have been washed into the sea, and it is now expunged from our list.

* Nye Bidrag til Kundskaben om Middelhavets Invertebratfauna, iv. Ostracoda Mediterranea. (Archiv for Mathem. og Naturvidenskab, 1887, p. 107, pl. xv., figs. 5–7; pl. xix.)

2. *Candona elongata*, nov. sp.

(Plate x., figs. 24–27.)

Shell of the male (?) elongated, reniform; seen laterally, more than twice as long as high; greatest height behind the middle; anterior extremity evenly rounded, posterior narrower and sub-angular; dorsal margin almost horizontal for about one-third of its length at and somewhat behind the middle, thence sloping with an almost imperceptible curve, steeply behind but more gently towards the front; ventral margin very deeply sinuated in the middle. Seen from above, elongated, sub-ovate, more than twice as long as broad, widest in the middle; extremities pointed; surface smooth and polished; yellowish white. Length, 1.4 mm. Female unknown. A form which we take to be the young male (figs. 24, 25) is rather smaller, with a less strongly arched dorsal margin, and the ventral margin upturned and sinuated behind.

Lough Neagh, Ireland (A. M. N.).

3. *Candona lactea*, Baird.

1868. *Candona lactea*, Brady, Mon. rec. Brit. Ostrac., p. 382, pl. xxiv., figs. 55–58.

1868. *Candona detecta*, Brady (variety), Mon. rec. Brit. Ostrac., p. 384, pl. xxiv., figs. 85–88; pl. xxxvii., fig. 2.

1874. *Candona lactea*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 184, pl. i., figs. 14–16.

1874. *Candona detecta*, Brady, Crosskey, and Robertson (variety), Post-tert. Entom., p. 184, pl. i., figs. 7–9.

C. lactea approaches closely the young of *C. candida*, with which it has, no doubt, been generally confounded on the Continent. The young of *C. candida* may, however, be distinguished by being obliquely rounded behind, most produced below the middle, whereas in *C. lactea* both extremities are evenly rounded. It is common in Britain.

Distribution.—Rivers Scheldt and Maas, Holland (G. S. B.); Lac d'Ossegor, Cap Breton, S. W. France; Marquis de Folin (G. S. B.).

Fossil.—Scotland; England; South Wales; Ireland.

4. *Candona pubescens* (Koch).

(Plate XII., figs. 32–37.)

Synonym : *Cypris setigera*, Jones.1887. *Cypris pubescens*, Koch, Deutschlands Crustaceen, &c., H. 11, p. 5.1898. (?) *Cypris compressa*, idem, ibidem, H. 21, p. 17.1868. *Candona compressa*, Brady, Mon. rec. Brit. Ostrac., p. 382, pl. xxvi., figs. 22–27.1868. *Candona albicans*, idem, ibidem, p. 381, pl. xxv., figs. 20–25; pl. xxxvi., fig. 12 (junior).1874. *Candona albicans*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 133, pl. i., figs. 10–18 (junior).

Additional localities.—Not uncommon in the Scottish Lowland lakes; generally distributed through the East Anglian Fen district (G. S. B. and D. R.): Ellesmere Canal, Blackmere, Colmere, and Osmere, Shropshire (G. S. B.); Duddingston Loch, Edinburgh; pond in Lumley Dene, Seaton Carew Marshes, and Sedgfield, all in the county of Durham; Tilmire, near York (A. M. N.): Lindores Loch, Fife (Mr. T. Scott).

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Germany (Koch); Russia (Fischer); Lac d'Ossegor, Cap Breton, S. W. France; Marquis de Folin (G. S. B.); Normandy (Moniez); Transylvania (Daday).

Fossil.—England.

The form hitherto known to us as *C. albicans* probably includes the young of more than one species, all characterized by a very close and distinct punctation of the shell. By far the greater number of these are doubtless referable to *C. pubescens*, this being the form figured in the "Monograph of recent British Ostracoda;" but the young of *C. rostrata* scarcely differs, except in being much more compressed and acuminate in front.

5. *Candona rostrata*, nov. sp.(Plate IX., figs. 11, 12, 12*a* and *b*; Plate XII., figs. 22–31.)1851. *Cypris compressa*, Fischer, Ueber das Genus *Cypris*, p. 144, pl. ii., figs. 7–12; pl. iii., figs. 1–5.

Shell seen from the side, sub-reniform, much higher behind than in front, greatest height equal to more than half the length; posterior extremity very broad and boldly rounded; anterior narrower and more flattened; median third of the superior margin almost straight, sloping with a steep curve towards the posterior extremity, and even more steeply and with a distinct sinuation, to the front; inferior margin deeply sinuated in the middle. Seen dorsally; the outline is

narrow sub-ovate, the anterior extremity compressed and flexuously produced in a mucronate manner; posterior rounded off and not produced; greatest width situated in the middle, and equal to rather more than one-third of the length. End view, ovate, rounded above, mucronate below. The shell is thin, smooth, beset with fine, long hairs, yellowish, with cloudings of chestnut brown. Length, 1.2 mm. The left valve is considerably less than the right, its margin being received within that of the opposite valve for the greater part of its circumference. General structure of the soft parts as in *C. fabæformis*.

This seems to be a distinct and well-characterized species. The one or two specimens which we have dissected are males, showing verticillate ducts of a similar type to those of *C. kingsleii* and *C. fabæformis*. This, together with the fact that we have as yet found no females, leads to a suspicion that they may perhaps belong to some species, the females of which are already well known, and possibly very different in shape.

Habitat.—Baron Loch, near Peebles (D. R.); Loch Alsh, $1\frac{1}{2}$ – $4\frac{1}{2}$ faths., Mr. T. Scott (G. S. B.); Hairmyres, near East Kilbride; Moor tarns near Glenluce, Wigtownshire; Broomley Lough, Northumberland; Loch Aber, Kirkcudbrightshire (A. M. N.).

Distribution.—Norway (G. O. Sars, *in litt.*); Russia (Fischer).

6. *Candona kingsleii*, Brady and Robertson.

(Plate IX., figs. 19–22; Plate XIII., fig. 19.)

1785? *Cypris detecta*, Müller, Entomostraca, p. 49. Tab. iii., figs. 1–3.

1870. *Candona kingsleii*, Brady and Robertson, Ann. and Mag. Nat. Hist., Ser. iv., vol. vi., p. 17, pl. ix., figs. 9–12.

Shell of the female, seen from the side, sub-reniform, slightly depressed in front; greatest height situated near the middle, and equal to half the length; extremities well rounded, the anterior narrower than the posterior; superior margin boldly arched; inferior rather deeply sinuated in the middle; seen from above, ovate; greatest width situated in the middle, and rather less than the height; pointed in front, narrowly rounded behind. The shell of the male is more deeply sinuated ventrally; the dorsal margin is more boldly arched than in the female, and is slightly excavated towards the front; seen from above, the outline is more compressed. Shell thin, fragile, and colourless; the limbs of the animal distinctly perceptible through. The antennules are stout, the joints all short, and nearly equal, the last two scarcely twice as long as broad; setæ short and stout; terminal setæ of postabdomen stout and rather short, almost

falcate. The last two joints of the mandible palp are extremely long and slender. Length, .9 mm.

This species is widely distributed in the East Anglian district, where we have found it as follows: Barton, Horsey, Hickling, Wroxham, and Ormesby Broads, Breydon Water, Dyke at Whittlesea, and in the river Nene at Peterborough (G. S. B. and D. R.). In Scotland it has been found in the Islands of Lewis and Cumbrae; in Loch Lomond; Loch Echinlimesh, near Dumfries; St. Jerman Loch and Possil Marsh, near Glasgow; Little Loch, near Melston; in Govan Colliery Dam; at Hairmyres, near East Kilbride; in the Isle of Skye. Also in a pond by the Albert Memorial, Hyde Park, London (D. R.); on the Cardiff Moors, and in a pond at Sophia Gardens, Cardiff (Mrs. Robertson); Whitefield Loch and moor tarns near Glenluce, Wigtonshire; Lochaber Loch, Kirkeudbrightshire (A. M. N.); Osmere, Shropshire (G. S. B.)

We refer doubtfully to *Cypris detecta* (Müller), as a synonym of the present species; but the specimen named *C. detecta* by Dr. Baird, and now preserved in the British Museum, certainly is not *Candona kingsleii*, neither does it seem to us to agree altogether with Müller's description of *C. detecta*.

7. *Candona fabæformis* (Fischer).

(Plate IX., figs. 1-4.)

1851. *Cypris fabæformis*, Fischer, Ueber das Genus Cypris, p. 146, pl. iii., figs. 6-16 ♀ ♂.

1853. *Candona fabæformis*, Lilljeborg, De Crust. ex ord. tribus, p. 207 ♀ ♂.

1870. *Candona diaphana*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., pl. v., figs. 1-3 ♀.

1870. (?) *Candona hyalina*, iidem, ibidem, p. 18, pl. ix., figs. 5-8, and pl. v., figs. 4-11.

Male. Shell elongated, reniform; seen from the side, the outline is reniform, somewhat depressed in front; greatest height in the middle, and equal to less than half the length; extremities boldly rounded; dorsal margin evenly arched; ventral deeply sinuated rather in front of the middle. Seen from above, elongated, subovate, thrice as long as broad, greatest width in the middle; extremities acuminate. End view ovate, pointed below, rounded above. Shell thin and delicate, pellucid, with yellowish patches; the posterior portion of the valves marked with three or four long crescentic lines, which correspond in position with the coils of spermatie tubes, and run in a concentric manner parallel with the posterior margin of the shell. Antennules slender, the last two joints three or four times as long as broad; setæ long and slender. Post-abdominal rami slender, the two terminal setæ slender and gently curved, the longer of the two more than half as long as the ramus; the marginal seta short, and about one-third the length of the ramus distant from its apex. Length of the shell, 1.25 mm.

Female. Shell, seen from the side, elongated, sub-reniform; greatest height situated behind the middle, and equal to less than half the length; obtusely and evenly rounded in front, obliquely behind; superior margin highest at the posterior third, at that point distinctly angled, and thence sloping almost in a right line and with a very gentle declivity forwards, very steeply and with a slightly concave curve backwards; inferior margin gently sinuated. Seen from above, compressed, tapering equally and rather suddenly to the extremities, which are pointed; sides sub-parallel; width scarcely equalling one-third of the length. The hinge-margin of the left valve is suddenly produced towards each extremity into very conspicuously overlapping curves, the posterior being much larger than the anterior. Length, 1 mm.

The characters of the form described (*loc. cit.*), under the specific name *hyalina*, are perhaps insufficient: the structure ascribed to the "mucous gland" of the male was possibly founded on an erroneous interpretation of a distorted specimen (figs. 5, 6); so that until more perfect information on these matters is attainable, we prefer to regard the specimens previously called *hyalina* as belonging to *C. jabœformis*.

This species has been found as follows:—Craigengam Tarn, Cumbrae; Hairmyres Quarry, near East Kilbride; Lameston Quarries, Ayrshire; Ballagarey Meadow, Isle of Man (D. R.); ditches on Cardiff Moor (Mrs. Robertson); Cooly Barma Lough, Ireland; River Nene at Peterborough, and Ormesby Broad, Norfolk (G. S. B. and D. R.); pond near Taymouth Castle and Crosslea, near Paisley, Mr. T. Scott (G. S. B.).

Distribution.—Sweden (Lilljeborg); Russia (Fischer); France (Moniez).

8. *Candona acuminata* (Fischer).

(Plate ix., figs. 9, 10; Plate x., figs. 5, 6.)

1851. *Cypris acuminata*, S. Fischer, Ueber das Genus *Cypris*, p. 148, pl. iv., figs. 12–16.

1854. *Cypris acuminata*, Zenker, Monographie der Ostracoden (Archiv für Naturgesch.), p. 74, pl. ii. D.

Shell, seen from the side, sub-cuneate, somewhat arcuate; greatest height behind the middle, not equal to half the length; anterior extremity widely and very evenly rounded, point of greatest prominence central; posterior extremity narrow, not half the height of anterior, sub-truncate, or bluntly rounded; dorsal margin gradually and arcuately rising at first, and from behind the eye the rise is still continued, but here only very slightly until the point of greatest height is reached behind the middle, thence it rapidly descends with slight arcuation to the narrow posterior extremity; the ventral margin very irregular, convex at its commencement in front, then deeply concave, then behind the middle it is

convex (here forming the greatest height), and just before its termination there is again a slight sinuosity. Seen from above, the form is a long ovate; greatest breadth central, scarcely exceeding one-third the length; sides evenly convex, and the extremities equal and not produced. Surface of valves white, smooth, polished, their edges beset with fine hairs. Length, 1.2 mm.

For the Norwegian specimens described above, and figured in Plate x., figs. 5, 6, we are indebted to the kindness of Prof. G. O. Sars. In Britain it is a rare species, the only localities known to us being Hickling Broad, Norfolk (G. S. B. and D. R.): Loch Earn Head; a mill-dam at Wick, Caithness; Killmuir dam, Renfrewshire (D. R.); and Tarbert, Loch Fyne, Mr. T. Scott (G. S. B.). The figures given in Plate ix., figs. 9, 10, were taken from British specimens, which we at first supposed to belong to a distinct species, but now refer without doubt to *C. acuminata*.

Distribution.—Norway (G. O. Sars!); Germany (Zenker); Hungary (Orley); Russia (Fischer).

Zenker figures as the male of *C. acuminata* (Pl. I., fig. 23, *vide* p. 75), a form which is not unlike our *C. rostrata* but more elongated, less high in proportion to its length; and there can be little doubt that the *C. pellucida*, Fischer (p. 149, Pl. v., figs. 1–4), but not the *C. pellucida*, Koch, is the same form.

9. *Candona euplectella*, Robertson, M. S.

(Plate ix., figs. 7, 8, 8a.)

1880. *Candona euplectella*, Robertson, Fresh and Brackish Water Ostracoda of Clydesdale, &c., p. 28 (not described).

Shell very tumid, nearly equal in height and width throughout. Seen from the side, the outline is sub-quadrate or sub-reniform, height equal to half the length; extremities equal and well rounded; dorsal margin straight; ventral very slightly sinuated. Seen from above, broadly ovate, very little wider behind than in front, scarcely twice as long as broad, extremities broadly rounded, sides sub-parallel. End view nearly circular. The shell surface is beautifully sculptured with a close reticulated pattern, like the cells of a honeycomb, and bears also small scattered tubercles, surmounted by very long, fine, stiff hairs. The polygonal hollows are, in fact, filled up at distant intervals with solid shell structure, forming bosses, from the summits of which spring single hairs. The setæ of the antennules are not plumose; the limbs are small and slender, and have long slender terminal claws. The few specimens which we have dissected were all males, and probably, as the shape is alike in all cases, the female has yet to be discovered. Length, .75 mm.

Habitat.—This species has been found in Callum's Tarn, Isle of Bute; Little Cumbrae; at Lochmaben, in the Year Blind and Broomhill Lochs; and Black Loch, near Oban (D. R.); in pools near Port Glasgow, Mr. T. Scott (G. S. B.).

Specimens of *Candona euptectella*, in fine condition, and exhibiting in perfect order the reticulated surface, tubercles and stiff hairs, excel in beauty all other European freshwater Ostracoda.

10. *Candona* (?) *parabolica* (Koch).

(Plate XIII., figs. 28–30.)

1887. *Cypris parabolica*, Koch, Deutschlands Crustaceen, &c., H. XI. 4.

Shell elongated, large, long, smooth, polished, higher before than behind; dorsal margin not arched; ventral margin slightly compressed; the anterior and posterior margins with a very fine fringe of hairs, which are, however, only visible in water. Seen from above, the shell is small, oval, and pointed before and behind; pale ochreous yellow, on the back shaded darker; on the front edge a small whitish band, on this a darker ochreous yellow, and behind a lighter, rather transparent line. Sometimes the shell is green, or spotted with green, the colour arising from a transparent deposit on the surface of the shell. It cannot swim; its movements in water are only creeping; but it can easily ascend plants or rough surfaces.

Rather rare in ditches of Germany.

We give in Plate XIII. copies (uncoloured) of Koch's figures of this species, the only one of the Ostracoda described by him which we have been unable to assign to recognized forms. The description is slightly abridged from Koch's.

Genus XIII.—*ILYOCYPRIS*, nov. gen.

(*ilus*, mud.)

[Type, *Ilyocypris gibba* (Ramdohr).]

Shell oblong, with a transverse median depression, coarsely punctate and tuberculate. Antennal setæ non-plumose, few; reaching a little beyond the apex of the terminal claws. Mandible-palp 4-jointed, with a 5-(?)setose branchial appendage. First pair of maxillæ composed of four segments, and a large branchial appendage bearing numerous terminal and about five reflexed basal setæ. Second pair of maxillæ consisting of a conical lobe, which bears numerous short marginal setæ, at the apex four stout plumose setæ, and at the base an appendage of four radiating

plumose filaments and a bi-articulate process bearing three apical setæ, one of which is plumose. The penultimate joint of the second foot has two marginal setæ; the last joint three long apical setæ, but no claw. Caudal rami ending in two long and equal claws, and one very short seta, marginal seta long, and attached near the middle of the ramus.

Ptyocypris gibba (Ramdohr).

(Plate xxii., figs. 1–5.)

1820. (?) *Monoculus puber*, Jurine, Hist. des Monocles, p. 171, pl. xviii., figs. 1, 2 (non *C. puber*, Müller).
 1820. *Monoculus bistrigatus*, idem, ibidem, p. 177, pl. xix., figs. 12, 13 (*junior*).
 1838. *Cypris biplicata*, Koch, Deutschlands Crustaceen, H. 21, pl. xvi.
 1844. *Cypris bistrigata*, Zaddach, Syn. Crust. Pruss. Prodr., p. 37.
 1847. *Cypris sinuata*, Fischer, Mem. de l'Acad. des Sci. de St. Petersburg, vol. vi., p. 35, pl. x., fig. 4.
 1851. *Cypris biplicata*, Fischer, Ueber das Genus *Cypris*, p. 150, pl. v., figs. 5–8.
 1853. *Cypris bistrigata*, Lilljeborg, De Crust. ex ord. tribus, p. 122, pl. xi., figs. 17, 18.
 1868. *Cypris gibba*, Brady, Mon. rec. Brit. Ostrac., p. 369, pl. xxiv., figs. 47–54; pl. xxxvi., fig. 2.
 1874. *Cypris gibba*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 127, pl. xv., figs. 5, 6.

Common in the British Islands.

Distribution.—Sweden (Lilljeborg!); Prussia (Zaddach! and Koch); Switzerland (Jurine); Hungary (Orley); Russia (Fischer); France (Moniez!).

Fossil.—Scotland; England.

Genus XIV.—PONTOCYPRIS, G. O. Sars.

[Type, *P. mytiloides* (Norman).]

1. *Pontocypris mytiloides* (Norman).

Synonyms.—*Cythere avena*, Norman; *P. serrulata*, G. O. Sars.

1858. (?) *Bairdia dactylus* and *var. punctata*, Egger, Die Ostracoden der Miocän-Schichten bei Ortenburg, p. 7, pl. i., figs. 3, 4.
 1868. *Pontocypris mytiloides*, Brady, Mon. rec. Brit. Ostrac., p. 385, pl. xxv., figs. 26–30; pl. xxxvii., fig. 1.
 1874. *Pontocypris mytiloides*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 136, pl. xv., figs. 7, 8.

A widely-distributed and common species, occurring all round the British coasts, from low-water mark downwards, but most abundantly in the laminarian zone.

Distribution.—Christiania and Flekkefiord, Norway, 3–6 fath. (G. O. Sars); Oster Fiord and Lervig Bay, Norway (A. M. N.); off Capri, Bay of Naples, 40 fath. (A. M. N.); Fosse de Cape Breton, 135 fath. (G. S. B.).

Fossil.—Scotland, Norway, Calabria (?).

2. *Pontocypris hispida*, G. O. Sars.

1865. *Pontocypris hispida*, G. O. Sars, *Oversigt af Norges marine Ostracoder*, p. 16.

1868. *Pontocypris hispida*, Norman, *Last Report Dredging Shetland Isles* (Brit. Assoc. Rep.), p. 289.

(Not *Pontocypris hispida*, Brady and Robertson, *Ann. and Mag. Nat. Hist.*, ser. iv., vol. ix. (1872), p. 61.)

Shell, seen from the side, subtriangular, highest in front, height equal to nearly half the length; anterior extremely well rounded, posterior tapered and sub-acute; dorsal margin strongly arched, highest at the anterior third, whence it slopes with a gentle curve to the front, and more steeply towards the posterior extremity; inferior margin very slightly sinuated in front of the middle, and upcurved at the hinder end. Seen from above, the outline is ovate, widest near the front, nearly three times as long as broad; extremities sub-acute, tapered rather abruptly in front, more gradually behind. Valves smooth, or very minutely punctate, and clothed more or less thickly with very fine adpressed hairs. Colour, yellowish. Terminal claw of the first pair of feet very long and slender, exceeding the united lengths of the preceding four joints, and strongly curved at the apex. Terminal setæ of the caudal rami nearly equal. "Copulatory organs of the male elongated, almost linear, and obtusely rounded at the apex. Eyes wanting." Length, .8 mm.

The only undoubted British examples of this species were dredged in Birturbuy Bay, Ireland (G. S. B. and D. R.); and Unst Haaf, Shetland (A. M. N.).

Distribution.—Professor G. O. Sars took it in Christianiafiord, in a depth of 30–50 fathoms, on a clay bottom; Lervig Bay, Stordoen, Norway (A. M. N.).

The specimens referred by Messrs. Brady and Robertson (*loc. cit.*) to *P. hispida* belong really to *P. mytiloides*. We now admit the two species as quite distinct.

3. *Pontocypris acupunctata*, Brady.

1868. *Pontocypris acupunctata*, Brady, Mon. rec. Brit. Ostrac., p. 386, pl. xxiv., figs. 58-56.
1874. *Pontocypris acupunctata*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 137, pl. ii., figs. 18, 19.

This is a very rare species. The only additional localities since the publication of the monograph of 1868, are St. Magnus Bay, Shetland (A. M. N.); Budle Bay, Northumberland; and off Marsden, Durham, 10 fathoms (G. S. B.).

Distribution.—Batalden, near Floro, Norway (A. M. N.).

Fossil.—Scotland (Oban).

4. *Pontocypris trigonella*, G. O. Sars.

(Plate xxii., figs. 18-25; Plate xxiii., fig. 6.)

1868. *Pontocypris trigonella*, Brady, Mon. rec. Brit. Ostrac., p. 387, pl. xxv., figs. 81-84; pl. xxxviii., fig. 8.
1874. *Pontocypris trigonella*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 137, pl. xvi., figs. 26-28.
1880. *Pontocypris trigonella*, Seguenza, Le formazioni terziarie nelle provincia di Reggio, pp. 298 and 362.
1880. *Pontocypris trigonella*, Brady, Report "Challenger," Ostrac., p. 86, pl. xv., figs. 4 a-d.
1888. *Pontocypris trigonella*, Seguenza, Il Quaternario di Rizzolo, Gli Ostracodi, p. 4.
1885. *Pontocypris trigonella*, Carus, Prod. Faunæ Mediterraneæ, p. 313.

This species is found in moderate abundance all round the coasts of the British Islands, ranging from low water-mark to 30 fathoms. It is commonest and best developed in the laminarian zone; but we have only one record of its occurrence between tide-marks, at Rockport, Co. Down, where it was taken by the late Dr. Malcomson.

Distribution.—Norway to Lofoten Islands (G. O. Sars); Haakelsund, Kors Fiord, 3-10 fath.; and Lervig Bay, Stordoen, 3-25 fath., Norway (A. M. N.); Messina and Syra (G. S. B.), Naples (A. M. N.); Cape Verde Islands and the Bermudas (G. S. B.).

Fossil.—Scotland, Calabria, Sicily.

Genus XV.—ANCHISTROCHELES, nov. gen.

(ἄγκιστρον, a hook; χηλή, a claw.)

[Type, *Anchistrochles fumata*, G. S. Brady, M.S.]

Shell much compressed, reniform; seen laterally, the anterior margin is very obliquely truncated, the obliquity looking downwards; dorsal margin arched; ventral very deeply sinuated; antennules seven-jointed, the first joint very much longer than all the rest put together, bearing a lash of about ten long setæ, which arise from the last two joints, the rest being bare except that there is one seta near the apex of the first joint. Antennæ five-jointed, ending in a very long claw, which is much longer than the length of the entire limb, and is bent sharply at the extremity so as to form a minute hook; at the sides of the claw are two setæ of rather more than half its length: the penultimate joint has a brush of three very small setæ at the apex, and the second joint bears two setæ of moderate length. The mandible is slender, and rather feebly dentated at the apex; palp four-jointed, and provided with a small trisetose branchial appendage. First maxilla four-segmented, and having a setiferous branchial plate of moderate size. First foot four-jointed, bearing a hooked claw like that of the antenna, and giving attachment on the first joint to a one-jointed setiferous appendage, which possibly represents the second maxilla. Second foot four-jointed, and having a very long, curved, apical claw. Caudal rami rudimentary, bearing three setæ, one of which is very short, the others long and nearly equal. Copulative organ of the male large and complex.

This description is taken from specimens of an undescribed species collected by Dr. H. B. Brady, F.R.S., in the Fiji Islands. The Fijian shell, however, in its very peculiar form so closely resembles the British species, hitherto provisionally placed under *Cythere*, that we have no hesitation in referring both species to the same genus.

1. *Anchistrocheles acerosa* (Brady).1868. *Cythere acerosa*, Brady, Mon. rec. Brit. Ostrac., p. 419, pl. xxxi., figs. 55-58.

No living specimens of this animal have yet been seen. It has been found, but always very sparingly, in dredgings from Dungeness Bay and off the Eddystone (G. S. B.); by Dr. Norman at Shetland and Plymouth; in dredgings by Mr. E. C. Davison off North of Scotland; and by Mr. Malcomson in the Irish Sea.

Distribution.—River Scheldt, Holland (G. S. B.).

Genus XVI.—ARGILLOECIA, G. O. Sars.

[Type, *Argilloecia cylindrica*, G. O. Sars.]

Valves smooth, elongated, moderately robust, scarcely higher in front than behind, more or less angulated at the union of the posterior and inferior margins; antennules robust, five-jointed, first joint very large and stout, the rest beset on the lower margins with strong spines, and on the upper margins, especially in the male, with long setæ; antennæ short and thick, otherwise like those of *Pontocypris*; setæ of the antepenultimate joint in the female short, in the male very long, and reaching much beyond the terminal claws. Mandibles almost as in *Pontocypris*, the palp, however, having only three or four setæ (“one,” Sars) in place of a branchial appendage. Palp of the second pair of jaws indistinctly three-jointed, bearing several terminal setæ (ending in a single claw, Sars). First pair of feet strong, terminating in two nearly equal claws; second pair unlike the first, and almost like those of *Pontocypris*; last joint very short, and bearing about three spines, of which one is very long and curved. Post-abdominal rami short, attenuated towards the apices, and with very small terminal claws. Eye wanting.

1. *Argilloecia cylindrica*, G. O. Sars.

(Plate x., figs. 28, 29.)

1865. *Argilloecia cylindrica*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 18.
 1865. *Cytherideis oryza*, Brady, Trans. Zool. Soc., vol. v., p. 368, pl. lviii., figs. 2 a–b.
 1868. *Pontocypris* (?) *angusta*, Brady, Mon. rec. Brit. Ostrac., p. 387, pl. xxxiv., figs. 43, 44.
 1869. *Argilloecia angusta*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 11.
 1874. *Argilloecia cylindrica*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 132, pl. xvi., figs. 29–31.
 1885. *Argilloecia angusta*, Carus, Prod. Faunæ Mediterranæ, p. 315.

The specimens from Birterbuy Bay, described in the “Monograph” of 1868 under the name *Pontocypris* (?) *angusta*, belong to this species.

Additional localities.—In dredgings from Loch Long, the Firth of Clyde, off Greenock and Largs, Firth of Forth, in the river Ouse, off the Eddystone Lighthouse, and off St. Mary’s, Scilly (G. S. B. and D. R.); Shetland; off Tarbert, Loch Fyne, 25 fath.; Salcombe, Devon; Valentia and Roundstone, Ireland (A. M. N.); Irish Sea and Belfast Lough (Malcomson); off Seaham and Marsden, Durham coast (G. S. B.).

Distribution.—Christiania Fiord, 30–50 fath. (G. O. Sars); Oster Fiord, 375 fath.; off Sartoro, Bergen Fiord, 15–40 fath.; Lervig Bay, 10–25 fath.; Stocksund, 80–100 fath.; off Dröbak, 30–100 fath.; all in Norway. Fosse de Cape Breton, Bay of Biscay, 180–200 fath. (A. M. N.); Hammerfest Harbour; River Scheldt, Holland; Mediterranean; Tenedos and Besika Bay (G. S. B.).

Fossil.—Scotland.

Fam. II.—BAIRDIIDÆ.

Genus I.—*Bairdia*, M'Coy.

[Type, *Bairdia curta*, M'Coy.]

Shell tumid; seen from the side triangular or sub-quadrate, anterior extremity broadly rounded, posterior more or less produced. Valves moderately dense, calcareous, often clothed with stiff hairs, extremities often toothed; left valve much larger than the right. Antennules slender; last four joints distinct, and bearing numerous long, slender setæ. Antennæ elongated, apical portion attenuated and bearing two strong terminal claws. Biting portion of the mandible having five long and strongly aculeated teeth; palp pilose and rather narrow, bearing a branchial appendage composed of three setæ, the foremost of which is very long. Segments of the maxillæ long and narrow, palp exactly like these in form and size, one-jointed; branchial lamina large, and having at the base a posterior dilatation, broadly rounded, and clothed with very slender non-ciliated setæ; terminal portion rounded, ovate, bordered with strong plumose setæ. Feet successively larger; similar in build, penultimate joint narrow and elongated; a large, oblong-triangular branchial lamina affixed to the first pair. Caudal rami not large, linear, divergent, bearing three strong apical setiform claws, the middle one elongated; marginal setæ four.

In this generic definition we follow Professor G. O. Sars.

1. *Bairdia inflata*, Norman.

1865. *Bairdia obliquata*, G. O. Sars, *Oversigt af Norges marine Ostracoder*, p. 24.

1868. *Bairdia inflata*, Brady, *Mon. rec. Brit. Ostrac.*, p. 388, pl. xxvii., figs. 9–17; pl. xxxviii., fig. 5.

1874. *Bairdia inflata*, Brady, Crosskey, and Robertson, *Post-tert. Entom.*, p. 139, pl. xv., figs. 1–4.

Additional localities.—Dredged off Red Cliff, Yorkshire (G. S. B. and D. R.); Clew Bay, Ireland (A. M. N.); Irish Channel, 15–62 fath.; Belfast Lough, 10 fath. (Malcomson.)

Distribution.—Very rare; Oxford, Finmark (G. O. Sars); off Sartoro, Bergen Fiord, 15–40 fath.; Kors Fiord, 180 fath.; off Midso Lighthouse, Hardanger Fiord, 50–100 fath. (A. M. N.); Fosse de Cap Breton, 45 fath.; Marquis de Folin (G. S. B.).

Fossil.—Scotland (Oban).

2. *Bairdia acanthigera*, Brady.

1868. *Bairdia acanthigera*, Brady, Mon. rec. Brit. Ostrac., p. 890, pl. xxvii., figs. 18–21.

1880. *Bairdia acanthigera*, Brady, Report, "Challenger," Ostrac., p. 61, pl. ix., figs. 4a–c.

1888. *Bairdia acanthigera*, (?) Seguenza, Il Quaternario di Rizzolo II. Gli Ostracodi, p. 17.

The only known British localities are those recorded in the "Monograph," namely, Devonshire and the Channel Islands.

Distribution.—Off St. Vincent, Cape Verde Islands, 1070 and 1150 fath., "Challenger" Exped. (G. S. B.).

Fossil.—(?) Rizzolo, Sicily.

3. *Bairdia subcircinata*, n. sp.

1880. *Bairdia formosa*, Brady, Report, "Challenger," Ostrac., p. 52, pl. x., figs. 1 a–c.

(Not 1868, *B. formosa*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 221, pl. xiv., figs. 5–7.)

Shell, as seen from the side, triangular, all the angles broadly rounded off; height greatest in the middle, and equal to three-fourths of the length; the dorsal margin is excessively arched, and somewhat gibbous in the middle; the ventral straight or rather convex; anterior extremity broadly rounded, posterior narrower, slightly produced below the middle. Seen from above the outline is very broadly ovate, the greatest width being situated in the middle, and equal to more than half the length; extremities obtuse, sub-mucronate. The end view is broadly ovate, the height considerably greater than the width. In well-developed adult specimens the surface is slightly punctate, and is beset with numerous little tubercular or papilliform eminences; the left valve bears in front and at the infero-posteal angle a series of five to seven spines; the right valve is fringed along its anterior margin with a considerable number—twelve or more—of small blunt teeth. Young specimens have the shell quite smooth and destitute of marginal teeth. Length, 1.55 mm.

In the report on the "Challenger" Ostracoda, the specimens there referred to *Bairdia formosa* were noted as differing from the Mediterranean type; but after an examination of the more recent dredgings of the "Talisman" (see Appendix)

we no longer doubt that the two forms are specifically distinct, and we propose for the Atlantic species the name *subcircinata*.

The most important distinctive characters are, that both extremities are spinous, the left valve having in front a series of about seven marginal spines, and the right a closely-set row of short blunt teeth. At the posterior extremity the upward slope of the ventral margin is beset with numerous small spines (usually smaller than represented in the "Challenger," *loc. cit.*, plate x., fig. 1 *b*); and in the living condition the shell is clothed with strong dark-brown hairs, and marked with distant, rather coarse, circular puncta; posterior margin not at all beaked.

Distribution.—North Atlantic, lat. 38° 11' N., long. 27° 9' W., 900 fath.; South Atlantic, lat. 8° 37' S., long. 34° 28' W., 675 fath.; and off North Brazil, lat. 9° 5' S., long. 34° 49' W., 350 fath.; South Pacific, one or two doubtful examples, lat. 5° 26' S., long. 133° 19' E., 580 fath.; all "Challenger" Exped. (G. S. B.); North Atlantic, lat. 56° 1' N., long. 34° 42' W.; "Valorous" Exped., 1875, Stat. 13 (A. M. N.).

4. *Bairdia angulata*, Brady.

1870. *Bairdia angulata*, Brady, *Les Fonds de la Mer.*, vol. i., p. 199, pl. xxvii., figs. 11, 12.

1880. *Bairdia angulata*, Brady, Report, "Challenger," *Ostracoda.*, p. 59, pl. xi., figs. 5 *a-d*.

Shell oblong, compressed; seen from the side sub-reniform, scarcely twice as long as high; extremities well and evenly rounded, the anterior bearing about the middle few (four or five) short, broad teeth; the posterior armed *below* the middle with six or eight nearly similar teeth; dorsal margin very slightly arched; ventral straight, except that near the front at its junction with the anterior border, it is produced downwards into a conspicuous angular prominence. Seen from above, the outline is about thrice as long as broad, compressed, with parallel sides and tapering acuminate extremities. End view ovate, compressed; width scarcely equal to half the height. Surface of valves smooth or finely punctate. Length, .9 mm.

Distribution.—Dredged by "Challenger," off the Azores, lat. 38° 37' N., long. 28° 30' W., 450 fath.; South Atlantic, lat. 47° 48' S., long. 74° 48' W., 120 fath.; and in Torres Straits, 155 fath. The original specimens were taken at Halt Bay, in the Straits of Magellan (G. S. B.).

5. *Bairdia victrix*, Brady.

1869. *Bairdia victrix*, Brady, Les Fonds de la Mer., vol. i., p. 152, pl. xviii., figs. 17, 18.

1880. *Bairdia victrix*, Brady, Report, "Challenger," Ostracoda, pl. 56, p. x., figs. 5a-d.

Shell tumid, gibbous; seen from the side sub-triangular, height equal to rather more than two-thirds of the length; anterior extremity rounded; posterior obliquely truncate and produced into a prominent obtuse beak; dorsal margin very boldly arched; ventral more or less convex, and often irregularly sinuous towards the posterior extremity; the margins of the right valve are often beset at the two extremities with numerous short obtuse teeth. Seen from above, the outline is broadly ovate, more than twice as long as broad, widest in the middle; anterior extremity sub-acuminate, posterior broadly mucronate. End view ovate, widest below, height almost one-third greater than the width. Surface of the shell smooth, sometimes sparingly punctate, and (especially towards the hinder end) having a few scattered, rigid hairs. Length, 1.6 mm.

Distribution.—Dredged by "Challenger" in North Atlantic, in the neighbourhood of the Azores, lat. 38° 11' N., long. 27° 9' W., 900 fath.; and lat. 38° 37' N., long. 28° 30' W., 450 fath. Also off North Brazil, 350 to 675 fath.; off Kerguelen Island 120 fath.; off Sydney, Australia, 410 fath.; and to the north of Tristan d'Acunha, 1425 fath. The first-described specimens were from Colon-Aspinwall, and it has also been taken at Cuba (G. S. B.); North Atlantic, lat. 56° 1' N., long. 34° 42' W., 690 fath., "Valorous" Exped., 1875. Stat. 13 (A. M. N.).

6. *Bairdia crosskeiana*, Brady.

(Plate x., figs. 3, 4.)

1865. *Bairdia crosskeiana*, Brady, Trans. Zool. Soc., vol. v., p. 866, pl. lvii., figs. 10 a-d.

1880. *Bairdia crosskeiana*, Brady, Report "Challenger" Ostracoda, p. 58, pl. ix., figs. 3 a-c.

1884. *Bairdia crosskeiana*, Seguenza, Il Quaternario di Rizzolo II. Gli Ostracodi, p. 15.

1885. *Bairdia crosskeiana*, Carus, Prodr. Faunæ Mediterranæ, p. 316.

Shell elongated, compressed, greatest height equal to about half the length, and situated near the middle; seen laterally, the outline is sub-ovate or sub-triangular, wider in front than behind; anterior extremity obliquely rounded, angulated at its junction with the dorsum, lower angle obliterated and forming a

wide curve continuous with the ventral margin; posterior narrow and tapered, sub-acute and more or less squamously dentated below; dorsal margin well arched, slightly sinuated in front; ventral nearly straight. Seen from above the outline is lozenge-shaped, more than twice as long as broad; near the front tapering rather abruptly forwards, gradually and with a gentle curve towards the posterior extremity; anterior extremity obtuse; posterior pointed; surface smooth, closely set with minute punctations. Length, 1.3 mm.

Distribution.—Fosse de Cap Breton; two miles from the mouth of the Adour, Marquis de Folin (G. S. B.); Fosse de Cap Breton, 30–60 fath., and 180–200 fath. (A. M. N.); Tongatabu; Nares' Harbour, Admiralty Islands, 16 fath.; Honolulu, 40 fath., "Challenger" dredgings (G. S. B.); Messina (Seguenza).

Fossil.—Sicily (Seguenza).

The southern form of this species, as shown in the "Challenger" specimens, is somewhat more slender, and the outline, as seen from above, is more distinctly angular and hastate.

7. *Bairdia obtusata*, G. O. Sars.

1868. *Bairdia obtusata*, Brady, Mon. rec. Brit. Ostrac., p. 390, pl. xxxiv., figs. 22–25.

Additional locality.—Irish Channel, 60 fath. (Malcomson).

Distribution.—Flekkefiord, West Norway, 80–90 fath. (G. O. Sars); Solems Fiord by Floro, 30–60 fath.; off Midso Lighthouse, Hardanger Fiord, 50–210 fath.; Stoksund, 126 fath., all on the West Norwegian Coast (A. M. N.).

Fossil.—Calabria (Seguenza).

8. *Bairdia complanata*, Brady.

(Plate XIII., figs. 20–26.)

1868. *Bairdia complanata*, Brady, Mon. rec. Brit. Ostrac., p. 390, pl. xxxiv., figs. 1–4.

1880. *Bairdia complanata*, Seguenza Le format. terz. Reggio, p. 288 ("var. *sinuata*").

1883. *Bairdia complanata*, Seguenza, Il Quaternario di Rizzolo II., Gli Ostracodi, p. 17 ("var. *sinuata*").

1885. *Bairdia complanata*, Carus Prod. Faunæ Mediterranæ, p. 817.

Additional localities.—Five to eight miles east of Balta, Shetland, 40–50 fath.; Loch Fyne (A. M. N.).

Distribution.—Abundant in certain localities on West Norway coast; south side of Kors Fiord, 180 fath.; off Sartoro Bergen Fiord, 15–40 fath.; off Midso Lighthouse, Hardanger Fiord, 50–100 fath. (A. M. N.), var. *sinuata*, Messina (Seguenza).

Fossil.—Var. *sinuata*, Rizzolo, Sicily, and Calabria (Seguenza).

Prof. G. O. Sars has recently suggested* that *Bairdia complanata*, and *B. obtusata* probably belong to the genus *Bythocypris*. The anatomy of *Bythocypris* is only very imperfectly known, the drawings given in the Report of the "Challenger" Expedition being founded on an examination of one or two mutilated specimens; but so far as we can at present ascertain, *Bairdia complanata* seems to be intermediate in its characters between the two genera; the caudal rami, antennules, and mandibles agreeing pretty closely with those of *Bairdia*, while the shell and antennæ approach those of *Bythocypris*. For the present it seems best to leave the species in the genus *Bairdia*.

Genus II.—MACROCYPRIS, Brady.

[Type, *Macrocypris minna* (Baird).]

1. *Macrocypris minna* (Baird).

1868. *Macrocypris minna*, Brady, Mon. rec. Brit. Ostrac., p. 392, pl. xxvii., figs. 5-8; pl. xxxviii., fig. 4.

1880. *Macrocypris minna*, Seguenza, Formaz. terziarie nella provincia di Reggio, p. 191.

1888. (?) *Macrocypris minna*, idem, Il Quaternario di Rizzolo II. Gli Ostracodi, p. 10.

The only British locality of this species is Shetland, where a single specimen was dredged by M. Andrew forty years ago, and a second by A. M. N. on the Outer Haaf, in 1861.

Distribution.—Christiania Fiord, 20-50 fath., and thence to the Lofoten Islands (G. O. Sars); Dröbak, Christiania Fiord, 30-100 fath.; Oster Fiord, north of Bergen, 50-375 fath.; Lervig, Stordoen, 25 fath. (A. M. N.); Bay of Biscay, Marquis de Folin (G. S. B.).

Fossil.—Calabria; (?) Rizzolo, Sicily (Seguenza).

2. *Macrocypris angusta* (G. O. Sars).

(Plate IX., figs. 17, 18.)

1865. *Bairdia angusta*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 22.

Shell greatly elongated, narrow, and produced at the extremities; seen from the side, both ends are much drawn out, and finally terminate in spine-points, hinder extremity the more produced; greatest height in front of the middle, less than one-third the length; dorsal margin evenly arched, except near the posterior extremity, where there is a slight concavity; ventral margin sinuated in

* Nye Bidrag til Kundskaben om Middelhavets Invertebratfauna, iv., Ostracoda Mediterranea p. 117.

front of the middle, behind this nearly straight with a slight tendency to convexity. Seen from above, greatly elongated, and very narrow; greatest breadth nearly central, a little less than the height, equally attenuated towards the very acute extremities. Surface of valves white, smooth, and polished; a few short, scattered hairs at the extremities. The right valve is somewhat larger than the left, which closes partially within it, especially at the posterior extremity. Length, 2 mm.

Sars thus describes the animal:—"Membra animalis pallide flavescentia. Antennæ quam in *M. minna* magis elongata; superiores longius setiferæ, articulo tertio valde elongato, sequentibus 3 junctis longiore, inferiorum articulus antepenultimus antecedente multo longior, unguis terminales breves et inæquales. Aculei palpo maxillarum 2^{di} paris inhærentes non dentatæ. Pedum primi paris articulus secundus sequentibus duobus junctis, longitudine circiter æqualis, ultimus brevissimus ungue unico perlongo et curvato instructus. Pedum ultimi paris unguis terminalis in margine modo altero dentatus. Rami postabdominales appendices duas sat elongatas, mucroniformes, obsolete biarticulatas ad apicem acuminatam leviter supra curvatas formantes. Organa copulationis maris forma singulari, aviculariis Polyzoum simillima, processibus rostriformibus duobus mobilibus sibique applicantibus instructa."

Distribution.—Frequent in the Christiania Fiord, and abundant near Trondhjem (G. O. Sars); off Midso Lighthouse, Hardanger Fiord, 50–100 fath.; Dröbak, Christiania Fiord, 100 fath. (A. M. N.). Only as yet known in Norway.

This species differs somewhat from the typical *Bairdie* in the conformation of the antennules and caudal rami; but we have not at our disposal materials for a complete investigation of its anatomy.

3. *Macrocypris siliquosa*, Brady.

Macrocypris siliquosa, Brady, Les Fonds de la Mer., vol. iv., p. 194, pl. xiv., figs. 1–3.

Shell elongated, compressed; seen from the side, the height is everywhere nearly equal, being about two-fifths of the length; anterior extremity evenly rounded, posterior forming with the dorsal margin a continuous curve, and joining the ventral margin at an acute angle; dorsal margin evenly and very slightly arcuate; ventral almost straight, slightly convex behind the middle; seen from above, the outline is a compressed oval, thrice as long as broad and widest in the middle, only slightly tapered towards the extremities, which are moderately broad. The right valve is larger than the left, overlapping both on the dorsal and ventral margins. Surface perfectly smooth and white. Length, 1.55 mm.



Macrocypris siliquosa.

The types of this species were found by the Marquis de Folin in one of the dredgings of the "Talisman," from a depth of 932 metres, in lat. 23° N., long. 16° 27' W. (G. S. B.) We have also found a broken fragment of a valve, belonging to the same species, in one of the "Porcupine" dredgings from lat. 56° 11' N., long. 10° 56' W., depth 1366 fath. (A. M. N.).

Genus III.—BYTHOCYPRIS, Brady.

[Type. *Bythocypris bosquetiana* (Brady).]

Shell thin and fragile, smooth, reniform or subreniform; left valve much larger than the right, which it overlaps both on the dorsal and ventral margins. Antennules short and stout, six-jointed, the first two joints very large, the remainder small, and bearing numerous long setæ. Antennæ also short and stout, five-jointed, having no "hyaline-vesicle," the second and fifth joints about twice as long as the rest, scarcely at all tapered towards the apex, and terminating in about six curved setæ, one of which is much stouter than the others. Mandibles armed with numerous strong serrated apical teeth, and furnished with a well-developed four-jointed and setiferous palp, the first joint of which bears a rudimentary branchial appendage, consisting of a single stout seta. One pair of jaws only (?), consisting of four setiferous digits, and a large branchial appendage, which is divided into two portions, the upper portion ovate, and bearing ten setæ, the lower narrow, biarticulate, and provided with five slender setæ. Two pairs(?) of feet, the first having a single curved terminal claw, and about three short marginal setæ; the second rudimentary, consisting of a single small joint, with two stout setæ. Post-abdominal rami of moderate size, curved, and armed at the apex with one long and one short curved seta.

Bythocypris was described by Professor Brady in his "Challenger" Report, to which we refer for further observations of the genus and illustrations of the animal.

The type species, *B. reniformis* (Brady), we are now satisfied is the species described long before (from a young shell) as *Bairdia bosquetiana* (Brady).

Bythocypris bosquetiana (Brady).(Plate XIV., figs. 34, 35, *junior*.)

1865. *Bairdia bosquetiana*, Brady, New and imperfectly known species of marine Ostracoda, Trans. Zool. Soc., vol. v., p. 364, pl. lviii., figs. 5 *a-c* (*junior*).

1880. *Bythocypris reniformis*, Brady, Rep. "Challenger," Ostracoda, p. 46, pl. v., fig. 1 *a-b*.

Shell reniform; seen laterally, the greatest height is situated in the middle, and equal to more than half the length; extremities rounded, the anterior rather broader than the posterior; ventral margin sinuated in the middle, dorsal boldly and evenly arched. Seen from above, the outline is narrowly ovate, about thrice as long as broad, and widest in the middle, tapering evenly to the extremities, of which the anterior is pointed, and the posterior more obtusely pointed. End view ovate, the width equal to about two-thirds of the height. The left valve is more rounded in contour, and is also much more strongly arched dorsally than the right valve. The hinge-margins overlapping along almost the entire length of the left valve, the lower margin also forms a curved flange, which overlaps the right valve in the middle of the ventral aspect. The shell is thin, smooth, and homogeneous in structure, but marked with irregularly-scattered translucent spots; muscle spots arranged irregularly near the centre of the valves. Length, 1.3 mm. in the "Challenger" specimens; but the Atlantic example is considerably smaller.

Distribution.—Atlantic Ocean, 470 fath.; Commander Dayman's soundings; off Culebra Island, West Indies, 390 fath.; off North Brazil, 350–675 fath.; off Prince Edward's Island, 50–150 fath.; and off Monceur Island, Bass' Strait, 40 fath.; all from "Challenger" dredgings (G. S. B.).

The reniform contour and very marked overlapping of the one valve over the other on the dorsal margin are points by which this species may be readily distinguished.

[*Goniocypris mitra*, B. and R.—The shell described under this name in the "Annals and Magazine of Natural History" for July 1870 is not an Entomos-tracan, but the fry of *Anodonta cygnea*.

The fry of *Anodonta* is described by Dr. Jeffreys in his work on the British Mollusca, vol. i., p. 43].

Fam. III.—DARWINULIDÆ.

Genus DARWINULA, Brady and Robertson.*

Polycheles, Brady and Robertson ; *Darwinella*, Brady and Robertson (names pre-occupied.)

[Type, *D. stevensoni*, Brady and Robertson.]

1870. *Polycheles*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 25.
 1872. *Darwinella*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. ix., p. 50.
 1874. *Darwinella*, Brady, Crosskey, and Robertson, Post.-tert. Entom., p. 140.
 1885. *Darwinella*, Brady and Robertson, Quart. Journ. Geol. Soc.

Shell smooth, thin, and fragile. Carapace oblong, higher behind than in front; lucid spots ten to twelve in number, linear-oblong or wedge-shaped, arranged in a subradiate manner in front of the centre of the valve. Seen from the side, compressed, oblong, subovate. Seen from above, ovate, acuminate in front, obtusely rounded behind. Valves unequal, the right much larger than the left. Antennules very short, six-jointed, and stout, strongly armed with short and stout curved setæ. Antennæ four-jointed, and bearing four or five strong terminal claws; entirely destitute of poison gland or urticating setæ, the place of which is occupied by a single curved seta of moderate length. Mandible broad, truncated at the distal extremity, which is provided with six or seven small spiniform teeth; palp three-jointed, its basal joint very wide and fringed with several curved setæ, bearing also a small lamina, fringed with branchial filaments; second joint long, slender, nearly four times as long as broad, slightly curved and dilated at the distal extremity, where it bears one long and two small setæ; terminal joint more slender, about two-thirds of the length of the foregoing, and bearing at the truncate apex about six slender curved spines. First maxilla divided into four short setiferous segments, and bearing a very large oblong palp, which is fringed with about twenty-four long branchial filaments, and has also four other long setæ at its base. Second maxilla simple, short, and broad, truncate at the apex, and fringed on the distal margin with several slender spine-like hairs, bearing also a large, three-jointed, pediform palp, and an ovate branchial appendage of moderate size. Two pairs of feet of moderate size, five-jointed; second pair much the longest, and having the

* The generic term *Darwinella* having been previously appropriated by Fritz Müller for a genus of horny sponges was withdrawn in favour of *Darwinula*; see T. Rupert Jones, on "the Ostracoda of the Purbeck Formation," Quarterly Journal of the Geological Society, August, 1885.

last joint armed with one long and two small curved setæ; first three joints of nearly equal length; fourth and fifth, respectively, about one-half and one-third as long as the preceding. Abdomen ending in a short conical process. Copulative organs of the male of complex structure, the basal portion (on each side) consisting of a subrhomboidal acuminate lamina, the apical portion of an irregularly-shaped plate produced laterally into an aliform process, and on the distal margin into a short, strong hook. Female probably viviparous.

Darwinula stevensoni, Brady and Robertson.

(Plate x., figs. 7-13; plate XIII., figs. 1-9; plate XXIII., fig. 5.)

1870. *Polycheles stevensoni*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 25, pl. vii., figs. 1-7; and pl. x., figs. 4-14.
1870. *Argillæcia aurea*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 16, pl. viii., figs. 4, 5.
1872. *Darwinella stevensoni*, Brady and Robertson, *ibid.*, ser. iv., vol. ix., p. 50.
1874. *Darwinella stevensoni*, Brady and Robertson, *ibid.*, ser. iv., vol. xiii., p. 117, pl. v., figs. 8-10.
1874. *Darwinella stevensoni*, Brady, Crosskey, and Robertson, Post.-tert. Entom., p. 141, pl. ii., figs. 18-17.

Shell of the female, as seen from the side, oblong, depressed in front, height equal to more than one-third of the length; extremities obliquely rounded, anterior narrowed, posterior broad and obtuse: superior margin nearly straight, curving downwards in front of the middle; inferior slightly sinuated in the middle. Seen from above, ovate-acuminate, widest near the posterior extremity; greatest width about equal to the height; posterior margin indented in the middle at the junction of the two valves. End view nearly circular. Shell of the male somewhat more compressed; when seen from above, having the greatest width near the middle. The right valve much overlaps the left, especially in the middle of the ventral margin. Length, .8 mm.

This is perhaps the most characteristic Entomostracan of the East Anglian Fen district, where it is widely spread, and often occurs in considerable abundance.

The following is a complete list of habitats, so far as known to us:—Whittlesea Dyke; Lake Lothing, and Breydon Water; Rivers Nene, Cam, Ouse, Deben; Wroxham, Barton, Horsey, Hickling, Somerton, Ormesby, and Oulton Broads, Loughs Inagh, Corrib, Agraffard, Arddery, and Naserahoge in Connemara (G. S. B. and D. R.); Marbury Mere, Blackmere, and Osmere, Shropshire; White Loch and Borean Loch, Kirkcudbrightshire (G. S. B.); Broomhill Loch, Dumfriesshire, Mack Loch, near Oban; Canal at Cardiff (D. R.); Loch Fell, Wigtonshire, Lochs Aber and Ruter, Kirkcudbrightshire (A. M. N.).

Distribution.—River Scheldt, Holland (G. S. B.); Lac d'Ossegor, Cap Breton, S. W. France; Marquis de Folin (G. S. B.); Bedestresser See, N. Germany; S. A. Poppe (G. S. B.).

Fam. IV.—CYTHERIDÆ.

Genus I.—METACYPRIS, Brady and Robertson.

(Ann. and Mag. Nat. Hist., ser. iv., vol. vi. (1870). p. 19.)

[Type, *M. cordata*, Brady and Robertson.]

Shell moderately strong and thick. Seen from the side, the outline is sub-rhomboidal, rounded in front, and obscurely angular behind; the posterior portion of the hinge-margins produced angularly. Seen from above, heart-shaped in the female, broadly ovate in the male; ventral surface deeply impressed along the central and posterior portions of the median line. Hingement formed on the *right* valve by a laminated angular projection anteriorly, posteriorly by a strong rectangularly-produced flange, from which projects a single sharply-cut tooth, the flange itself being continued round the posterior margin of the valve; on the *left* valve by a deep sulcus behind, and a shallower one in front. Except in front, and at the supero-posteal angle, the margins of the valves are incurved considerably, so that the actual contact-margins embrace a much smaller area than that of the entire shell. The right valve is larger than the left. Animal closely resembling *Cythere*.

Metacypris cordata, Brady and Robertson.

(Plate XIII., figs. 10–17; and Plate XIV., figs. 3–12.)

1870. *Metacypris cordata*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 20, pl. vi., figs. 1–9.

1871. *Metacypris cordata*, idem. *ibidem*, vol. ix., p. 51, pl. ii., figs. 9, 10.

Shell of the female excessively tumid and depressed. Seen from the side, subovate or subrhomboidal; highest in the middle; height equal to more than half the length; anterior extremity well rounded, posterior obscurely angular; superior margin gently arched, produced at its posterior extremity into an angular process corresponding in position to the posterior hinge-joint; inferior margin

distinctly convex, curving upwards behind, in front rather deeply and abruptly sinuated at its junction with the anterior margin. Seen from above, the outline is heart-shaped, pointed in front, posterior extremity broadly rounded and indented at the junction of the two valves; greatest width situated behind the middle, much greater than the height, and equal to about five-sixths of the length; the lateral margins are boldly curved and somewhat sinuous in the anterior part of their course. End view subreniform, depressed; sides excessively convex; superior margin arched and slightly indented in the middle, inferior deeply sinuated in the middle, where, however, it is encroached on by the downwardly produced anterior margin.

The shell of the male differs in having an almost straight dorsal line, a very wide, obliquely truncated postero-dorsal angle, and in the ventral margin being rounded off behind with a bold curve. Seen from above, the outline, instead of being cordate, is ovate, and widest in the middle, the posterior extremity being narrowed and rounded off. Surface closely set with small, rounded impressions, which on the ventral surface are arranged in longitudinal rows, and tend to run into furrows; ventral surface deeply sulcate along the greater portion of the median line. Colour green, with irregular blotches of darker green, or black. Length .5 mm.

Antennules slender, six-jointed; the third, fourth, and sixth joints nearly equal in length; fifth slightly longer; last joint bearing four slender setæ, two of which are moderately long; fourth and fifth joints also bearing two or three slender apical setæ; antennæ, jaw, and feet as in *Cythere*; the mandible-palp, however, short, indistinctly jointed, and bearing an appendage composed of three segments, the two larger of which bear each two setæ, the smaller one seta; abdomen ending in two short curved setæ.

This remarkable species was first found in several gatherings from the East Anglian Fen district, viz. Rivers Nene and Cam, Wroxham and Barton Broads, and Breydon Water (G. S. B. and D. R.). All the specimens from these localities, however, were only dead shells. More recently we have been fortunate enough to find perfect animals in Coolbareen Lough, Co. Mayo, and Lough Aubwee, near Galway, from which the anatomical characters have been gathered. All these specimens were females; but in some later gatherings from Ellesmere Canal, Osmer, and Colmere, Shropshire (G. S. B.), we have found a few males.

Distribution.—In dredged sand from the River Scheldt, Holland (G. S. B.).

Genus II.—CYTHERE, Müller.

[Type, *Cythere lutea*, Müller.]

1. *Cythere lutea*, Müller.

Synonyms: *Cythere reniformis*, Baird ; *C. setosa*, Brady.

1868. *Cythere lutea*, Brady, Mon. rec. Brit. Ostrac., p. 395, pl. xxvii., figs. 47–58 ; pl. xxxix., fig. 2.
1868. *Cythere viridis*, Brady, Mon. rec. Brit. Ostrac., p. 397, pl. xxviii., figs. 40, 41, and 50–59 ;
pl. xxxviii., fig. 8 (but not *Cythere viridis*, Müller), (*junior*).
1874. *Cythere lutea*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., Scotland, p. 148,
pl. iii., figs. 1–6.
1874. *Cythere viridis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., Scotland, p. 147,
pl. iii., figs. 26–28 (*junior*).
1888. *Cythere lutea*, Dahl, Die Cytheriden der Westlich. Ostsee, p. 9, pl. i., figs. 1–12, 27–29.

Cythere lutea occurs commonly all round the coasts of the British Islands in the littoral and laminarian zones, extending to considerable distances up river estuaries, such as those of the Stour and Deben, in Suffolk. When living amongst algæ, it is usually deeply coloured in the central portion of the shell with a yellowish or reddish-brown incrustation ; but specimens dredged from greater depths are of a uniform dirty-grey tint.

Distribution.—Norway, frequent (G. O. Sars) ; Dröbak ; Lervig, in Hardanger Fiord ; Bukken, Kors Fiord, Norway. Holstenbourg and Godhavn Harbours, Greenland ; Davis Strait, lat. 76° 17' N., long. 62° 21' W., just below low-water mark ; “Valorous” Exped. (A. M. N.) ; Mediterranean ; Iceland ; Hammerfest Harbour ; Gulf of St. Lawrence (G. S. B.).

Fossil.—Scotland, Belfast, Iceland, Canada, Norway.

It will thus be seen that this very common British *Cythere* has a most extensive range both at the present and in the post-tertiary epoch.

2. *Cythere pellucida*, Baird.

(Plate xiv., figs. 13–15.)

1850. *Cythere pellucida*, Baird, British Entomostraca, p. 173, pl. xxi., fig. 7 (*e typis*).
 1865. *Cythere castanea*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 32.
 1868. *Cythere castanea*, Brady, Mon. rec. Brit. Ostrac., p. 398, pl. xxviii., fig. 27; and pl. xxxviii., fig. 6.
 1869. *Cythere castanea*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., pl. xix., figs. 15–18.
 1874. *Cythere castanea*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 143, pl. xiii., figs. 8–11; and pl. iii., fig. 25.

For habitats of this species, see under *Cythere castanea*, in Brady's monograph.

The type specimens of Dr. Baird's *Cythere pellucida* from Boston are in Dr. Norman's collection, and they are not the species which has been regarded by authors as *C. pellucida*, but are the form named by Sars, *C. castanea*. The ordinary specimens of the latter form are smaller than the former (*i. e.* the *Cythere confusa* of this memoir); but Dr. Baird's Boston specimens are smaller still, though decidedly the same as *C. castanea*, with which they agree in all characters. The transverse furrow, which is neither referred to nor figured by Baird, is as distinct in these specimens as usual.

This is essentially a brackish-water species, and is found all round the coasts of Great Britain and Ireland in salt marshes and estuaries, and in rivers as far as, or even further than, the tidal influence extends. We have found it in places as far inland as Whittlesea, and in several of the Norfolk and Suffolk Broads (G. S. B. and D. R.). It occurs also not uncommonly in dredgings from shallow water up to 4 or 5 fath., and less commonly up to 30 fath.

Distribution.—Christiania, Norway (G. O. Sars); Hollingspollen, Dröbak; and Bergen, Norway; Fosse de Cap Breton, Bay of Biscay, in 180–200 fath., but probably washed into that deep trough from shallow water, as it is usually an estuarine and shallow-water species (A. M. N.); Rivers Scheldt and Maas, Holland (G. S. B.); Naples (A. M. N.).

Fossil.—Scotland, Cardiff (New Dock Basin).

3. *Cythere confusa*, nom. nov.

(Plate xiv., figs. 16–18.)

1865. *Cythere pellucida*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 31 (but not of Baird).
 1868. *Cythere pellucida*, Brady, Mon. rec. Brit. Ostrac., p. 397, pl. xxviii., figs. 22–26, 28.
 1869. *Cythere pellucida*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., pl. xix., figs. 10–12.
 1874. *Cythere pellucida*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 142, pl. iii., figs. 20–24.
 1884. *Cythere pellucida*, Carus, Prod. Faunæ Medit., p. 294.

This is more strictly a marine species than *C. pellucida*, and is not so universally found in tidal or brackish waters, though we have records of its occurrence in many such situations on the Northumberland coast, as well as in the Rivers Humber, Ouse (Yorkshire and Norfolk), and Thames; at Whittlesea and in Breydon Water, Norfolk. In deep water all round our coasts it is found more abundantly than *C. pellucida*.

Distribution.—Christiania to Finmark (G. O. Sars); Haakelsand, in Kors Fiord; Lervig Bay; Dröbak; all in Norway (A. M. N.); Iceland; Holland, River Scheldt (G. S. B.); Fosse de Cap Breton, Bay of Biscay (A. M. N.); Messina (Seguenza), Mediterranean, St. Malo, Syra, Smyrna (G. S. B.); Gulf of St. Lawrence (G. S. B.); Naples (A. M. N.).

Fossil.—Scotland; Ireland, at Belfast and Portrush; Norway; Sicily.

4. *Cythere porcellanea*, Brady.

(Plate xiv., figs. 22, 24.)

1869. *Cythere porcellanea*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 47, pl. vii., figs. 1–4 (*junior*).
 1869. *Cythere porcellanea*, Brady and Robertson, *ibid.*, p. 367, pl. xix., figs. 1–4.
 1869. *Cythere propinqua*, G. O. Sars, Undersøgelser over Christianiafjordens Dybvandsfauna, p. 57, and note, p. 58.
 1874. *Cythere porcellanea*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 144, pl. xiii., figs. 1, 2.

Shell of female, seen from the side, flexuous, reniform, highest in the middle, greatest height equal to rather more than half the length; anterior extremity evenly, posterior obliquely, rounded; superior margin evenly arched, inferior deeply sinuated in the middle; postero-superior angle well marked. Seen from above, ovate, widest in the middle, sharply pointed in front, rather more obtusely

behind; width somewhat less than the height. Surface smooth and polished, marked (usually behind the middle) with a few scattered, indistinct puncta. Colour, whitish. Shell of the male rather more slender, and less flexuous. Length, .5 mm.

In brackish estuaries and in the sea, but apparently seldom reaching beyond the littoral and laminarian zones. The distribution is, in fact, almost exactly that of *C. pellucida*, ranging from such fresh-water habitats as Whittlesea, on the one hand, to depths of 30–40 fathoms on the other.

Distribution.—Christiania Fiord (G. O. Sars); Bergen, Lervig, and Dröbak, Norway (A. M. N.); Iceland; Rivers Scheldt and Maas, Holland (G. S. B.).

Fossil.—Scotland; Cardiff, South Wales.

Although the characters above given are undoubtedly sufficient to separate well-marked examples very decidedly from any of the most nearly related species, *C. confusa*, *C. pellucida*, and *C. macallana*, it must yet be admitted that there occur many intermediate conditions, which it is by no means easy to assign without misgiving to any one of these species. But a similar observation holds good in numberless other cases, and is, in fact, only one of many points of evidence in favour of community of descent, and of organic plasticity sufficient to adapt forms to constantly varying conditions of existence. The characters on which we chiefly rely to distinguish *C. porcellanea* from its near allies are—firstly, the nearly equal tapering of both extremities when seen from above, that is dorsally; secondly, the more arched and flexuous outline as viewed laterally; thirdly, the smooth porcellaneous shell-surface, with little trace of punctation; and, lastly, that in the females there is no transverse furrowing of the shell, in this respect resembling *C. macallana*.

5. *Cythere macallana*, Brady and Robertson.

(Plate xiv., figs. 19–21.)

1869. *Cythere macallana*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 368, pl. xix., figs. 5–9.

1874. *Cythere macallana*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 144, pl. xiii., figs. 1, 2.

Shell of the female, as seen from the side, subreniform, greatest height in front of the middle, and equal to half the length; anterior extremity evenly, posterior obliquely, rounded; dorsal margin rather boldly arched, ventral sinuated in the middle. Seen from above, ovate, widest in the middle, rounded behind, subacuminate in front; width less than the height. Shell of the male longer and narrower, as seen laterally more tapering towards the posterior extremity;

dorsal margin almost straight. Seen from above, the sides are sub-parallel, and the posterior extremity obtuse. Length, 4 mm.

This species has been dredged in Dublin, Westport, Birturbuy and Clifden Bays, Ireland, and off the Scilly Islands; and found in sands from the Yorkshire River Ouse, the Humber, and Fowey Harbour (G. S. B. and D. R.). Dredged in 5 fathoms off Fairlie, Firth of Clyde, and in Clew Bay, Mayo (A. M. N.); Belfast Lough and Irish Channel (Malcomson).

Distribution.—Naples (A. M. N.).

Fossil.—Kilchattan and Cumbrae, Scotland.

6. *Cythere tenera*, Brady.

1868. *Cythere tenera*, Brady, Mon. rec. Brit. Ostrac., p. 399, pl. xxviii., figs. 29–32.

1874. *Cythere tenera*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 145, pl. xiii., figs. 6, 7.

1880. *Cythere tenera*, Brady, Report "Challenger," Ostracoda, p. 63, pl. xii., fig. 3 a–f.

1885. *Cythere tenera*, Carus, Prod. Faunæ Medit., p. 295.

This species is easily distinguished from the four preceding not only by its contour, but by its characteristic surface-markings, and the absence of transverse furrowing.

Except that it is less common in fresh and brackish water, its distribution follows exactly the lines of *C. pellucida* and *C. porcellanea*. The most characteristic specimens occur in purely marine situations, but numerically they are not so common as the two above-mentioned species. From fresh-water, our only recorded locality is Whittlesea Dyke (G. S. B. and D. R.). Between tide-marks it seems to be of rare occurrence, our only records of such habitats being Whitley and Cullercoats, Northumberland (G. S. B.).

Distribution.—Oster Fiord, near Bergen, 100 fath.; Hardanger Fiord, off Lervig and Dröbak, Norway; Fosse de Cap Breton, Bay of Biscay, 30–200 fath. (A. M. N.); Vigo Bay, "Challenger" Expedition (G. S. B.); Messina (Seguenza); Besika Bay; Hellespont; Rivers Scheldt and Maas, Holland (G. S. B.).

Fossil.—Scotland, Cardiff.

7. *Cythere mamillata*, Brady.

(Plate xx., figs. 32, 33.)

1866. *Cythere mamillata*, Brady (New or imperfectly known species of Ostracoda), Trans. Zool. Soc., vol. v., p. 373, pl. lix., figs. 6 a-c.

Shell oblong, subreniform, deepest in front, twice as long as high; anterior margin well rounded, produced downwards below the level of the ventral margin; posterior extremity narrow, bent in the middle at an obtuse angle; dorsal margin arched; ventral straight. Seen from above, oval. Surface of the valves minutely punctate, and raised into several irregularly placed, rounded elevations, or mamillæ. Length, .32 mm.

Habitat.—Atlantic Ocean, 110 fathoms (G. S. B.).

8. *Cythere* (?) *semipunctata*, Brady.

1868. *Cythere* (?) *semipunctata*, Brady, Mon. rec. Brit. Ostrac., p. 411, pl. xxix., figs. 83-88.

1874. *Cythere* (?) *semipunctata*, Brady, Crosskey, and Robertson, Mon. Post-tert Entom., p. 172; pl. xvi., fig. 11-12.

This is a species of which the animal is still unknown, and the shell presenting some unusual characters, its position in this genus remains doubtful.

Cythere semipunctata is widely distributed, but always scarce where found.

Additional localities.—Budle Bay and Seaton Sluice, Northumberland; off coasts of Durham and North Yorkshire; River Ouse, Norfolk; off the Eddystone Lighthouse; Ilfracombe; Scilly Isles; Westport Bay and Mulroy Lough, Ireland (G. S. B. and D. R.); off Tarbert, Loch Fyne; between the Cumbraes, Firth of Clyde, in 25 fath. (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Lervig Bay, Norway; Fosse de Cap Breton, Bay of Biscay, 30-200 fath. (A. M. N.).

9. *Cythere badia*, Norman.

(Plate xv., figs. 3, 4.)

1868. *Cythere badia*, Brady, Mon. rec. Brit. Ostrac., p. 399, pl. xxix., figs. 29-32.

The figures and descriptions of this species given in the "Monograph" are correct, and apply to the species originally described by Dr. Norman; but the

synonym *cicatricosa* is referable to a closely-allied form, *C. crispata*, which was supposed to be identical with *C. badia*. Several of the habitats there assigned to *C. badia* belong properly to *C. crispata*. The following list shows completely the present state of our knowledge as to the distribution of *C. badia*:—

Fowey Harbour and Dungeness Bay (G. S. B.); Kames Bay, in the Isle of Cumbrae, and Westport Bay, Ireland; Scilly Isles (G. S. B. and D. R.); Rock pools, at Mounts Bay, Cornwall; Herm; Guernsey; Arran and Lough Carron, N. B.; Roundstone Bay, Ireland (A. M. N.); Belfast Lough and Irish Sea (Malcomson).

Distribution.—Mediterranean, Syra, Smyrna, Constantinople (G. S. B.).

10. *Cythere crispata*, Brady.

(Plate xv., figs. 1, 2.)

1865. *Cythere cicatricosa*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 33 (not Reuss).
 1868. *Cythere badia*, Brady, Les Fonds de la Mer., vol. i., p. 89.
 1868. *Cythere crispata*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 221, pl. xiv., figs. 14, 15.
 1869. *Cythere cicatricosa*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 369, pl. xix., figs. 13, 14.
 1869. *Cythere badia* (in part), Brady, Mon. rec. Brit. Ostrac., p. 399 (not figures).
 1874. *Cythere crispata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 146, pl. xii., figs. 52, 53; and pl. xiii., figs. 12, 13.
 1880. *Cythere crispata*, Report "Challenger," Ostracoda, p. 72, pl. xiv., figs. 8 a-d.
 1883. *Cythere crispata*, Seguenza, Il Quaternario di Rizzolo, II., Gli Ostracodi, p. 30.
 1885. *Cythere crispata*, Carus, Prod. Faunæ Medit., p. 295.

Carapace of the *female*, as seen from the side, subreniform, higher in front than behind, greatest height in front of the middle, and equal to more than half the length; anterior extremity rounded, and often slightly crenulated below the middle; posterior truncated and slightly rounded at the angles; superior margin gently arched, sloping from before backwards, its posterior angle somewhat produced; inferior margin slightly sinuated in the middle. Seen from above, the outline is compressed, almost clavate, tapering, and narrowly rounded in front, truncated behind; lateral margins deeply emarginated near the posterior extremity; width considerably less than half the length. Surface of the shell marked with irregularly sinuous depressions, and often with well-marked intervening ridges. Colour, yellowish-brown; the raised ornament often of a deeper tint of blue or black. Shell of the male longer, narrower, and more flexuous in outline. Length, .42 mm.

As already observed, this species was, in the "Monograph" confounded with *C. badia*, which, however, has only an irregular surface ornament, without

the conspicuous sinuations and rugæ which mark *C. crispata*; the dorsal aspect of the former is regularly ovate, while that of the present species is distinctly truncate behind, and has well-marked lateral notches.

The specific name *cicatricosa*, applied by G. O. Sars to this species, having been pre-occupied by Reuss and Bosquet for a form closely allied to, if not identical with, Baird's *C. convexa*, we adopt the name *crispata* already proposed by one of us for a Mediterranean form which we believe to be only a more strongly marked variety of this species, differing chiefly in size, and in the prominence of the sculptured shell-markings. This southern form approaches very closely *C. canaliculata* of Reuss, which, however, according to the figures given by that author, is even more sharply sculptured. A specimen, referred to *C. canaliculata*, was figured in the "Transactions of the Zoological Society" (vol. v., 1866, p. 373, pl. lix., figs. 4 *a-d*), and others more completely in the Report on the Ostracoda, of the "Challenger" Expedition (p. 73, pl. xiv., figs. 7 *a-d*). The British *C. crispata*, smaller and less pronounced in character than those from more southern seas, may fairly be looked upon as depauperized examples of a species finding more favourable conditions in warmer latitudes. The species ranges from Norway, Britain, and the Mediterranean, to Australia and Hong-Kong.

C. crispata appears to occur all round the British coasts from low-water mark downwards.

Distribution.—Christiania Fiord, Norway (G. O. Sars); Mediterranean, Tenedos, Besika Bay, and Hellespont (G. S. B.); Messina (Seguenza); Port Jackson, Australia; Booby Island; Hong-Kong Harbour, "Challenger" (G. S. B.).

Fossil.—Scotland, Ireland, Norway, Sicily.

This species is usually an inhabitant of the Laminarian Zone; while *C. badii* affects tide-marks.

11. *Cythere cribrosa*, Brady, Crosskey, and Robertson.

(Plate xvi., figs. 17, 18.)

1874. *Cythere cribrosa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 146, pl. x., figs. 5-7.

1878. (?) *Cythere cribrosa*, Brady, Ostracoda, Antwerp Crag, Trans. Zool. Soc., p. 384, pl. lixiv., figs. 4 *a-b*.

1886. *Cythere cribrosa*, Malcomson, Recent Ostracoda of Belfast Lough (Proc. Belfast Naturalists' Field Club), p. 260.

Shell compressed, oblong; seen laterally, rather higher in front than behind; greatest height equal to half the length; anterior extremity evenly, posterior

obliquely rounded, and obsolete angular about the middle; superior margin gently arched, highest in front of the middle, and terminating behind in an obtuse angle; inferior almost straight. Seen from above, compressed, ovate; anterior extremity sub-acuminate, posterior narrowly rounded, width less than the height. End view sub-circular. Surface of the valves covered with rather closely reticulated furrows which assume a concentric arrangement towards the margins. Length, $\cdot 55$ mm.

A very pretty and distinct species, its nearest relative being perhaps *C. robertsoni*, from which it differs chiefly in the character of its surface-marking, in its somewhat greater size and less angular form.

As we do not possess a recent specimen we are obliged to describe and figure the species from fossil examples.

The late Dr. Malcomson found a single specimen of this form at Rockport, Co. Down, in 4 fathoms.

Fossil.—Bridlington, Yorkshire; (?) Belgium (Antwerp).

12. *Cythere teres*, Brady.

(Plate xiv., figs. 36, 37.)

1869. *Cythere teres*, Brady, Les Fonds de la Mer., vol. i., p. 147, pl. xiv., figs. 17, 18.

Shell, seen from the side, elongated, subreniform, height nearly the same throughout, and scarcely equal to half the length; anterior extremity evenly, posterior obliquely rounded; dorsal margin almost straight, ventral very slightly sinuated in the middle. Seen from above, the outline is elongated, ovate, narrowed, and obtusely pointed in front; broad, and subtruncate behind, where there is a median triangular prominence. The surface of the valves is smooth and glistening, of a pale straw-colour, mottled with pellucid patches. Length, $\cdot 5$ mm.

Dredged in Dartmouth Harbour, 3–5 fath. (A. M. N.); Bay of Biscay (G. S. B.).

13. *Cythere sulcifera*, Brady.

(Plate xix., figs. 22, 23.)

1886. *Cythere sulcifera*, Brady, Les Fonds de la Mer., vol. iv., p. 197, pl. xv., figs. 3, 4.

Shell, viewed laterally, ovate; greatest height central, and equal to half the length; anterior extremity very wide, evenly and regularly rounded, the margin above sweeping evenly and regularly, without the slightest sign of angularity until

it reaches the highest portion of the valves, which is in their centre; posterior margin very much narrower than the anterior, subtruncate, with an angularity at the junction with the dorsal slope; in some specimens (? males) the angularity is greater, and takes the form of a pouting lip; the lower portion edged with a row of small tubercular teeth; dorsal margin well arched, forming a continuous sweep, the anterior portion of the arch declines much less suddenly than the posterior, as in the latter case it has to meet the narrower termination; ventral margin straight. Seen from above, much compressed, narrowly elliptic; greatest tumidity posterior, attenuated evenly at the narrow extremities. Surface of valves perfectly smooth on the front half, hinder portion sculptured with longitudinal waved riblets and furrows, which sometimes, especially towards the dorsal margins, are crossed by more slender riblets; but the marked character consists in the former. Length, .9 mm.

Habitat.—"Porcupine" Exped., 1869. Stat. 19, east of Donegal Bay, in lat. $54^{\circ} 53' N.$, long. $10^{\circ} 56' W.$, 1360 fath.; and Stat. 42, lat. $49^{\circ} 12' N.$, long. $12^{\circ} 52' W.$, 862 fath. (A. M. N.).

14. *Cythere corpulenta*, n. sp.

(Plate xvi., figs. 11, 12.)

Shell ovate, very compressed in front, much swollen behind, especially towards the ventral margin, over which it swells in a corpulent manner; greatest height nearly central, more than equal to half the length; anterior extremity broad, remarkably, broadly, and evenly rounded, the anterior third of the shell having a semicircular outline; posterior extremity much narrower, obtusely rounded or subtruncate, with a rounded angularity at its junction with the dorsal margin; dorsal margin arched, the anterior slope very slight, the posterior greater, but regular; ventral margin straight, but overhung by the convex outline of the obesity of the valves. Seen from above, somewhat narrowly heart-shaped; greatest width near the hinder extremity, where the sides rapidly but arcuately converge, while the extremity itself is slightly exserted; towards the front the attenuation is gradual and even, the extremity narrow. Valves very flat in front, and also at the extreme posterior portion; in the middle and behind the middle very obese; greatest tumidity close to, and overhanging the ventral margin; surface of valves finely punctate, and sculptured with a few longitudinal thread-like riblets. Length, .60 mm.

Cythere corpulenta is, perhaps, more nearly allied to *C. sulcifera* than to any other species described in this Memoir, and has much the aspect of a *Loxococoncha*.

Habitat.—This species has only been found in Oster Fiord, a narrow and very deep inlet, about 15 (?) miles north of Bergen, Norway. It was there met with in four different dredgings, in depths ranging from 100 to 375 fathoms, but in each case only a single example occurred (A. M. N.).

15. *Cythere lamellifera*, n. sp.

Shell, seen from the side, cuneiform; greatest height anterior, somewhat less than half the length; anterior extremity remarkable on account of its broad and even roundness; the point of greatest protrusion is central, and the arcuation both above and below this is bold, even, and regular; the dorsal margin at about two-fifths of its length from the anterior extremity slopes gradually backwards until near the hinder end, where a sudden declivity forms an obliquely truncate posterior extremity, the point of greatest protrusion of which is inferior; ventral margin with a small but deep sinus near the posterior extremity. The greatest tumidity is over this sinus, behind which there is a sudden depression of the valve, while forwards the compression is gradual, until the anterior portion of the valve is at once much outspread and compressed. Round the anterior margin runs a smooth fillet, and at a short distance within this a second narrow fillet; the space between is grooved, the groove being traversed by a few faint, transverse, thread-like lines; general surface of valves sculptured with several longitudinal, little-elevated, lamelliform, slender, smooth, ribs; posterior margin set round with obtuse tubercles; similar tubercles, but of much smaller size, are also to be seen round the anterior edge. Length, about .4 mm.

A single valve dredged by H. M. S. "Valorous," in 1875. Stat. 16, lat. $55^{\circ} 10' N.$, long. $25^{\circ} 55' W.$, in 1785 fath. (A. M. N.).

It is not satisfactory to describe a species from a single valve; but this seems very distinct from all known forms, and from the extreme depth at which it was found we cannot expect that many examples should be discovered.

We are unable to give an illustration, as the valve was unfortunately broken in the process of examination.

In form this species approaches nearest perhaps to *C. dorsoserrata*, Brady, described in the "Challenger" Report, from specimens taken near Tristan d'Acunha.

16. *Cythere amissa*, n. sp.

Shell subovate or nearly semicircular, the semicircle broken by a projected process at the posterior extremity; greatest height nearly central, and more than half the length; anterior margin having its greatest prominence near the junction with the ventral, thence sweeping with a long regular curve to the highest point of the shell, which is nearly central; posterior margin subtruncate above, below protruded into a rostrate process (such as is common in the genus *Cytherura*); dorsal margin arcuate throughout, without any angularity before or behind; hinder declination more sudden than that in front; ventral margin slightly convex. Surface of valves sculptured all over with deep pits, which are mostly quadrangular, separated from each other by sharply-cut boundary walls; the edges of the valves are on all sides a little turned up, and form a narrow but distinct bordering-line. Seen from above, diamond-shaped, but with the terminal angles blunt, and the lateral rounded off; ends equal. Length, about .75 mm.

Habitat.—Fosse de Cap Breton, Bay of Biscay, 30–60 fath.; a single specimen (A. M. N.).

Unfortunately, just as the description was written, and while measuring the shell, it was let fall on the carpet, and all attempts to find it were in vain. We are thus unable to give a figure. *C. amissa* is very distinct from all described *Cytheres* known to us. The nearest thing to it is *Cythere convoluta*, Brady (Ann. Nat. Hist., ser. iv., vol. ii., p. 182, pl. xxi., figs. 3, 4), a species from the Mauritius. From that species *C. amissa* differs in not having the retusion at the infero-posteal angle; not any angularity at the junction of the dorsal and hinder margins, the dorsal margin sweeping right down to the rostrate process. Seen from above, the ends are much narrower, and the sides not sinuated; the surface of the valves have not the flange beyond the encircling riblet, while the sculptured cells are smaller and more numerous.

17. *Cythere gibbosa*, Brady and Robertson.

(Plate XIV., figs. 30, 31).

1869. *Cythere gibbosa*, Brady and Robertson, Ann. and Mag. Nat. Hist., Ser. iv., vol. iii., p. 868, pl. xxi., figs. 1–3.

1874. *Cythere gibbosa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 150, pl. xvi., figs. 16–18.

Shell of female tumid; seen from the side oblong, subtriangular or subtrapezoidal, highest in front of the middle; height equal to at least half the

length; anterior extremity obliquely, posterior evenly rounded, the latter the narrower; dorsal margin prominent in front of the middle, thence sloping steeply to the front, but more gently and almost in a right line backwards; ventral almost straight. Seen from above the outline is ovate; widest near the middle, the width being considerably less than the height; extremities acuminate. End view broadly ovate. Shell of the male narrower and longer. Valves rather thin, fragile, smooth and polished, bearing a few scattered hairs, which are papillose at the base; ventral surface longitudinally depressed in the middle. Length, .4 mm.

Found in a large tidal pond at Westport Quay, Co. Mayo, amongst *Zostera*; Roundstone; Mulroy Lough; Canal at Belfast; Kames Bay, Isle of Cumbrae; Isle of Skye; Greenock; Loch Gilp; and Montrose. Budle Bay, and several estuarine situations on the Northumberland Coast and Thames Estuary (G. S. B. and D. R.). Mouth of the Tweed; Seaton-Carew Marshes, Co. Durham; and Newport, Co. Mayo (A. M. N.). Five miles S. S. E. of Maidens Lighthouse, Irish Channel, in 60 fathoms; Rockport, Co. Down (Malcomson).

Distribution.—Cape Frazer, 50–80 fath., Capt. Feilden's dredgings (G. S. B.).

This species is for the most part a denizen of brackish waters. The foregoing list of localities, with the exception of Kames Bay, the Irish Channel, and Cape Frazer, presents us with such habitats; for Mulroy Lough and Roundstone Bay, though inlets of the sea, are both of them subject to a large influx of fresh water, and at low tide must be only feebly saline. Budle Bay, on the other hand, is a large, muddy expanse, covered by the sea at high water, while at low water a small stream finds its way through it to the sea.

18. *Cythere rubida*, Brady.

(Plate xv., figs. 22, 23.)

1866. *Cythere rubida*, Brady, Mon. rec. Brit. Ostrac., p. 400, pl. xxxii., figs. 71–74.

1869. *Cythere drammenensis*, G. O. Sars, Undersøgelse over Christianiafjordens Dybvandsfauna, p. 56.

The only locality given in the Monograph was Clachland Point, Arran, N. B. (A. M. N.). It has since been found in Kames Bay, Isle of Cumbrae (D. R.), and Rockport, Co. Down (Malcomson). It is a very rare form, though stated by Prof. G. O. Sars to be of frequent occurrence in Drammen Bay, on the Christiania Fiord, where he took it in company with lacustrine species.

19. *Cythere oblonga*, Brady.

1866. *Cythere oblonga*, Brady, Mon. rec. Brit. Ostrac., p. 400, pl. xxxi., figs. 14–17.

1885. *Cythere oblonga*, Carus, Prod. Faunæ Mediterraneæ, p. 297.

Originally described from a sponge-sand specimen; again in the "Monograph" from specimens found in shell-sand at the Mumbles; more recently we have dredged it among the Scilly Islands (G. S. B. and D. R.); Salcombe, Devon, and Plymouth (A. M. N.).

Distribution.—Dröbak, Norway, in 30–120 fath.; Fosse de Cap Breton, Bay of Biscay, 25–60 fath. (A. M. N.); St. Malo; Messina, and other parts of the Mediterranean (G. S. B.).

Fossil.—Sicily (Seguenza).

20. *Cythere albomaculata*, Baird.

Synonym: *C. alba*, Baird, *junior*.

1865. *Cythere albomaculata*, Brady, Mon. rec. Brit. Ostrac., p. 402, pl. xxviii., figs. 83–89; pl. xxxix., figs. 3 a–k.

1874. *Cythere albomaculata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., Scotland, p. 149, pl. ix., figs. 1–4.

1884. *Cythere albomaculata*, Seguenza, Il Quaternario di Rizzolo II. Gli Ostracodi, p. 26.

1885. *Cythere albomaculata*, Carus, Prod. Faunæ Mediterraneæ, p. 296.

C. albomaculata is a sub-boreal type, rare on the Norwegian coast; absent, so far as we know, from the Arctic Ocean, but found abundantly all round the British coasts in the littoral and laminarian zones; and running to a considerable distance up tidal rivers. It seems, however, to be absent from the Broads of Norfolk and Suffolk (G. S. B. and D. R.), though G. S. B. has found it in a freshwater lake at Bolam, Northumberland. Specimens taken between tide-marks and amongst algæ are generally beautifully maculated, but those from sandy and muddy bottoms are destitute of colour.

Distribution.—Lervig, Steadoc, Norway (A. M. N.). Iceland, Eastern Mediterranean and Constantinople; Cape Verd; Bay of Biscay and Vigo; Fosse de Cap Breton, 25 faths. (G. S. B.).

Fossil.—Scotland; Portrush, Ireland; Sicily.

21. *Cythere leioderma*, Norman.

(Plate xv., figs. 12, 13.)

1869. *Cythere leioderma*, Norman, Brit. Assoc. Report, 1868, p. 291.1870. *Cythere leioderma*, Brady, Ann. Mag. Nat. Hist., ser. iv., vol. vi., p. 451, pl. xix., figs. 11-18.1874. *Cythere leioderma*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 149, pl. ix., figs. 5, 6.1888. *Cythere leioderma*, Seguenza, Il Quaternario di Rizzolo II. Gli Ostracodi, p. 27.

Shell, seen from the side, oblong, subquadrangular, rather higher in front than behind; greatest height equal to a little more than half the length; anterior extremity somewhat obliquely rounded, posterior truncated and slightly produced below the middle; dorsal margin highest in front, where it is obscurely angulated, thence sloping gently, and almost in a straight line backwards; ventral margin very slightly sinuated in the middle. Seen from above, the outline is sub-elliptical, nearly twice as long as broad, slightly widest behind the middle; extremities very broadly rounded and nearly equal. Shell surface smooth, marked with a few scattered, short, and rigid setæ, which in some lights look deceptively like small circular papillæ. Hinge margins depressed, processes very strongly developed but not crenulated. Colour, yellowish or milky-white. Length, 1 mm.

Habitat.—Unst Haaf, Shetland (A. M. N.).

Distribution.—Solems Fiord, Norway, 50-60 fathoms, a single specimen (A. M. N.). Abundant, in a living state, in the Gulf of St. Lawrence; Iceland; Cape Frazer, 80 faths.; and Dobbs Bay, 46 faths., 79° 35' N., Captain Feilden's dredgings (G. S. B.).

Fossil.—A single valve has been recorded from the Post-tertiary Strata, at Bridlington, Yorkshire; and Prof. Seguenza has met with a single valve at Rizzolo, in Sicily.

22. *Cythere robertsoni*, Brady.

(Plate xiv., figs. 32, 33.)

1868. *Cythere robertsoni*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 33, pl. iv., figs. 5, 8-10.1874. *Cythere robertsoni*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 221.

Shell of the *female* compressed. Seen from the sides, subcuneiform, much higher in front than behind, greatest height situated in front and equal to rather more than half the length; anterior extremity broad and well-rounded, posterior

narrow and obliquely rounded; superior margin nearly straight, sloping steeply from the front backwards; inferior sinuated in the middle, curved upwards behind. Seen from above, compressed, oblong, with nearly parallel sides; anterior extremity sharply pointed, posterior suddenly tapered and obtuse, width much less than the height. End view ovate, widest in the middle. Shell of the *male* much narrower. Surface covered with closely-set, angular depressions. Colour, yellowish. Length, .48 mm.

A small, but very distinct and pretty species, described first from specimens dredged by Mr. D. Robertson, at Dröbak, Christiania Fiord, in a depth of 30–35 fathoms.

We have no record of this pretty and well-marked species from any part of the Scottish coast north of Loch Fyne. In Ireland we have found it in Dublin and Westport Bays, and Dr. Malcomson dredged it in Belfast Lough and the Irish Channel. Round the English coast it occurs generally, ranging from tide-marks into all depths of water, always, however, rather sparingly.

Distribution.—Dröbak, Norway (D. R.). Again in the last locality in 10–120 fathoms; and in Stoksund, which is near the mouth of the Hardanger Fiord, Norway, in 126 fathoms (A. M. N.).

Fossil.—Scotland, Loch Gilp; Norway.

23. *Cythere convexa*, Baird.

Synonym.—*C. punctata*, R. Jones.

1868. *Cythere convexa*, Brady, Mon. rec. Brit. Ostrac., p. 401, pl. xxix., figs. 19–27; pl. xxxix., fig. 4.

1874. *Cythere convexa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 150, pl. iii., figs. 14–17.

1884. *Cythere convexa*, Seguenza, Il Quaternario di Rizzolo II. Gli Ostracoda, p. 20.

1885. *Cythere convexa*, Carus, Prod. Faunæ Medit., p. 295.

Cypridina cicatricosa of Reuss was given in the Monograph with a (?) as a synonym of this species. It has been regarded by the authors of the “Monograph of Post-tertiary Entomostraca” as a distinct species, of which *Cythere cicatricosa*, Bosquet, and *Cythere arborescens*, Brady, are given as synonyms.

Cythere convexa is met with pretty abundantly all round the British coasts from low-water mark downwards. It is rare on the coast of Norway, but is common further southwards, as far as the Bay of Biscay and the Mediterranean.

Distribution.—Lervig, Stordoen, Norway, a single specimen; Fosse de Cap

Breton, Bay of Biscay, 25–60 fathoms; Naples (A. M. N.); Vigo, St. Malo; Hellespont, Beyrout, Jaffa, Latakié (G. S. B.); Messina (Seguenza).

Fossil.—Scotland, Ireland, Sicily, Calabria (Seguenza).

24. *Cythere speyeri*, G. S. Brady.

(Plate xvii., figs. 16, 17.)

1868. *Cythere speyeri*, Brady, Ann. Mag. Nat. Hist. ser. iv., vol. ii., p. 222, pl. xv., figs. 8–11.

1868. *Cythere speyeri*, Brady, Les Fonds de la Mer., vol. i., p. 99, pl. xii., figs. 8–10.

1880. *Cythere speyeri*, Brady, "Challenger" Report, p. 79, pl. xx., figs. 2 a–p.

Shell of the female excessively tumid. Seen from the side, broadly ovate, with a prominent posterior beak; greatest height in the middle, and equal to two-thirds the length; anterior extremity fully rounded, and forming a continuous curve with the dorsal margin, which is boldly arched; posterior extremity produced below the middle into a prominent angular beak; ventral margin moderately convex. Seen from above, the outline is broadly ovate, not twice as long as broad, widest behind the middle, lateral margins extremely convex, converging gently towards the front and more abruptly backwards; anterior extremity subacuminate, posterior obtuse. End view broad, ovate, widest below the middle, pointed at the apex, sides very convex. Left valve larger than the right. Surface of the shell marked throughout with large circular impressed puncta; hinge tubercles conspicuous; no very marked encircling fillet. Length, .9 mm.

Distribution.—Bay of Biscay, Marquis de Folin; Tenedos, Colon, New Providence, St. Vincent, Cape Verd; and by the "Challenger" Expedition at the last-named locality, in 1070 to 1150 faths. (Stat. 93), and off Ascension Island (Stat. 344), 420 fath. (G. S. B.); off Capri, Bay of Naples, 40 fath. (A. M. N.).

This species may be distinguished from *C. convexa* by its excessive tumidity. Fine living specimens have the anterior margin and the posterior rostrate process beset with minute spinules, and on the ventral margin, at the posterior extremity, is a small spine. The posterior tubercles and spine are shown in the figure given in the "Annals," and this figure most characteristically represents the species.

25. *Cythere marginata*, Norman.

1868. *Cythere marginata*, Brady, Mon. rec. Brit. Ostrac., p. 413, pl. xxxi., figs. 5-8.
 1868. *Cythere laticarina*, Brady, Mon. rec. Brit. Ostrac., p. 412, pl. xxxi., figs. 1-4.
 1874. *Cythere laticarina*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 158, pl. ix., figs. 23-26.

The type of *C. marginata* was an aged and worn specimen, which, since we have had opportunities of studying larger series of forms, we find to be the same as the more recently described *C. laticarina*.

Additional localities.—Scilly Islands, Birturbuy Bay (G. S. B. and D. R.); off Tarbert, Loch Fyne, 25 fathoms; Salcombe, Devon (A. M. N.); four miles east of Gobbins, Irish Channel, in 60 fathoms (Malcomson).

Distribution.—Fosse de Cap Breton, 100 fathoms; Spitzbergen (G. S. B.); Lervig Bay, Hardanger Fiord, Norway (A. M. N.).

Fossil.—Raised Beach, Oban, Scotland.

26. *Cythere jeffreysii*, Brady.

1868. *Cythere jeffreysii*, Brady, Mon. rec. Brit. Ostrac., p. 412, pl. xxix., figs. 51-55.
 1874. *Cythere jeffreysii*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 156, pl. iii., figs. 18, 19.

Additional locality.—Dredged off Penarth Head, South Wales (G. S. B. and D. R.).

Fossil.—Raised Beach, Oban, Scotland.

27. *Cythere limicola*, Norman.

Synonyms.—*C. nodosa*, G. O. Sars; *C. areolata*, Brady.

1868. *Cythere limicola*, Brady, Mon. rec. Brit. Ostrac., p. 405, pl. xxxi., figs. 38-41 (*at non*, figs. 43-46).
 1874. *Cythere limicola*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 154, pl. x., figs. 1-4.
 1878. *Cythere limicola*, Brady, Ostracoda, Antwerp Crag, Trans. Zool. Soc., vol. x., p. 389, pl. lxiv., figs. 9 a-b,

This is certainly one of the least common of the British *Cytheres*.

Additional localities.—The Minch; in 25 fathoms in the channel between the greater and lesser Islands of Cumbræ, in the Firth of Clyde (A. M. N.); one

mile off the Gobbins, in the Irish Channel, 15–18 fathoms; Belfast Lough, 6–10 fathoms (Malcomson). This species seems to be more abundant and finer in growth on the north-east coast of England than in any other locality.

Distribution.—Norway; very rare, Lofoten Islands, and “sinus Nidaroensis,” 6–10 fathoms (G. O. Sars); Baffin’s Bay (G. S. B.).

Fossil.—Scotland, Canada.

28. *Cythere cuneiformis*, Brady.

Synonym: *Cythere ventricosa*, G. O. Sars.

1868. *Cythere cuneiformis*, Brady, Mon. rec. Brit. Ostrac., p. 404, pl. xxxi., figs. 47–54.

1874. *Cythere cuneiformis*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 154, pl. x., figs. 23–26.

This is a widely and generally distributed species, on the British coasts, though found always very sparingly. For the most part it inhabits depths of 15–40 fathoms; but it occurs in several shallow estuarine localities in Northumberland, and has once been found between tide-marks on mud-covered rocks at Whitley, Northumberland (G. S. B.).

Distribution.—Lervig, Stordöen, Norway (A. M. N.); Dröbak and Langesund, Norway (G. O. Sars).

Fossil.—Scotland, Norway.

29. *Cythere navicula*, Norman.

(Plate XVI., figs. 15, 16.)

1868. *Cytherura navicula*, Norman, Last Report Dredging among the Shetland Isles, Brit. Assoc. Report, p. 292.

1870. *Cythere fidicula*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 21, pl. viii., figs. 8–11.

Shell, as seen from the side, trapezoidal; height equal to not much more than one-third of the length; extremities narrowly rounded below, about their middle sloping at both extremities obliquely upwards to join the short and straight dorsal margin, which they join at an obtuse angle; ventral margin almost straight, but slightly protruded in front of the middle as a rounded tubercular prominence. Behind the middle there is sometimes another pair of similar tubercular processes, but these are smaller and less pronounced. Seen from above, elongated, subhexagonal, with parallel sides, and obtuse or subtruncated extremities; the two anterior angles well-marked, the posterior rounded off; width equal to the height. Seen from below,

the ventral surface exhibits at its anterior angles two prominent rounded eminences, behind which it becomes slightly constricted, again swelling out into a convex margin behind the middle (where there is sometimes another pair of rounded eminences). End view subtriangular, apex rounded off, basal angles prominent and sharp, sides convex, base slightly concave. Shell marked with irregular and sinuous longitudinal raised lines, which on the concave ventral surface are especially conspicuous. Length, 65 mm.

This is a very remarkable species. Dr. Norman placed it in *Cytherura*, but we are now agreed that its nearest ally is perhaps *Cythere cuneiformis*, of which Professor G. O. Sars has examined the animal, and found it to be a *Cythere*.

Dr. Brady, in his original description, was struck by the contour of the shell, as seen from below, as being "remarkably fiddle-shaped," and from this circumstance chose his specific name. On the other hand, it presented to Dr. Norman's imagination another figure, and he wrote "Ventral aspect, boat-shaped, the resemblance most striking; centrally depressed at the juncture of the valves; bows moderately sharp, of good breadth of beam, sculptured with raised, thread-like concentric lines, representing the timbers, while the small nodulous processes stand for the thole-pins. The dorsal and end views bear out the allusion, the former representing a boat viewed from below, with a well-marked keel, and the latter being triangular, with gently-rounded sides." Hence he adopted the specific name, "*navicula*."

This species has now been found in many localities, but is remarkably rare numerically, one or two specimens at each place being all that have been met with.

Papa, Shetland; Budle Bay, Northumberland; estuary of Thames; Roundstone, Ireland; inside St. Mary's, Scilly (G. S. B. and D. R.); St. Magnus' Bay, Shetland, 30–60 fathoms; the Minch; Salcombe, Devon; Birturbuy Bay, Ireland (A. M. N.).

Distribution.—Estuaries of the Scheldt and Meuse, Holland (G. S. B.); off Sartoro, in Bergen Fiord, Norway, 15 fathoms, one specimen (A. M. N.).

30. *Cythere globulifera*, Brady.

1868. *Cythere globulifera*, Brady, Mon. rec. Brit. Ostrac., p. 406, pl. xxxi., fig. 42.

1874. *Cythere globulifera*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 155, pl. ix., figs. 18–20, and (?) 21, 22; pl. xii., figs. 11, 12; plate xv., figs. 19, 20.

This appears to be an extremely rare form in a recent state.

Additional locality.—Two miles S.S.E. of Maidens Lighthouse, Irish Channel, in 62 fathoms (Malcomson).

Distribution.—Stoksund, near the mouth of the Hardanger Fiord, Norway, in 126 fathoms (A. M. N.); Spitzbergen, Cape Frazer, 50–80 fath., Capt. Feilden's dredgings (G. S. B.).

Fossil.—Scotland, England (Bridlington), Canada.

31. *Cythere cluthæ*, Brady, Crosskey, and Robertson.

(Plate xiv., figs. 25–27, vol. xvii., figs. 35, 36.)

1874. *Cythere cluthæ*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 153; pl. xiii., figs. 16, 17.

1886. *Cythere cluthæ*, Malcomson, Recent Ostracoda of Belfast Lough (Proc. Belfast Nat. Field Club), p. 260.

Shell, as seen from the side, subquadrate; highest in front; greatest height equal to more than half the length; anterior extremity broad and well-rounded; posterior narrow and subtruncate, only slightly rounded; superior margin almost straight, sloping from before backwards; inferior slightly sinuated in the middle. Seen from above, the outline is oblong, subrectangular, with parallel irregularly sinuous sides, tapered off towards the front, which is truncated; posterior extremity irregularly rounded. Shell-surface irregularly mamillated, closely set with small subrotund pittings. The valves are encircled by a broad, swollen marginal lip, the central portion being elevated and very uneven. Length, 35 mm.

The late Mr. Malcomson says of this species, that "although rare, it seems to be generally distributed in the deeper water" of the Irish Sea and Belfast Lough. He gives the following localities:—First, in the Irish Channel, 2–5 miles S.S.E. of Maidens Lighthouse, 60–72 fathoms; half a mile off Coalpit Bay, 13 fathoms. Secondly, in Belfast Lough, off White Head, 10–18 fathoms. We are indebted to Mr. T. Scott for specimens dredged in about 20 fathoms in Loch Fyne. From one of these specimens our descriptions and illustrations are drawn up.

Distribution.—Cape Frazer, 80 fath. in Capt. Feilden's dredgings, Nares' Arctic Expedition (G. S. B.).

Fossil.—Scotland.

32. *Cythere complexa*, G. S. Brady.

(Plate xix., figs. 31, 32.)

1866. *Cythere complexa*, Brady, On Ostracoda dredged amongst the Hebrides (Brit. Assoc. Report), p. 210.

1866. *Cythere limicola* (partim), Brady, Mon. Brit. Ostrac., p. 405, pl. xxxi., figs. 43–46.

Shell, seen laterally, rhomboidal, a little higher in front than behind; height equal to more than half the length; anterior extremity obliquely truncated, rounded

off below and obscurely angulated above; posterior very oblique, truncated, forming a projecting beak above the middle, postero-dorsal angle broadly and obliquely truncated, emarginate; dorsal margin almost rectilinear, ventral gently convex. Seen from above, the outline is subhexagonal, the margins very irregular, strongly and sharply mucronate behind and very obtuse in front; greatest width equal to the height, and situated behind the middle; lateral margins very deeply excavated in the middle, converging sharply towards the front, and still more abruptly behind. Surface of the valves irregularly waved and rugose, bordered in front by a broad encircling flange, and near the posterior extremity sinking suddenly in a transverse direction, thus forming with the ventral margin a rectangular ridge. Length, 4 mm.

Originally described from specimens dredged by the late Dr. Jeffreys and A. M. N. in the Minch. It has been more recently dredged by Dr. Norman in a depth of 126 fathoms at Stoksund, Norway.

33. *Cythere villosa* (G. O. Sars).

1868. *Cythere villosa*, Brady, Mon. rec. Brit. Ostrac., p. 411, pl. xxix., figs. 28-32.

1874. *Cythere villosa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 157, pl. iii., figs. 7-13.

1888. *Cythereis emarginata*, Dahl, Die Cytheriden der Westlich. Ostsee., p. 13, pl. i., figs. 13-26, 30.

One of the most abundant and most widely-distributed of the British marine species, ranging for the most part from low water to about 40 fathoms. Many new localities might be added to those given in the "Monograph." It is, in fact, scarcely ever absent either from dredgings or from littoral shell sand.

Distribution.—In Norway it has been dredged in from 3-180 fathoms, Bergen; off Sartoro, near Bukken; Lervig Bay, Stordöen; Stoksund (A. M. N.). Holland, River Scheldt; Davis Strait, Lat. 67° 17' N., Long. 62° 21' W, six feet below low-water mark (G. S. B. and D. R.), Iceland; Bay of Biscay (G. S. B.).

Fossil.—England, Scotland, Ireland, Canada.

34. *Cythere pulchella*, Brady.

(Plate xv., figs. 7, 8).

1868. *Cythere pulchella*, Brady, Mon. rec. Brit. Ostrac., p. 404.

1868. *Cythere pulchella*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 32, pl. v., figs. 18-20.

1869. *Cythere pulchella*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 369, pl. xx., figs. 1-3.

1874. *Cythere pulchella*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 157, pl. iii., figs. 29-37.

Additional localities.—Firth of Forth, Stromness, and Loch Ryan (D. R.); Kilchattan Bay, Isle of Bate; Kames Bay, Isle of Cumbrae; off Ilfracombe; Birturbuy,

Clifden, and Westport Bays, Ireland (G. S. B. and D. R.); Filey Brig, Yorkshire; Dartmouth Harbour (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Holland, river Scheldt; Davis Strait, Lat. 67° 17' N., Long. 62° 21' W., six feet below low-water mark (G. S. B. and D. R.).

Fossil.—Scotland, Ireland.

35. *Cythere borealis*, Brady.

(Plate xv., figs. 18, 19.)

1868. *Cythere borealis*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 81, pl. iv., figs. 1-4, 6, 7.

Shell of female, seen laterally, subreniform; highest in front of the middle; greatest height equal to half the length; anterior extremity very deep, obliquely rounded; posterior subtruncate, somewhat emarginate above the middle, below this emargination the shell slopes obliquely forward without curvature to meet the inferior margin; dorsal margin gradually declining with a gentle sweep backwards from the highest point of the shell in front of the middle; ventral margin incurved centrally, and pouting in front. Outline, as seen from above, long-ovate, widest in the middle; extremities equal, obtuse; width about 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, and much more conspicuously emarginate behind. The hinge groove in the united valves, as seen from above, is very wide and deep; the hinge joint is formed, in the left valve, by a crenulated median bar, with a moderately strong anterior tooth, in the left valve by an anterior tooth and a slightly crenulated posterior projection. The shell of the male is longer and narrower, with the anterior margin produced downwards, and numerous serrated. Surface of the valves covered with shallow, rounded impressions, but not at all rugose or tuberculated. Colour, yellowish-brown, or purplish. Antennules robust, six-jointed, fourth and fifth joints coalescent; last four armed with strong, flexuous, apical spines, flagellum of 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, 1 mm.

This species is nearly related to *C. emarginata* (G. O. 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. It is still more closely related to *C. villosa*, and indeed looks very like a strongly developed and much larger form of that species; but while the general outline of the shell is very like that of the two species to which we have referred,

the extension or oblique backward slope at the infero-posteal corner is peculiarly characteristic of the present species.

The young are still deeper in proportion in front than the adult, and the surface-sculpture at that age more resembles punctation.

The only British Station in which this species has been found is at Seaton-Carew, in the County of Durham, on mud-covered rocks, near low-water mark (G. S. B.).

Distribution.—Davis' Strait, lat. 67° 17' N., long. 62° 21' W. (Dr. Sutherland); Holstenbourg Harbour, 10 fathoms; Godhaven, 5–25 fathoms; lat. 69° 31' N., long. 56° 1' W., muddy bottom, 100 fathoms, "Valorous" Exped. (A. M. N.). Dobbs' Bay, 79° 35' N., 46 fathoms, Captain Feilden's dredgings in Nares' Arctic Expedition (G. S. B.).

The types of *C. borealis* were those found in Davis' Strait by Dr. Sutherland, as above mentioned; they occurred six feet below low-water mark. From one of these specimens our illustrations are drawn.

36. *Cythere fuscata*, Brady.

(Plate xv., figs. 9–11.)

1868. *Cythere fuscata*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 47, pl. vii., figs. 5–8.

Length of *female*, .60 mm.; of *male*, .75 mm. Shell of the *male*, seen laterally oblong, subreniform; rather higher in front than behind; height equal to half the length; anterior extremity boldly rounded, posterior slightly emarginate above the middle; superior margin almost straight, inferior rather deeply sinuated in the middle. Seen from above the outline is oblong-ovate, with nearly parallel sides, and nearly twice as long as broad; acutely pointed in front, broadly rounded or subtruncate behind. Surface of the valves closely and finely punctate; colour, yellowish-brown. The shell of the *female* is much smaller, and higher in proportion to the length.

This is a very distinctly-marked species, and so far as we at present know, is confined to estuarine and brackish or sub-brackish situations in Holland and the East of England. The British Stations in which we have found it are as follow:—Horsey Mere; Hickling, Ormesby and Oulton Broads; Breydon Water; Rivers Ouse (Norfolk), Bure, Deben, Thames (G. S. B. and D. R.).

Distribution.—Holland, Rivers Scheldt and Maas, Mr. Davison (G. S. B. and D. R.).

37. *Cythere macchesneyi*, Brady and Crosskey.

(Plate xvii., figs. 30, 31.)

1871. *Cythere macchesneyi*, Brady and Crosskey, Geological Magazine, vol. viii., p. 4, pl. ii., figs. 1, 2.

Shell, seen from the side, compressed, subreniform; greatest height in front, and equal to half the length; the anterior extremity evenly rounded, posterior narrower and obliquely rounded; dorsal margin straight, sloping from before backwards, and slightly angular at each end; ventral margin deeply sinuated in the middle. Seen from above, ovate, widest in the middle, width rather less than the height; sides subparallel, converging abruptly towards the front, which is bluntly pointed, rounded off behind. Surface thickly set with small circular impressions arranged somewhat concentrically; ventral surface furrowed. Length, .5 mm.

Distribution.—Shore sand, the Berg Beach, lat. 82° 29' N., Captain Feilden's dredgings in Nares' Arctic Expedition (G. S. B.).

Fossil.—Post-tertiary deposits, Montreal and Saco, North America.

38. *Cythere septentrionalis*, Brady.

(Plate xvi., figs. 13, 14.)

1866. *Cythere septentrionalis*, New and imperfectly-known Marine Ostracoda, Trans. Zool. Soc., vol. v., p. 375, pl. lx., figs. 4 a-f.

Shell oblong, subquadrilateral, very tumid; height equal to half the length, or, in male, less; anterior margin broad and obliquely rounded; posterior narrower, subtruncate; dorsal margin nearly straight, with a slight convexity in the middle, and sloping gently backwards to the posterior hinge; ventral margin slightly sinuated in front of the middle. Seen from above ovate, very tumid, width equal to height, extremities very obtusely rounded. End view nearly round, the breadth exceeding the height. Ventral aspect flattened, wide, longitudinally grooved. Valves sculptured with angular cells, which gradually coalesce towards the margin, forming there larger spaces, which take the form, on the ventral surface, of sharply-cut, longitudinal furrows. The reticulated sculpture prevails on the central parts of the dorsal and lateral aspects; but over the whole ventral surface longitudinal grooving only is visible. Length, 1.4 mm.

Distribution.—A remarkably fine species, of which many specimens were found in Dr. P. C. Sutherland's dredgings at Hunde Islands, Baffin's Bay, in 60-70 fath. (G. S. B.).

39. *Cythere echinatu* (G. O. Sars).

(Plate xvi., figs. 9, 10.)

1865. *Cythereis echinata*, G. O. Sars, Oversight of Norges Ostracoder, p. 44.1866. *Cythere catenata*, Brady, New and imperfectly known Marine Ostracoda, Trans. Zool. Soc., vol. v., p. 374, pl. lx., figs. 2 a-d.1880. *Cythere irpex*, Brady, Report "Challenger" Ostracoda, p. 107, pl. xvii., figs. 2 a-d.1886. *Cythere monacantha*, Brady, Les Fonds de la Mer, vol. iv., p. 197, pl. xv., figs. 5, 6.

Shell, seen from the side, subovate, or inclining to subquadrangular, short and high; remarkable for the position and character of the greatest tumidity, which consists of a gradual swelling-up of the shell (without any angularity or excrescences) to a point situated a little within the ventral margin on the posterior half of the shell; height equal to nearly two-thirds of the length; anterior extremity higher than posterior, very widely and evenly rounded, the margin flattened, and crenulated or spined; posterior extremity subtruncate, and slightly emarginate above, the margin flattened, and crenulated or spined, two spines on the infero-posteal corner (if perfect) are larger than any others on the shell; dorsal margin, at first, very prominent, and angled, then slightly concave, and lastly convex; ventral margin showing very slight trace of sinuation. Seen from above, ovate; greatest breadth situated a little behind the middle and equalling the height; margins evenly arched, the anterior extremity much more drawn out than the hinder. Surface of valves covered with very numerous slender spines, which when the shell is perfect appear to be arranged in regular concentric lines, although in worn specimens the sculpture of the surface is found to be reticulated; the spines along the dorsal margin, two or three at the infero-posteal corner, and one or two at the higher portion of the greatest tumidity are generally larger than the rest. Length, 1 mm. to 1.25 mm.

Sars describes the animal:—"No eyes. Colour, pale brownish-yellow. All the limbs elongated and slender, yellow. Upper antennæ distinctly six-jointed, last joint long and slender, about equal to the combined length of the two preceding, ending in three spiniform setæ; lower antennæ slender, with greatly elongated terminal nails; flagellum very short. Mandibular palp having the last two joints very elongated, the last extremely narrow and curved; branchial appendage furnished with five setæ, the outer two of which are rudimentary. Feet very slender, last pair having the second joints about equal in length to the two following. Basal portion of the copulatory organ of the male subtriangular, the extremity elongated-ovate, and bent inwards."

Distribution.—In Norway rare in 30–100 fathoms Christiania Fiord, extending northwards to the Lofoten Islands, where it is found in 300 fathoms (G. O. Sars): Dröbak, 30–100 fathoms; Hardanger Fiord, off Midso Lighthouse, 210 fathoms; Bergen Fiord, south of Bukken, 150–200 fathoms; Oster Fiord, 375 fathoms: “Porcupine,” 1869, Stat. 19, lat. $54^{\circ} 53' N.$, long. $10^{\circ} 56' W.$, 1360 fathoms; Stat. 41, lat. $49^{\circ} 4' N.$, long. $12^{\circ} 22' W.$, 582 fathoms: “Valorous” Exped., 1875, Stat. 12, lat. $56^{\circ} 11' N.$, long. $37^{\circ} 41' W.$, 1450 fathoms (A. M. N.). “Challenger” Exped., Stat. 73, lat. $38^{\circ} 30' N.$, long. $31^{\circ} 14' W.$, 1000 fathoms; Stat. 78, lat. $37^{\circ} 34' N.$, long. $25^{\circ} 13' W.$, 1000 fathoms; Stat. 335, lat. $32^{\circ} 24' S.$, long. $13^{\circ} 5' W.$, 1425 fathoms (G. S. B.).

The types of Dr. Brady's *C. catenata* were found in M'Andrew and Barrett's Norwegian dredgings, and they unquestionably represent the young of this species.

40. *Cythere acanthoderma*, Brady.

1866. *Cythere scabra*, Brady, New and imperfectly-known Marine Ostracoda, Trans. Zool. Soc., vol. v., p. 880, pl. lxi., figs. 8 *a-d* (non Münster).

1880. *Cythere acanthoderma*, Brady, Report “Challenger” Ostracoda, p. 104, pl. xviii., figs. 5 *a-c*.

1885. *Cythere acanthoderma*, Carus Prod. Faunæ Medit., p. 300.

Shell oblong, subovate, tumid, the greatest tumidity on the posterior half of the shell a little within the ventral margin; in the adult covered everywhere with more or less strongly developed, very irregular, blunt and rugged spines. Seen from the side the valves are subovate or somewhat pear-shaped, highest near the front, the height being equal to nearly two-thirds the length; anterior extremity well and broadly rounded; posterior narrower and also rounded, being most produced in the middle; dorsal margin sloping backwards evenly from the front hinge, its margin very much lacinated into spiny processes; ventral margin slightly convex. Seen from above, the outline is subovate, not twice as long as broad, widest near the middle; sides curved, converging gradually towards the front, but abruptly behind; extremities wide and truncated. The end view is subtriangular, equilateral, with convex sides and rounded angles. The margins of the shell, from whatever aspect it is viewed, are excessively rugged, and the spines with which it is everywhere thickly beset, have a tendency to enlarge and become bifurcate or trifurcate at their apices, a very remarkable character which enables it at once to be distinguished from many allied forms, as for example, from *C. dasyderma* in which the spines are invariably simple. There are certain spines in the present species which usually assume a greater development than the rest, namely, one or two over the hinge, and especially one at the distant termination of the dorsal margin, and one

at the hinder termination of a ridge which runs along the most tumid portion of the shell, a little way within the ventral margin.* Length 1 to 1.25 mm.

Young specimens have the shell in a great measure smooth, the first spines developed being those which surround the margin, and those which crown the ridge passing along the most tumid portion of the shell; the bifurcation of the spines will be found to be a helpful character in the determination of these early stages.

Distribution.—"Porcupine" Exped., 1869, Stat. 19, lat. 50° 53' N., long. 10° 56' W., 1360 fathoms; "Valorous" Exped., 1875, Stat. 12, lat. 56° 11' N., long. 37° 41' N., 1450 fathoms; Stat. 16, lat. 55° 10' N., long. 25° 58', 1785 fathoms (A. M. N.). One of the "Challenger" Stations comes within the area to which this paper specially applies, Stat. 64., lat. 30° 35' N., long. 50° 27' W., 2750 fathoms; it was met with in six other "Challenger" Stations, in depths ranging from 580 to 2050 fathoms, midway between the Cape of Good Hope and Kerguelen Island, to the north of Australia, and in both North and South Pacific (G. S. B.), Messina, Sicily (Seguenza), Abrolhos; Crete, 360 fathoms, Cap. Spratt (G. S. B.).

Fossil.—Sicily (Seguenza).

41. *Cythere dictyon*, Brady.

1880. *Cythere dictyon*, Brady, Report "Challenger," Ostracoda, p. 90, pl. xxiv., figs. 1 a-y.

Shell of the female, seen from the side, oblong, quadrangular, not much higher in front than behind, height equal to more than half the length; anterior extremity well rounded, fringed below the middle with numerous short teeth; posterior sub-truncated, scarcely rounded, irregularly toothed on the lower half; the dorsal margin sloping gently from before backwards, and always, in adult specimens, more or less irregularly jagged, while in some cases the indentations are remarkably deep; ventral margin more or less convex. Seen from above the outline is lozenge-shaped or somewhat hastate, about twice as long as broad, sides subparallel or converging gently towards the front, extremities broad and truncated. End view triangular, with convex margins and rounded angles. Shell-surface covered with an irregular network of ribs, the main lines of which have often an obscurely radiate arrangement, originating in an obsolete central tubercle; just within and parallel with the ventral margin is a prominent, sharply-cut ridge, which is often produced beyond the middle of the valve into a strong spine, but is continued in a less prominent style round the anterior and posterior portions of the shell, thus enclosing an

* In old and ragged examples, such as those figured in the "Challenger" Report, the spines and ridge, to which attention is here called, lose their prominence, owing to the great development of all the other spiny processes.

elevated central area. The shell of the male has usually a more strongly-developed spinous armature than is seen in the female. Length 1.0 mm.

Distribution.—*Cythere dictyon* is almost ubiquitous in the greatest depths of the ocean, and was found by Dr. Brady, in sands from no less than twenty-four stations, extending over the North and South Atlantic, the Indian and Pacific Oceans. The shallowest water in which it has been known is Humboldt Bay, Papua, in 37 fathoms. In fifteen stations it was found in depths which exceeded 1000 fathoms, and three of these were below 2000 fathoms.

Six "Challenger" Stations were within the range of the present Paper, that is, in the North Atlantic, north of latitude 35° N. They were as follows:—Stat. 64, lat. 35° 35' N., long. 50° 27' W., 2790 fathoms; Stat. 70, lat. 38° 25' N., long. 35° 50' W., 1675 fathoms; Stat. 73, lat. 38° 30' N., long. 31° 14' W., 1000 fathoms; Stat. 75, lat. 38° 37' N., long. 28° 30' W., 450 fathoms; Stat. 76, lat. 37° 34' N., long. 25° 13' W., 1000 fathoms; Stat. 78, lat. 37° 24' N., long. 25° 13' W., 1000 fathoms. These dredgings constitute a line commencing about half-way between the Bermuda Islands and the Azores, and extending thence to the latter islands (G. S. B.).

This, and *C. dasyderma* and *C. acanthoderma*, have an enormous geographical range, apparently ranging throughout the world in the great ocean abysses.

42. *Cythere dasyderma*, Brady.

1880. *Cythere dasyderma*, Brady, Report "Challenger" Ostracoda, p. 105, pl. xvii., figs. 4 a-f; pl. xviii., figs. 4 a-f.

1885. *Cythere dasyderma*, Carus. Prod. Faune Mediterraneæ, p. 300.

Shell tumid; seen from the side oblong, subovate or subquadrangular; greatest height situated near the front, and equal to about two-thirds of the length; anterior extremity boldly rounded; posterior narrower, rounded or subtruncate; dorsal margin sloping gently backwards from the front, which is elevated over the hinge joint; ventral margin slightly convex; the entire circumference broken into closely-set, but short and blunt teeth. Seen from above the outline is ovate, widest near the middle, about twice as long as broad, lateral margins gently and evenly curved, extremities broad, and nearly equal, obtusely rounded or truncated. End view broadly ovate, rounded off above, and centrally emarginate below. Surface of valves with closely-packed rather small angular excavations, from the intervals between which arise numberless (usually short and blunt) spines, the shell in every aspect presenting a rough appearance. Length .65 to .9 mm. In some specimens the spines are arranged in three or four rows anteriorly, and within the ventral margin in

two distinct lines, in other examples the arrangement in these parts as elsewhere is confused.

Distribution.—"Porcupine" Exped., 1869 Stat., 19, lat. $54^{\circ} 53' N.$, long. $10^{\circ} 56' W.$, 1360 fathoms; "Valorous" Exped., 1875, Stat. 12, lat. $56^{\circ} 11' N.$, long. $37^{\circ} 41' N.$, 1450 fathoms; Stat. 13, lat. $56^{\circ} 1' N.$, long. $34^{\circ} 42' N.$, 690 fathoms (A. M. N.). In the "Challenger" Exped. *Cythere dasyderma* was found in no less than twenty dredgings from the North and South Atlantic, North and South Australia, New Zealand, and North and South Pacific (almost to Cape Horn). The only station in the district to which this Paper has special reference was Stat. 70, lat. $38^{\circ} 25' N.$, long. $35^{\circ} 50' W.$, 1675 fathoms. The least depth in which it has been found was at Stat. 167, lat. $39^{\circ} 32' S.$, long. $171^{\circ} 48' E.$, 150 fathoms. The following are the greatest depths:—Stat. 5, lat. $24^{\circ} 20' N.$, long. $24^{\circ} 28' N.$, 2740 fathoms; Stat. 246, lat. $36^{\circ} 10' N.$, long. $178^{\circ} 0' E.$, 2050 fathoms; Stat. 332, lat. $37^{\circ} 29' S.$, long. $27^{\circ} 31' W.$, 2200 fathoms; Stat. 346, lat. $2^{\circ} 42' S.$, long. $14^{\circ} 41' W.$, 2350 fathoms (G. S. B.). Seguenza has found it in the Mediterranean at Messina.

Fossil.—Sicily (Seguenza).

43. *Cythere scabrocuneata*, Brady.

(Plate xv., figs. 28, 29.)

1880. *Cythere scabrocuneata*, Brady, Report "Challenger" Ostracoda, p. 108, pl. xvii., figs. 5 a-f; pl. xxiii., figs. 2 a-c.

1880. *Cythere dorsoserrata*, Brady, *ibid.*, p. 102, pl. xxiii., figs. 1 a-d.

Shell of the female, seen from the side, in shape as a long triangle, with the apex behind, greatest height in front, less than or equal to half the length, anterior extremity broad, well rounded; posterior much narrower, and produced slightly below the middle to a conspicuous point; dorsal margin generally gibbose over the hinge, thence gradually sloping backwards; ventral margin arcuate in front, slightly sinuated about the middle, and behind this, gently curved and converging equally with the dorsal towards the posterior extremity; a flattened fillet borders the ventral and more markedly the anterior and posterior margins, and this, together with the dorsal margin, is more or less toothed or jagged. Seen from above the outline is ovate, twice as long as broad, in front broadly rounded, behind somewhat hastate. Surface of valves thickly covered with nodulous elevations, which when perfect terminate in short, blunt, spiny points; on the other hand, when the nodules are themselves rubbed away, the surface is found to be reticulated, being sculptured with round or hexagonal cells. > Length, .77 mm.

Distribution.—"Porcupine" Exped., 1869, Stat. 19, lat. $54^{\circ} 53' N.$, long. $10^{\circ} 56' W.$, 1360 fathoms; "Valorous" Exped., 1875, Stat. 12, lat. $59^{\circ} 11' N.$, long. $37^{\circ} 41' W.$, 1450 fathoms (A. M. N.). Côtes des Landes, Bay of Biscay, Marquis de Folin (G. S. B.). Dredged in the "Challenger" Expedition, Stat. 162, off East Monceur Island, Bass' Straits, in 38-40 fathoms; Stat. 233 *b*, in Inland Sea, Japan, lat. $34^{\circ} 20' N.$, long. $133^{\circ} 35' E.$, 15 fathoms, and Wellington Harbour, New Zealand.

44. *Cythere trispicata*, n. sp.

(Plate xvi., figs. 5, 6.)

Shell, seen from the side, narrowly oblong, greatest height posterior, equal to about two-fifths of the length; dorsal and ventral margins nearly straight and subparallel, very slightly converging forwards from the highest point, which is near the posterior extremity; anterior margin narrow, obliquely truncated; posterior margin broad, obliquely truncate, sharply angulated both above and below. Seen from above, the extremities are greatly compressed, while the central portion swells out to give support to the three long spikes—presently to be described—which are projected divergently like the prongs of a trident. Surface of valves furnished with numerous blunt tuberculations, the most conspicuous of which pass in series round the margins of the valves at both extremities; central portion of valves swollen and supporting three very remarkable spike-like projections; the anterior of these is the longest, and is directed forwards, its height being equal to about half the length of the shell; the central is of similar shape but shorter, while the posterior, which is a little behind the middle, is much thicker, transversely flattened, and shorter than the others. Length about .5 mm.

This is a most remarkable form, totally different to all species, recent or fossil, known to us. The nearest approach to it is perhaps to be found in *Cythere umbonata*, Williamson, as figured by Marsson ("Die Cirripeden und Ostracoden der weissen Schreiekreide der Insel Rügen," pl. III., fig. 15), rather than the figures of earlier authors; the outline is of similar type, and there is one spike near the extremity of the valves.

The single specimen here described has been kindly sent to us for description by the Marquis de Folin, who found it on the coast of Les Landes, south-west of France.

45. *Cythere latimarginata*, Speyer.

(Plate xv., figs. 16, 17.)

1863. *Cythere latimarginata*, Speyer, Die Ostrac., der Casseler Tertiarbild, p. 22, pl. iii., figs. 3 a-d.
 1865. *Cythereis abyssicola*, G. O. Sars, Oversigt af Norges Ostracoder, p. 43.
 1868. *Cythere abyssicola*, Norman, Last Report Dredging among Shetland Isles (Brit. Assoc. Report), p. 290.
 1874. *Cythere abyssicola*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 163, pl. xvi., fig. 6.
 1878. *Cythere abyssicola*, Brady, Ostracoda Ar.werp Crag, Trans. Zool. Soc., vol. x., p. 389, pl. lxiv., figs. 8 a-d.)

Shell of *female*, seen laterally, oblong, subquadrate, greatest height situated in front and equal to more than half the length; anterior extremity broadly and obliquely rounded, and bordered with a series of minute teeth, which are continued round the ventral angle; posterior much narrower, obliquely truncated, and emarginate in the middle, and often having four or five small teeth towards the inferior angle; dorsal margin sinuated in the middle, and much elevated in a gibbose fashion over the anterior hinge; ventral straight, with a slight median sinuation. Seen from above, the outline is irregular, twice as long as broad, the lateral margins nearly parallel, each showing two protuberances separated from each other by an intervening hollow, extremities prominent and truncated. Valves hard and thick, distinctly areolated, and surrounded, except on the dorsal margin, by a broad, thickened band, which forms a keel-like flange, and in front is divided by a narrow furrow into two. In the middle of each valve is a prominent rounded tubercle. The shell of the *male* is narrower and more angular, but the adults of both sexes seem to be about equal in length. Colour, pale, yellowish-brown. Length, .7 mm.

Sars thus describes this animal:—"Eyes very small, rounded. Antennæ moderately elongated, third and fourth joints of the upper pair united, the last short; third joint of lower antennæ narrower than usual, terminal nails elongated. Branchial appendage of the mandibular palp very small, bearing only two setæ, one of which is rudimentary and hamate. Feet slender, second joint of last pair subequal in length to the two succeeding joints combined, terminal nail very slender. Copulatory organs of the male small, the extremity obtusely triangular."

Habitat.—Unst Haaf, Shetland, 20–25 miles N.N.W. of Burrafirth, 100–140 fathoms (A. M. N.). A single specimen, apparently referable to this species, and possibly fossil, was found among sand dredged by Mr. E. C. Davison in the river Ouse, at Lynn (G. S. B.).

Distribution.—Dröbak, 60–120 fathoms; Lofoten Islands, down to 300 fathoms (G. O. Sars); Oster Fiord, north of Bergen, 100–200 fathoms; south of Bukken, Bergen Fiord, 150–200 fathoms; Lervig Bay, 20 fathoms; Stoksund, Hardanger Fiord, 126 fathoms; Christiania Fiord, 30–100 fathoms: “Porcupine” Exped., 1869, Stations, 74, 75, 76, between lat. 61° and 62° N., and long. 1°, 44°, and 3° 44' W., in 267–640 fathoms; “Valorous” Exped., Lievely Harbour, Disco, Greenland, 5–20 fathoms; and Davis Strait, lat. 64° 5' N., long. 56° 47' W., 410 fath. (A. M. N.); Spitzbergen (G. S. B.).

Fossil.—Scotland (Oban); Cassel; Belgium (Antwerp).

46. *Cythere lepida*, n. sp.

(Plate xv., figs. 20, 21.)

Shell elongated, oblong, narrower behind, tumidity gradually increasing backwards to a little before the hinder extremity, where the convexity is greatest on the ventral side, behind this the posterior extremity is suddenly compressed; greatest height on the anterior third, equal to two-fifths of the length; anterior extremity—which is the highest part of shell—very broadly and evenly rounded, its point of greatest projection central; dorsal margin nearly straight, gradually and slightly declining backwards; ventral margin pouting in front, and slightly emarginate centrally. Viewed dorsally, cuneiform, greatest breadth near the posterior extremity, the sides converging thence evenly forwards to a blunt extremity, behind the greatest breadth the valves are abruptly and deeply constricted, and form a mucronate extremity, which is broadly truncate terminally. Valves having a massive broadly-rounded fillet (as in *C. latimarginata*) at both ends: all the rest of the surface is sculptured with hexagonal cells. Length, .9 mm.

In some specimens short, blunt, tubercular nodules adorn the fillet, the dorsal margin, and anterior part of the valves, and in these specimens the cells are smaller, not hexagonal but very irregular, and varying in form.

In outline and fillet this species is allied to *C. latimarginata*, but is longer, while the surface sculpture and aspect from above are wholly different.

Distribution.—North Atlantic, lat. 56° 1' N., long 34° 42' W., 690 fath.: “Valorous” Exped., 1875; Stat. 13 (A. M. N.).

47. *Cythere hoptonensis*, Brady, Crosskey, and Robertson.

(Plate xv., figs. 26, 27.)

1874. *Cythere hoptonensis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 168, pl. xiv., figs. 4-6.

Shell seen from the side quadrangular, higher in front than behind, greatest height equal to more than half the length; anterior extremity wide, well rounded, and minutely crenulated, posterior much narrower and truncated, only slightly rounded; dorsal margin sloping in an irregularly sinuous line from before backwards, gibbose at the anterior hinge; ventral margin nearly straight. Seen from above lozenge-shaped, with very irregular convex sides and wide truncated extremities, twice as long as broad. The valves are produced into a flattened flange in front and behind, the surface very irregularly waved and ribbed and having in the centre a large rounded tubercle. Length, .77 mm.

Dredged off Muros, Galicia, Marquis de Folin (G. S. B.).

48. *Cythere crenulata* (G. O. Sars).

(Plate xv., figs. 5, 6.)

1865. *Cythereis crenulata*, G. O. Sars, Oversigt af Norges marine Ostracoder (Vid. Selsk. Forhand), p. 89.1868. *Cythere crenulata*, Norman, Last Report Dredging among the Shetland Isles (Brit. Assoc. Rep.), p. 291.

Shell very tumid, the width as great as the height, subquadrate, higher in front than behind, greatest height equal to, or more than half the length; anterior extremity very wide, obliquely rounded, the margin crenulated with little points; posterior narrower, subtruncate, and slightly emarginate, greatly depressed below the level of the rest of the shell, the infero-posteal corner much exserted, and furnished with little blunt spinules; dorsal margin flexuous, at first elevated slightly and well rounded, then slightly concave before the middle, then nearly straight, and ultimately declining suddenly to meet the truncate posterior extremity (in the young the dorsal margin is straight); ventral straight, or very slightly sinuated in front of the middle. Seen from above, very wide in the middle, with nearly parallel though flexuous sides; anteriorly narrowly truncate, posteriorly jutting outwards into blunt angles, beyond which the valves are suddenly contracted, and take the form of a beak-like truncated extremity. Surface of valves indistinctly areolated, and finely punctate anteriorly, and the

lower portion of the posterior margin thickened, and forming a double lip, the inner margin of which is crenulated, as has been already described; lateral surface uneven, a rounded knob in the middle of the valves, just in front of their centre; behind this two riblets pass backwards, one near the dorsal, and the other near the ventral margin—the latter the more conspicuous—and terminate in two projected knobs, beyond which the valves are suddenly depressed to form the posterior extremity. Length, .75 mm.

Sars says of the animal: "Eyes very large, seen laterally elongate-elliptical, seen from above semilunar. Colour, pale yellow-brown. Antennæ as in *C. emarginata*; feet and their terminal claws more slender."

Habitat.—Rare 20–25 miles N.N.W. of Burrafirth, Shetland, in 100–140 fathoms (A. M. N.).

Distribution.—Very rare in 6–10 fathoms near Langesund, West Norway (G. O. Sars). Oster Fiord, north of Bergen, 100–200 fathoms; off Sartoro, 15–40 fath. and south side of Kors Fiord, 180 fath.; Lervig Bay, Stordoen, 10–28 fath.; Stoksund, 80–126 fath., Norway: "Valorous" Expedition, 1875, Davis Strait, lat. 64° 5' N., long. 56° 47' W., 410 fath., and Lievely Harbour, Disco, Greenland (A. M. N.).

49. *Cythere quadridentata*, Baird.

1868. *Cythere quadridentata*, Brady, Mon. rec. Brit. Ostrac., p. 413, pl. xxxi., figs. 19–30.

1874. *Cythere quadridentata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 161, pl. xiii., fig. 22.

1885. *Cythere quadridentata*, Carus, Prod. Faunæ Mediterraneæ, p. 299.

Additional localities.—Off North Coast of Scotland; off Coasts of Durham and North Yorkshire; dredged in Birturbuy, Clifden, and Westport Bays, and Mulroy Lough, Ireland (G. S. B. and D. R.); Isle of Cumbrae; Plymouth; Killary Bay, and deep water off Valentia, Ireland (A. M. N.).

Distribution.—Lervig Bay, Norway, 10–25 fath. (A. M. N.); Bay of Biscay; Crete, Captain Spratt (G. S. B.).

Fossil.—Scotland (Loch Gilp).

50. *Cythere emaciata*, Brady.

1868. *Cythere emaciata*, Brady, Mon. rec. Brit. Ostrac., p. 414, pl. xxx., figs. 31–37.

1874. *Cythere emaciata*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 161, pl. ix., figs. 14–17.

1885. *Cythere emaciata*, Carus, Prod. Faunæ Mediterraneæ, p. 299.

Additional localities.—At Lamash, and off North Coast of Scotland; off Durham and North Yorkshire; in the Ouse at Lynn; off Ilfracombe; Eddystone, and

among the Scilly Islands. Dredged in Birturbuy, Clifden, and Westport Bays, and Mulroy Lough, Ireland (G. S. B. and D. R.); Plymouth; Valentia Harbour, Ireland (A. M. N.).

Distribution.—Messina (Seguenza); Naples (A. M. N.); Fosse de Cap Breton, 135 fathoms, Marquis de Folin (G. S. B.).

Fossil.—Scotland (Oban), Ireland (Portrush), Calabria, Sicily.

51. *Cythere runcinatu*, Baird.

(Plate xv., figs. 24, 25, 30, 31.)

1850. *Cythere runcinata*, Baird, On several new species of Entomostraca (Proc. Zool. Soc. Lond., part xviii., Annulosa), p. 254, pl. xviii., figs. 7-9.

1850. (?) *Cythere prava*, idem, ibidem, pl. xvii., figs. 13-15.

1868. *Cythere stimpsoni*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 48, pl. vii., figs. 9-12.

1880. *Cythere stimpsoni*, Brady, Report Ostracoda "Challenger" Exped., p. 85, pl. xxi., figs. 6 a-h.

1885. *Cythere stimpsoni*, Carus, Prod. Faunæ Mediterraneæ, p. 297.

(Not *Cythere stimpsoni*, Brady, Les Fonds de la Mer., vol. i., p. 78, pl. x., figs. 7-10.)

Male. Shell seen from the side elongated, subquadrangular, greatest height situated near the front and equal to rather less than half the length; anterior extremity boldly rounded, fringed with a series of short, sharp teeth, which are largest below the middle; posterior extremity narrower, obliquely truncated above the middle, and armed with four or five teeth below; dorsal margin sloping from before backwards, sinuated in front, and sharply emarginated at the posterior extremity; ventral slightly sinuated in the middle. Seen from above, the outline is elongated and somewhat boat-shaped, nearly thrice as long as broad, and about equal in width throughout; sides nearly parallel, and converging abruptly towards the extremities, which are truncated and formed by the greatly-thickened margins of the valves. The shell-surface is coarsely reticulated, and the sides of the valves are marked by three sharply-cut longitudinal ribs; a similar curved rib running just within the anterior margin and being continued for a short distance along the ventral surface. The shell of the *female* differs in being shorter and stouter, the height greater in proportion to the length. Length of the *male*, .98 mm.; of the *female*, .87 mm.

This species is closely allied to *Cythere emaciata*, Brady, and though Dr. Baird's types have not been preserved, or, at any rate, are not accessible, there seems little reason to doubt that the specimens described and figured by him under the specific names *runcinata* and *prava*, belong to the two sexes of a single species—probably to the Mediterranean form, which we have been accustomed to call

C. stimpsoni, but which does not really belong to the species (an Oriental one) originally described by Dr. Brady under that name. Dr. Baird's specimens were from Tenedos, from which place we possess specimens, as well as from various other localities in the Mediterranean.

Habitat.—Dredged in Dartmouth Harbour and Plymouth Sound (A. M. N.), which are at present the only known British localities.

Distribution.—Vigo Bay, dredged by "Challenger" Expedition (G. S. B.); Fosse de Cap Breton, 135 fathoms (G. S. B.), and some locality 30–200 fathoms (A. M. N.); "Valorous" Expedition, Stat. 13, lat. $64^{\circ} 5' N.$, long. $34^{\circ} 42' W.$, 690 fathoms (A. M. N.). In the Mediterranean it occurs commonly, especially in the Levant and Grecian Archipelago (G. S. B.).

52. *Cythere tuberculata* (G. O. Sars).

(Synonym—*C. mutabilis*, Brady.)

1865. *Cythere clathrata*, var. *lyrata*, and (?) var. *latimarginata*, Brady, Trans. Zool. Soc., vol. v., p. 377, pl. lix., figs. 12, 13.

1868. *Cythere tuberculata*, Brady, Mon. rec. Brit. Ostrac., p. 406, pl. xxx., figs. 25–41.

1874. *Cythere tuberculata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 164, pl. v., figs. 7–12.

1885. *Cythere tuberculata*, Carus, Prod. Faunæ Mediterranæ, p. 296.

Generally distributed round the British Islands, in depths of 4 to 40 fathoms; also in Northern Europe, and extending southwards to the Mediterranean.

Distribution.—Widely distributed in 6–40 fathoms, Norway (G. O. Sars). Lervig; Bergen; and Dröbak, Norway (A. M. N.); Holsteinborg Harbour, Greenland, 10 fath., and Lievely Harbour, 5–10 fath., "Valorous," 1875 (A. M. N.); Iceland; Hammerfest Harbour; Spitzbergen; Gulf of St. Lawrence; Hunde Islands, in Baffin's Bay, 60–70 fath. off Bache Island, about lat. $78^{\circ} N.$, Capt. Feilden in Nares' Arctic Voyage; West Indies (G. S. B.); Fosse de Cap Breton, Bay of Biscay, 180–200 fath. (A. M. N.); Messina, Sicily (Seguenza).

Fossil.—Scotland, England, Wales, Ireland.

53. *Cythere bradii*, De Folin.

(Plate XVI., figs. 3, 4.)

1869. *Cythere bradii*, De Folin, Les Fonds de la Mer, vol. i., p. 148, pl. xiv., figs. 21–24.

Shell tumid, viewed laterally subrhomboidal, higher in front than behind, height much more than half the length; anterior extremity widely arched; dorsal

margin deeply excavated behind the eye, then convex, and behind suddenly sloping; ventral margin gently flexuous. Seen from above, subhexagonal, the extremities widely mucronate, and the sides very convex; greatest breadth central, subequal to the height. Surface of valves adorned with three very prominent flexuous ribs. Length, .7 mm.

Habitat.—Bay of Biscay (Marquis de Folin).

54. *Cythere concinna*, Rupert Jones.

(Synonym.—*Cythereis clavata*, G. O. Sars.)

1865. *Cythere concinna*, Brady, Mon. rec. Brit. Entom., p. 408, pl. xxvi., figs. 28–33; pl. xxxviii., fig. 7.

1874. *Cythere concinna*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 160, pl. iv., figs. 1–20.

Additional localities.—Dredged in Loch Long and Loch Fyne, off Rothesay, and Roseneath, in the Firth of Clyde; in the Firth of Forth, off coasts of Durham, and North Yorkshire (G. S. B. and D. R.); Unst Haaf, and St. Magnus' Bay, Shetland, 50–60 fath.; Portree Bay, Isle of Skye; off Valentia, Ireland (A. M. N.); Irish Channel, 13–18 fath.; Belfast Lough, 4–10 fath.; Rockport and Brown's Bay, N.E. Ireland; tide-marks (Malcomson).

Distribution.—Cape Frazer, 80 fath., Nares' Arctic Exped., Captain Feilden; Spitzbergen; Iceland; Hammerfest Harbour (G. S. B.); Christiania Fiord, 6–20 fath., and Lofoten Islands, Norway (G. O. Sars); Dröbak, 30–100 fath., and Stok-sund, 126 fath., Norway (A.M.N.); Davis Strait, lat. 67° 17' N., long. 62° 21' W., six feet below low-water mark (G. S. B. and D. R.).

Fossil.—England (Bridlington), Scotland, Ireland, Norway, and Canada.

55. *Cythere dubia*, Brady.

1868. *Cythere dubia*, Brady, Mon. rec. Brit. Ostrac., p. 409, pl. xxxii., figs. 75, 76.

The only specimens known were found in sand dredged from the Unst Haaf, Shetland, in 1863, where it was dredged again, in 100 fath., in 1867 (A. M. N.).

56. *Cythere emarginata* (G. O. Sars).

(Plate XVI., figs. 1, 2.)

1868. *Cythere emarginata*, Brady, Mon. rec. Brit. Ostrac., p. 166.

1874. *Cythere emarginata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 166, pl. v., figs. 1-6.

The specimen described in the monograph was found by Mr. Robertson off Shetland, where it has since been twice met with by Dr. Norman, on the Unst Haaf and in St. Magnus' Bay.

Distribution.—Lofoten Islands, 6-12 fath., and Öxfjord, Finmark (G. O. Sars); Lervig Bay, Stordoen, 3-25 fath., and off Lervig, 50-100 fath.; Stoksund, 80-100 fath.; Haakelsund, Kors Fiord 3-10 fath., all in Norway (A. M. N.); Spitzbergen, Mr. Lamont (G. S. B.); Godhavn and Holstenbourg Harbour, 5-25 fath., and Davis Strait, lat. 69° 31' N., long. 56° 1' W., 100 fath., "Valorous" Exped. (A. M. N.); Hammerfest Harbour; Davis Strait, lat. 67° 17' N., long. 62° 21' W. (G. S. B. and D. R.); Iceland (G. S. B.); Franklin Pierce Bay, 13 fath., Nares' Arctic Expedition (Captain Feilden).

Fossil.—England, Scotland, Ireland, Norway, and Canada.

An Arctic species, which is more common as we proceed northwards, and appears to have been abundant in the Glacial epoch.

57. *Cythere finmarchica* (G. O. Sars).

1868. *Cythere finmarchica*, Brady, Mon. rec. Brit. Ostrac., p. 410, pl. xxxi., figs. 9-13.

1874. *Cythere finmarchica*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 153; pl. x., figs. 18-21.

Additional localities.—Dredged off North coast of Scotland; off coasts of Durham and North Yorkshire; in the river Ouse, Norfolk; off Ilfracombe, and the Eddy-stone Lighthouse; Fowey Harbour (G. S. B. and D. R.); Shetland; the Minch; Herm, tide-marks (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Öxfjord, Finmark (G. O. Sars); Haakelsund in Kors Fiord, Norway, 3-10 fath.; Holsteinborg Harbour, Greenland, 10 fath., and Davis Strait (lat. 69° 31' N., long. 56° 1' W.), in 100 fath., "Valorous" Exped. (A. M. N.): Bay of Biscay; St. Vincent, Cape Verd (G. S. B.).

Fossil.—Scotland, Norway.

58. *Cythere costata*, Brady.

(Plate XVI., figs. 7, 8.)

1866. *Cythere costata*, Brady, Trans. Zool. Soc., vol. v., p. 375, pl. lx., figs. 5 *a-f*.1868. *Cythere costata*, Norman, Brit. Assoc. Report, 1868, p. 290.1874. *Cythere costata*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 166, pl. v., figs. 21-24.

Female. Carapace compressed, oblong, seen from the side subquadrangular, highest in front of the middle, greatest height equal to somewhat more than half the length; anterior extremity broad and well-rounded; posterior narrow, obliquely truncated, slightly produced below the middle, inferior angle rounded and divided into four or five short obtuse teeth; dorsal margin sloping from the front backwards in a somewhat sinuous line; ventral straight or very slightly sinuated. Seen from above, compressed, irregularly ovate, greatest width situated behind the middle, and equal to rather more than one-third of the length, sides irregularly sinuated and converging gradually to the extremities, which are equal and obtusely pointed. The surface is pitted with closely-set large angular excavations, and each valve has three or four obliquely transverse sharply-cut ribs, which rise from a single longitudinal ridge just within the ventral border and is continued round the anterior margin. Length, 1.1 mm. The shell of the *male* is longer, narrower, and distinctly quadrangular; its greatest height is less than half the length, and the superior margin of the left valve is raised into a conspicuous prominence over the anterior hinge.

Habitat.—Dredged on the Unst Haaf, Shetland (A. M. N.).

Distribution.—The type specimens were dredged by Dr. Sutherland in a depth of 60-70 fath., off the Hunde Islands, Baffin's Bay (G. S. B.); Holsteinborg Harbour, Greenland, 10 fath., living, one ♂ and one ♀, "Valorous" Expedition (A. M. N.); Gulf of St. Lawrence; Franklin Pierce Bay, 13-15 fathoms, and Smith Sound, 78° 37' N., Captain Feilden in Nares' Arctic Expedition (G. S. B.).

Fossil.—England (Bridlington and Hopton Cliff), Scotland (Paisley).

The species is very similar to *C. emarginata*, but differs in the surface ornament, in the presence of the teeth at the posterior margin, and in the general outline as seen from above and below.

59. *Cythere angulata* (G. O. Sars).

1865. *Cythere clathrata*, var. *nuda*, Brady, Trans. Zool. Soc., vol. v., p. 377, pl. lix., figs. 9, 10.
 1868. *Cythere angulata*, Brady, Mon. rec. Brit. Ostrac., p. 409, pl. xxvi., figs. 39-42.
 1874. *Cythere angulata*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 162, pl. iv., figs. 21-24 ;
 pl. x., fig. 22.

Additional localities.—Off the north coast of Scotland ; Stromness and Firth of Forth ; Loch Ryan, and several places in the Firth of Clyde ; on the Northumberland, Durham, and Yorkshire coasts ; off Scarborough ; Dublin, Westport, Clifden, and Birturbuy Bays, and Mulroy Lough, Ireland (G. S. B. and D. R.) ; off Tarbert, Loch Fyne (A. M. N.) ; off the Maidens Lighthouse, Irish Channel, 60 fath. ; Belfast Lough, 6-8 fath. ; between tide-marks, Rockport, Donaghadee, and other places in N.E. Ireland (Malcomson).

Distribution.—Christiania Fiord ; Öxfjord, Finmark (G. O. Sars) ; Haakelsund, Kors Fiord, 3-10 fath. ; Lervig Bay, 3-25 fath ; Lungegaards-vandet, Bergen ; Hollingspollen near Dröbak, 3-10 fath., Norway ; Holsteinborg Harbour, Greenland, 10 fath. ; Davis Strait, lat. 69° 31' N. long. 56° 1' W., 100 fath., "Valorous" Exped. (A. M. N.) ; Iceland ; Hammerfest Harbour ; Davis' Strait, lat. 67° 17' N., long. 62° 21' W., six feet below low-water mark (G. S. B. and D. R.).

Fossil.—England (Bridlington), Scotland, Ireland (Portrush), Norway.

60. *Cythere mucronata* (G. O. Sars).

(Synonym.—*C. spinosissima*, Brady.)

1868. *Cythere mucronata*, Brady, Mon. rec. Brit. Ostrac. p. 415, pl. xxvi., figs. 84-84a.
 1878. *Cythere mucronata*, Brady, Mon. rec. Brit. Ostrac. Antwerp Crag., Trans. Zool. Soc., vol. x., p. 395,
 pl. lxvii., figs. 3 a-d.

At the time of the publication of the monograph only a single valve of this fine species had been found in sand dredged on the Unst Haaf, Shetland ; two additional valves have since been procured from the same locality (A. M. N.).

Distribution.—Hammerfest Harbour (G. S. B.) ; Lofoten Islands, 300 fath. (G. O. Sars) ; Stoksund, near the mouth of the Hardanger Fiord, Norway, 126 fath. (A. M. N.) The types of Brady's "*C. spinosissima*" were from M'Andrew and Barrett's dredgings from Norway.

Fossil.—Belgium (Antwerp).

61. *Cythere canadensis*, Brady.

(Plate xv., figs. 14, 15.)

1870. *Cythere canadensis*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 452; pl. xix., figs. 4-6.

Shell seen from the side, elongated quadrate, slightly higher in front than behind; height equal to about half the length; anterior extremity obliquely rounded, posterior rectangularly truncated and showing one or two minute nodular projections; dorsal margin gently sloping from the front, but prominent over the anterior hinge; ventral sinuated in the middle and curved upwards behind. Seen from above, the outline is club-shaped, with subparallel sinuous sides, but widest towards the posterior extremity; extremities broad and unevenly truncated; posterior much the wider of the two. Shell-surface uneven, covered with small rounded excavations, showing a slight transverse depression in the middle and another behind, and bordered in front by a wide protuberant flange. Length, .66 mm.

This species approaches very closely *C. latimarginata*, Speyer, but differs from it in having a less developed marginal band and a less angular outline when viewed from above. The forms referred to by Dr. Brady (*loc. cit.*) as showing a ridged surface ornament belong certainly to other species.

Distribution.—The type specimens were found in dredgings made by Mr. G. M. Dawson in the Gulf of St. Lawrence (G. S. B.); and a few examples have been noticed in dredged material got by the "Valorous" in Davis Strait, lat. 66° 55' N., long. 55° 30' W., 57 fathoms (A. M. N.).

62. *Cythere dawsoni*, Brady.

(Plate xvi., figs. 19, 20.)

1870. *Cythere dawsoni*, Brady, Recent Ostracoda of the Gulf of St. Lawrence, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 453, pl. xix., figs. 8-10.1871. *Cythere dawsoni*, Brady and Crosskey, Fossil Ostracoda Post-tert of Canada and New England, Geological Magazine, pl. ii., figs. 5-7.1878. (?) *Cythere dawsoni*, Brady, Ostracoda Antwerp Crag, p. 398, pl. xlvii., figs. 3 a-b.

Shell viewed laterally quadrangular, highest in front, greatest height equal to half the length; anterior extremity obliquely rounded, bordered with strong blunt teeth; posterior narrower, rectangularly truncate, slightly rounded; dorsal margin

nearly straight, gently sloping backwards, irregularly emarginate; ventral almost straight. Seen from above, subhexagonal; sides nearly parallel, suddenly tapering towards the extremities, which are obtusely mucronate; outline throughout very rugged. Surface of valves marked by irregularly rounded, scattered tubercles and by two irregular longitudinal rows of transversely elongated tubercular eminences. Length, .75 mm.

Distribution.—Gulf of St. Lawrence, dredged by Mr. G. M. Dawson (G. S. P.).

Fossil.—Montreal and Portland, N. America.

63. *Cythere audax*,* n. sp.

(Pl. xvii., figs. 14, 15.)

Shell, seen from the side, subovate, greatest height anterior, subequal to half the length; anterior extremity very broadly rounded; posterior much narrower, also well rounded; dorsal margin nearly straight, slightly and gradually declining backwards from the front; ventral margin overhung centrally by the protuberance of the shell, the marginal spines of which are seen here protruding. Valves much depressed in front, and here furnished with a marginal fillet, then suddenly swelling into a large protuberance, which occupies the greater part of the shell, and suddenly forms a declivity to the posterior margin, while, as already stated, it overhangs the ventral; round all the margins situated just within them but projecting beyond is a series of blunt flattened spines, which sometimes show a tendency to become bifid at the tip; these spines are easily abraded, and no one specimen has them all perfect; along the ventral edge of the protuberance runs a similar series of large size, and within this again, and parallel to it, passes another row of spines, the hinder ones of this series being often long and acute; over the remaining parts of the surface there are small scattered spinules. Seen from above, the tumidity is very great, the chief expansion behind the middle, and the upper lateral row of spines is seen surmounting this tumidity; at the posterior extremity the sides suddenly but roundly converge, the extremity itself being mucronate; towards the front the narrowing of the valves is more gradual, and the extremity acuminate. Anterior and posterior teeth of the hinge well developed. Length, 1.2 mm.

Dredged by the "Valorous," in 1875, Stat. 12, lat. 56° 11', N. long. 37° 41' W., in the North Atlantic, in 1450 fath. among Globigerina ooze (A. M. N.).

* *Audax* "Valorous," the name of H. M. Steamship by which the species was dredged.

64. *Cythere mirabilis*, Brady.

1868. *Cythere mirabilis*, Brady, Mon. rec. Brit. Ostrac., p. 415, pl. xxix., fig. 7, 8.
 1874. *Cythere mirabilis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 167, pl. viii., figs. 22-26; pl. xv., figs. 13-16.

One valve only was recorded as British in the "Monograph." This was found in Admiralty soundings, taken off Lumpan Head, Lewis (G. S. B.). It has not since been met with in our seas.

Distribution.—Ginevra Bay, Spitzbergen, Mr. Lamont's dredgings (G. S. B.).

Fossil.—By no means rare in the post-tertiary deposits of Scotland; England (Bridlington).

65. *Cythere dunelmensis* (Norman).

(Synonym.—*C. horrida*, G. O. Sars.)

1868. *Cythere dunelmensis*, Brady, Mon. rec. Brit. Ostrac., p. 416, pl. xxx., figs. 1-12.
 1874. *Cythere dunelmensis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 168, pl. v., figs. 13-20; pl. xi., figs. 36, 37.

Additional localities.—Dredged off the north of Scotland; Kilchattan Bay, Bute; Firth of Forth, and coasts of Durham and North Yorkshire; Loch Long, Roseneath and Rothesay Bays, Firth of Clyde (G. S. B. and D. R.); Haaf, Shetland; off Valentia, Ireland (A. M. N.); Rockport, Co. Down (Malcomson).

Distribution.—Christiania Fiord, 6-20 faths., and Lofoten Islands, Norway (G. O. Sars); Stoksund, near the mouth of the Hardanger Fiord Norway, 126 faths. (A. M. N.); Iceland; Baffin's Bay; Deevie Bay, Spitzbergen, Mr. Lamont's dredgings (G. S. B.).

Fossil.—England (Bridlington); Scotland, common; Ireland (Belfast and Woodburn).

66. *Cythere antiquata* (Baird).

1868. *Cythere antiquata*, Brady, Mon. rec. Brit. Ostrac., p. 417, pl. xxx., figs. 17-20.
 1874. *Cythere antiquata*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 170, pl. xii., figs. 8-10.
 1885. *Cythere antiquata*, Carus Prod. Faunæ Mediterraneæ, p. 301.

Additional localities.—Dredged in the Firth of Forth; Loch Ryan, and several places in the Firth of Clyde; Breydon Water, Norfolk; Rivers Bure and Thames; and

off Eddystone Lighthouse, and Scilly Islands; the Mumbles, near Dublin, Birturbuy and Westport Bays, Ireland (G. S. B. and D. R.); Dartmouth Harbour; off Valentia, Ireland (A. M. N.); Irish Sea, 15–60 faths.; Belfast Lough; Rockport, Co. Down; Island Magee, N. E. Ireland (Malcomson).

Distribution.—Messina (Seguenza); Naples (A. M. N.); Eastern Mediterranean; Piræus, Tenedos, Besika Bay, Constantinople, Jaffa (G. S. B.); Fosse de Cap Breton, Bay of Biscay, 30–60 fath. (A. M. N.).

Fossil.—Scotland (Oban), Ireland (Belfast New Docks), Calabria, Sicily.

67. *Cythere whitei* (Baird).

1868. *Cythere whitei*, Brady, Mon. rec. Brit. Ostrac., p. 416, pl. xxx., figs. 21–24.

1874. *Cythere whitei*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 169, pl. xii., figs. 1–3.

1885. *Cythere whitei*, Carus, Prod. Faunæ Mediterraneæ, p. 301.

Additional localities.—Dublin Bay; Kilchattan Bay, Bute; Girdler Sand, estuary of Thames (G. S. B. and D. R.); Unst Haaf, Shetland; Dartmouth Harbour (A. M. N.); Island Magee, N. E. Ireland, tide-marks (Malcomson).

Distribution.—Eastern Mediterranean at Jaffa; Syria; Gulf of St. Lawrence (G. S. B.); Naples (A. M. N.).

Fossil.—Belfast (New Docks).

68. *Cythere jonesii* (Baird).

Synonyms: *Cythereis fimbriata*, Norman; *Cythere ceratoptera*, Bosquet; *Cythere spectabilis*, G. O. Sars; *C. subcoronata*, Brady (*via* Speyer); *Cythereis cornuta*, Jones (*junior*).

1868. *Cythere jonesii*, Brady, Mon. rec. Brit. Ostrac., p. 418, pl. xxx., figs. 13–16.

1874. *Cythere jonesii*, Brady, Crosskey, and Robertson, Mon. Post-tert., Entom., p. 171, pl. xii., figs. 4–7.

1878. *Cythere jonesii*, Brady, Ostrac. Antwerp Crag, Trans. Zool. Soc., vol. x., p. 395; pl. lxxvii., figs. 2 a–d.

1885. *Cythere subcoronata*, Carus, Prod. Faunæ Mediterraneæ, p. 301.

Additional localities.—Dredged off north coast of Scotland; many places in the Firth of Clyde; off the Durlam coast; Birturbuy Bay, and Mulroy Lough, Ireland; and off the Eddystone Lighthouse (G. S. B. and D. R.); off Tarbert, 25 fath., and Skipness, 41 fath. in Loch Fyne; Killary Bay, and off Valentia, 112 fath., Ireland (A. M. N.).

Distribution.—Christiania Fiord (G. O. Sars); off Sartoro, in Bergen Fiord, 15 fath.; and Solems Fiord, Florø, 50–60 fath., Norway, only a single valve in each locality (A. M. N.); Ginevra Bay, Spitzbergen, Mr. Lamont's dredgings; Bay of Biscay; Besika Bay, 14 fath.; Levant; the var. *ceratoptera*, Fosse de Cap. Breton, 35 fath., Marquis de Folin (G. S. B.); Messina (Seguenza).

Fossil.—Ireland (Post-tertiary) var. *ceratoptera*, England, Suffolk (Pliocene), Belgium and France (Eocene).

Genus III.—LIMNICYHERE, Brady.

Acanthopus, Vernet.

[Type, *L. inopinata* (Baird).]

1. *Limnicythere inopinata* (Baird).

(Plate XVII., figs. 18, 19; var. *compressa*.)

1868. *Limnicythere inopinata*, Brady, Mon. rec. Brit. Ostrac., p. 419, pl. xxix., figs. 15–18.

1874. *Limnicythere inopinata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 173, pl. x., figs. 8–11; pl. xxxviii., fig. 9; pl. xxxix., fig. 1.

Generally distributed in ditches, lakes, and slowly running streams throughout the British Islands; found also not uncommonly in estuarine localities, and sometimes dredged at sea, though in these cases it has probably been washed down out of fresh water. We figure a very remarkable form, var. *compressa*, in which the extremities of the shell are produced, and flattened to an extraordinary degree; it was taken in Whitefield Loch, Wigtonshire (A. M. N.).

Distribution.—Sweden (Lilljeborg in Coll. A. M. N.); rivers Scheldt and Maas (G. S. B.).

Fossil.—Scotland, England.

2. *Limnicythere relictæ*, Lilljeborg.

(Plate XVII., figs. 8, 9.)

1862. *Cythere relictæ*, Lilljeborg, Öfversigt af K. Vet. Akad. Forhand, p. 391, pl. i., figs. 1–17.

1879. *Acanthopus elongatus*, Vernet, Matériaux pour servir à l'étude de la Faune profonde du Lac Léman, p. 516, pl. xxviii., figs. 14–19.

1888. *Limnicythere relictæ*, Lilljeborg, Internat. Fisheries Exhib. Lond., Sweden Catalogue, p. 147.

Shell of *female* long-ovate, ventricose, greatest height anterior, height less than half the length; well and broadly rounded at the extremities; dorsal margin

nearly straight, posterior declination the longer; ventral margin deeply sinuated centrally. Seen from above, ovate, with a deep groove on each side where the greatest breadth (had the sides continued evenly there) would have been; extremities mucronate, the anterior the more extended. Valves thin and fragile, greyish-white, everywhere densely hispid; at both extremities, especially the anterior and along the dorsal line, the valves are much compressed, centrally they are gibbously tumid, the tumidity divided above towards the dorsum by a deep transverse depression. On the flattened extremities are seen many (10-12 or more) radiating lines, which when they reach the margin terminate in long setose hairs. Length, .6 mm.

Shell of the *male* very like that of female, but shorter and more ventricose. The nail of the third pair of feet is very long, almost setiform, and twice as long as the nail of the other feet.

The description and figures are taken from some of Lilljeborg's type specimens in A. M. N.'s collection.

L. relicta has not yet been found in the British Isles. Its habitats, as far as known, are Upsala, Sweden (Lilljeborg), and the Lake of Geneva (Vernet).

3. *Limnocythere sancti-patricii*, Brady and Robertson.

(Plate xvii., figs. 1, 2.)

1869. *Limnocythere sancti-patricii*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 17, pl. xviii., figs. 8-11; pl. xxi., fig. 4.
 1874. *Limnocythere sancti-patricii*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 174, pl. ii., figs. 1-3.

Shell, as seen from the side, reniform, higher at the extremities than in the middle, greatest height anterior, equal to half the length; extremities well rounded and entirely destitute of serratures, the anterior slightly the larger; superior margin almost straight; inferior deeply sinuated in the middle. Seen from above, the outline is irregularly rhomboidal, widest somewhat behind the middle; extremities acuminate; greatest width rather less than the height. Seen from the front, the outline is widest at the base, with gradually converging sides and broadly arched apex; ventral border convex and prominently keeled in the middle. Surface of the valves sculptured with closely-set, polygonal excavations, and marked across the middle with a wide and deep sinuous furrow, in front of which is another of similar character but smaller; behind the posterior furrow the shell rises towards the ventral border in a prominent rounded eminence, the summit of which often takes a tubercular form; the ventral surface is furrowed in a longitudinal direction, and also marked more or less with cross striæ. Animal almost exactly like that of

C. inopinata; abdomen slightly hirsute and produced into two lobes, each with a short terminal seta. Length, .8 mm.

Habitat.—This is a larger and more robust species than *L. inopinata* or *L. relicta*; from the former it differs also in the absence of marginal serratures, and in having usually a less wrinkled and more neatly-sculptured surface. The type specimens were found in Lough Moher, about five miles south of Westport (county Mayo), and more recently we have taken specimens in dykes near Whittlesea; in the Rivers Nene and Cam; and in Bishop's Loch, near Glasgow (G. S. B. and D. R.); Whitefield Loch, Wigtonshire; Lochs Ruter and Aber, Kirkcudbrightshire; Lough Neagh, Ireland (A. M. N.); Loch Fergus, Kirkcudbrightshire (G. S. B.).

Fossil.—England (Branston Fen, Lincolnshire).

The rounded eminence, often assuming a tubercular aspect, which is situated near the ventral margin on the hinder part of the valves, seems to be a constant or nearly constant character by which the species may be distinguished from its congeners. It has, moreover, a peculiar aspect from the lesser central height of the shell, which, while characteristic of the genus, is most strongly marked in this species.

4. *Linnicythere monstifica* (Norman).

1868. *Linnicythere monstifica*, Brady, Mon. rec. Brit. Ostrac., p. 420, pl. xxix., figs. 9–12.

1874. *Linnicythere monstifica*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 175, pl. ii., figs. 8 a–d.

Additional localities.—Dykes at Whittlesea; Breydon Water; Rivers Cam at Ely, and Ouse at Lynn (G. S. B. and D. R.).

Fossil.—England (Branston Fen, Lincolnshire).

Genus IV.—CYTHERIDEA Bosquet.

[Type, *Cytheridea Mülleri* Von Münster.]

1. *Cytheridea elongata*, Brady.

Synonyms: *Cythere angustata*, Baird (*nec Cytherina angustata*, Münster).

1868. *Cytheridea elongata*, Brady, Mon. rec. Brit. Ostrac., p. 421, pl. xxviii., figs. 18–16; pl. xl., fig. 6.

1869. *Cytheridea cornea*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 18, pl. xx., figs. 9, 10 (*junior*).

1874. *Cytheridea elongata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 181, pl. ix., figs. 10–13.

Of common occurrence round the southern British coasts from low-water mark to depths of 30–40 fath.; occasionally also in estuaries and tidal rivers. It is much scarcer as we proceed northwards.

Distribution.—St. Malo, Bay of Biscay; Rivers Scheldt and Maas, Holland; Iceland; Gulf of St. Lawrence (G. S. B.); Fosse de Cap Breton, 30–60 fath., and Naples (A. M. N.).

Fossil.—Scotland, England, Ireland.

Type specimens in Dr. Norman's collection received by him from Dr. Baird prove conclusively that *C. elongata* is the *C. angustata* of that author.

2. *Cytheridea papillosa*, Bosquet.

Synonyms: *Cythere bradii and debilis*, Norman; *Cyprideis bairdii*, G. O. Sars.

1868. *Cytheridea papillosa*, Brady, Mon. rec. Brit. Ostrac., p. 423, pl. xxviii., figs. 1–6; pl. xl., fig. 1.

1874. *Cytheridea papillosa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 176, pl. vi., figs. 12–15.

1878. *Cytheridea papillosa*, Brady, Ostracoda, Antwerp Crag, p. 396, pl. lxii., figs. 1 a–d.

Additional localities.—Rothsay, Roseneath, and Greenock, in the Firth of Clyde; off the coasts of Durham and Yorkshire; Westport Bay, Ireland (G. S. B. and D. R.); Shetland; off Valentia, Ireland (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Abundant in Christiania Fiord, and as far north as the Lofoten Islands (G. O. Sars); Dröbak, Lervig, Stoksund, Bergen, &c., Norway; Holstenbourg Harbour, and in Davis Strait, lat. 69° 31' N., long. 51° 1' W., 100 fath., and lat. 64° 5' N., long. 56° 47' W., 410 fath.; "Valorous" Expedition (A. M. N.); Hunde Islands, Baffin's Bay, 60–70 fath.; Iceland; Deevie Bay, Spitzbergen, Mr. Lamont; Davis Strait; Gulf of St. Lawrence (G. S. B.).

Fossil.—Tertiary; France and Belgium. Post-tertiary; Scotland, England, Norway, Canada.

3. *Cytheridea punctillata*, Brady.

Synonym: *Cyprideis proxima*, G. O. Sars.

1866. *Cytherideis* (?) *pulchra*, Brady, New and imperfectly known marine Ostracoda, Trans. Zool. Soc., vol. v., p. 368, pl. lviii., figs. 3 a–c.

1868. *Cytheridea punctillata*, Brady, Mon. rec. Brit. Ostrac., p. 424, pl. xxvi., figs. 85–88; pl. ix., figs. 9–11.

1874. *Cytheridea punctillata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 177, pl. vi., figs. 1–11.

1885. *Cytheridea punctillata*, Carus, Prod. Faunæ Mediterraneæ, p. 303.

Additional localities.—Dublin Bay; Roseneath and Rothsay, in the Firth of Clyde (G. S. B. and D. R.); Seaton Carew, Co. Durham (G. S. B.); Inverary and off Tarbert and Skipness, in Loch Fyne; off Valentia, Ireland (A. M. N.).

Distribution.—Christiania Fiord, and thence to Finmark (G. O. Sars); Dröbak, Christiania Fiord (A. M. N.); Hunde Islands, Baffin's Bay, 28–40 fath., off Cape Frazer, 80 fath.; Spitzbergen, Mr. Lamont; Iceland; Gulf of St. Lawrence (G. S. B.), lat. 60° 39' N., long. 3° 9' W., 203 fath., "Porcupine," 1869 (A. M. N.); Messina (Seguenza).

Fossil.—Scotland, England, Ireland, Sicily.

4. *Cytheridea stimosu*, n. sp.

(Plate XVI., figs. 21, 22.)

Shell subovate, highest near the front, greatest height rather more than half the length; anterior extremity higher than the posterior, well and evenly rounded; posterior extremity much narrower, well rounded; dorsal margin arcuate throughout, highest in front of the middle; from this point backwards the declination is gradual and even, and the convexity slight, while in front the slope is much more sudden, though the convexity is much greater, the arch here being bold; ventral margin very slightly sinuated in the middle. Seen from above, the outline is ovate, the greatest breadth near the posterior extremity, which is rounded, while forwards the sides gradually and slowly approximate, the anterior extremity being blunt and scarcely acuminate. Surface of valves sculptured everywhere with little circular pittings, which have a tendency to arrange themselves into lines, more especially round the margins; there are also a few scattered, opaque white papillæ, which are conspicuous against the glassy and semi-transparent general structure of the valves. Length, .3 mm.

Habitat.—Off Valentia, Ireland, 112 fath. (A. M. N.).

5. *Cytheridea similis*, Brady.

(Plate XVII., figs. 26, 27.)

1869. *Cytheridea similis*, Brady, Les Fonds de la Mer. (vol. i., p. 147, pl. xiv., figs. 19, 20.

Shell, as seen from the side, subovate, its greatest height in the centre exceeding half the length; anterior extremity rounded, posterior obtusely rounded; dorsal margin arched; ventral margin nearly straight. Seen from above, ovate, constricted in the middle: behind this constriction is the greatest breadth. Surface of valves finely punctate and furnished with a few small rounded tubercles. Length, .88 mm.

Habitat.—Bay of Biscay, Marquis de Folin (G. S. B.).

6. *Cytheridea torosa* (Jones).

1868. *Cytheridea torosa*, Brady, Mon. rec. Brit. Ostrac., p. 425, pl. xxviii., figs. 7-12; pl. xxxix., fig. 5.
 1868. *Cytheridea littoralis*, Brady, Nat. Hist. Trans. Northum. and Durham, vol. iii., p. 6.
 1870. *Cytheridea torosa*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 21, pl. viii., figs. 6, 7.
 1874. *Cytheridea torosa*, Brady, Crosskey, and Robertson, Post-tert. Entom., p. 178, pl. xv., figs. 11, 12, and var. *teres*, pl. vii., figs. 1, 2.
 1886. *Cytheridea torosa*, Carus, Prod. Faunæ Mediterraneæ, p. 302.
 1888. *Cytheridea torosa*, Dahl, Die Cytheriden der Westlich. Ostsee, p. 16, pl. i., fig. 81, pl. ii., figs. 32-48.

Additional localities.—Type, rivers Ouse, Deben, Stour, Thames, and throughout the broads and dykes of the Fen district; Dungeness Bay; Westport Bay, Ireland (G. S. B. and D. R.); Newport, county Mayo (A. M. N.). Var. *teres*, in the Firth of Clyde; common throughout the Fen district; ditches on Cardiff Moor (G. S. B. and D. R.); Crossens, Lancashire (A. M. N.); Ellesmere Canal, near Ellesmere, Shropshire (G. S. B.).

Distribution.—In an estuary called Engervand, near Christiania (G. O. Sars), Piræus, Besika Bay, Hellespont, Smyrna, Latakié, Beyrout, Jaffa, Port Said, Sea of Azov; rivers Scheldt and Maas, Holland; Gibraltar; Adour Maritime, France (G. S. B.), Western Baltic (Dahl).

Fossil.—Crag: Woolwich and Isle of Wight. Post-tertiary: Scotland, England, South Wales, Ireland.

7. *Cytheridea castanea*, Brady.

(Plate XXI., figs. 3, 4.)

1870. *Cytheridea castanea*, Brady, Les Fonds de la Mer., vol. i., p. 117, pl. xiii., figs. 19-21; and pl. xiv., figs. 1, 2.

Shell seen from the side elongated, subovate, highest near the front, height equal to half the length; anterior extremity rounded, bordered below the middle with six short, blunt teeth; posterior extremity obliquely rounded and somewhat narrowed, bearing at the ventral angle a large, slightly-curved and sharp spine; dorsal margin forming a flattened arch, which is obscurely angulated in front of the middle, curved very gently, except posteriorly, where it slopes steeply. Seen from above, elongate-ovate, much more than twice as long as broad, widest in the middle; subacute in front, moderately broad and well-rounded behind, where it is slightly emarginate in the middle, and uneven, owing to the lesser size of the

right valve. Shell-surface smooth, beset with numerous small rounded papillæ. Colour, reddish brown. Length, 1·3 mm.

Distribution.—Dredged by the Marquis de Folin in the Bay of Biscay (G. S. B.). Port Said, Marquis de Folin (G. S. B.). The figures and description now given are from Mediterranean specimens. We have had no opportunity of re-examining the Bay of Biscay specimens.

8. *Cytheridea lacustris* (G. O. Sars).

1868. *Cytheridea lacustris*, Brady, Mon. rec. Brit. Ostrac., p. 472, pl. xxvi., figs. 18–21; and pl. xi., fig. 2.
 1874. *Cytheridea lacustris*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 179, pl. vi., figs. 16–20.
 1879. *Acanthopus resistans*, Vernet, Matériaux pour servir à l'étude de la Faune profonde du Lac Léman, p. 509, pl. xxvii., figs. 1–13.

The anatomical details given by Dr. Vernet in his notice of *Acanthopus* are precisely those belonging to the genus *Cytheridea*, and a renewed dissection of two species—*C. lacustris* and *C. papillosa*—since seeing Dr. Vernet's paper, leaves us unable to find any distinctions of generic importance. We have not, however, as yet succeeded in finding the male of *C. lacustris*.

Additional localities.—Loch Lomond; the river Nene at Peterborough, and the Thames Estuary (G. S. B. and D. R.); Canal near Morningside, Edinburgh (D. R.); Lough Neagh, Ireland (A. M. N.).

Distribution.—Norway (G. O. Sars); Lake Mälär, Sweden (Lilljeborg in Coll. A. M. N.).

Fossil.—Scotland, England.

9. *Cytheridea* (?) *subflavescens*, Brady.

1868. *Cytheridea subflavescens*, Brady, Mon. rec. Brit. Ostrac., p. 429, pl. xxxiv., figs. 53–55.

Additional localities.—Near Rothesay, and in Loch Fyne (G. S. B. and D. R.); off Tarbert, in 25 fath., and off Skipness, 40 fath. in Loch Fyne; St. Magnus Bay, Shetland; the Minch, 45–60 fath.; between the Cumbrae Islands, 15–25 fath. (A.M.N.); Irish Channel, dredged; and Belfast Lough (Malcomson).

It is a rare species, and when found is scarce, numerically. The characters are very constant, and well-marked.

10. *Cytheridea fascis*, n. sp.

(Plate xvi., figs. 23, 24.)

Shell, as seen from the side, broadly subtriangular, greatest height anterior, equal to two-thirds of the length; anterior extremity very broad, well and evenly rounded; posterior obliquely subtruncate, most produced at the infero-posteal corner, where it is angled, thence the margin sweeps upwards and backwards arcuately, the rise at first sudden, afterwards gradual, until the highest point of the dorsal margin is attained in front of the middle, and from this point the forward and downward sweep of the dorsal margin is well rounded and rapid to the anterior extremity; ventral margin (of the lateral edge of the shell, which assumes the aspect of the ventral margin when seen from the side) very slightly convex throughout the greater part of the length, until a small shallow sinus is reached, which is situated just before the hinder extremity. Valves flat or rather hollowed everywhere, except at the edges and where a rounded boss rises in the centre; surface uneven; anterior margin furnished with 6-7 teeth, which curve forwards. Colour glassy, semi-opaque, with scattered opaque white tubuli passing through the shell to the surface. Notwithstanding the flattened surface of the valves, the shell is extraordinarily thick, the sides rising perpendicularly from the margin, and ultimately, at least in front, furnished at their summit with an overhanging edge; the thickness is excessive at the extremities, and especially behind. Seen from above, the outline is like that of a sheaf tied in the centre, with a knot appearing on each side; in front of and behind this knot is a constriction, and then the sides diverge in both directions to broad truncate extremities, the hinder of which is, at its termination, equal to half the length and two-thirds the height of the shell; while the somewhat narrower, though still very broad front extremity, has three rib-like projections, a central formed by the junction of the valves, and on each outer edge a lateral formed by the projected ledge of the upper lateral margin of the valves, while broad rounded furrows occupy the interspaces of the riblets; the outer riblets are continued backwards, slightly converging, until near the centre of the length of the dorsum they become effaced. The end view is in form a narrow round-topped arch, with a bulbous projection in the outer side of the middle of the lateral walls, base flat. Seen from below, the form is a long oblong, with nearly parallel sides, but rather narrower in front, both extremities broadly and abruptly truncate, a nodulous swelling near the middle on each side. Length, .8 mm.

Distribution.—This remarkable species was dredged by H. M. S. "Valorous," in Davis Strait, Stat. 6., lat. 64° 5' N., long. 56° 47' W., in 410 fath. (A. M. N.).

11. *Cytheridea sorbyana*, Jones.

Synonyms: *Cytheridea dentata* and *inermis*, G. O. Sars.

1868. *Cytheridea sorbyana*, Brady, Mon. rec. Brit. Ostrac., p. 428, pl. xxix., figs. 1-6.

1874. *Cytheridea sorbyana*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 180, pl. vii., figs. 7-12.

1874. Cytheridea sorbyana, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 180, pl. vii., figs. 7-12.

Additional localities.—80-100 fath., 20-25 miles N.N.W. from Burrafirth Lighthouse, Shetland; the Minch; and 112 fath. off Valentia, Ireland (A. M. N.).

Distribution.—Stoksund, in Hardanger Fiord, Norway, in 80-100 fath. (A.M.N.); Öxfjord, Finmark (G. O. Sars); Deevie Bay, Spitzbergen, Mr. Lamont, and off Cape Frazer, 80 fath., Capt. Feilden in Nares' Arctic Expedition (G. S. B.).

Fossil.—Crag: England. Post-tertiary: England, Scotland, Norway, Canada.

Cytheridea inæqualis, Brady and Robertson.

[The species, described by us under this name in "The Annals and Magazine of Natural History" for 1870, was taken by the dredge in the river Cam, at Ely. The probability is that the shell was a fossil one; and on this account we prefer, for the present, to withdraw it from the list of recent species.]

Genus V.—EUCY THERE, Brady.

= *Cytheropsis*, G. O. Sars.

[Type, *Eucythere declivis* (Norman).]

Eucythere declivis (Norman).

Synonym.—*Cytheropsis tenuitesta*, G. O. Sars.

1868. *Eucythere declivis*, Brady, Mon. rec. Brit. Ostrac., p. 480, pl. xxvii., figs. 22-26, and 52-55.

1868. *Eucythere argus* (G. O. Sars), idem, ibidem, p. 481, pl. xxvii., figs. 49-51. (variety).

1868. *Eucythere anglica*, idem, ibidem, p. 475, pl. xxv., figs. 49, 50 (variety).

1869. *Eucythere declivis*, var. *prava*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 18., pl. xxi., figs. 12-14.

1874. *Eucythere anglica*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 183, pl. x., figs. 12-15 (variety).

On a careful re-examination of a large series of specimens belonging to this genus, we are disposed to think that all ought to be referred to one species. That the extreme forms of the series differ very considerably from each other, both in form and surface-ornament, there can be no doubt; but there exist likewise numberless intermediate forms which it is extremely difficult, or perhaps impossible, to

assign with accuracy if more than one specific form be allowed. We do not see how the two forms described under the specific names *argus* and *anglica* can with propriety be retained as separate species. They are, in all probability, local and depauperized forms of *declivis*. The *declivis* and *argus* forms are very generally distributed round the British Islands, ranging usually between 15 and 40 fath. We have not been fortunate enough in any case to meet with shells containing the animal in a state sufficiently perfect for dissection.

A more remarkable variety than any yet described has been found by A. M. N. on the Shetland Haaf. It is of very large size (.7 mm.), side outline as usual, but gradually increasing in tumidity from behind forwards, until, at a short distance from the anterior extremity, it becomes extremely gibbous above, while the ventral margin below the gibbosity and the anterior extremity itself are depressed; the anterior extremity is much broader in proportion than in specimens of lesser size, and is obliquely rounded; the surface of the gibbous portion is more or less sculptured with a raised reticulation. Viewed dorsally, the breadth in front of the middle is greater than half the length, and the angle formed by the united valves in front is almost a right-angle.

This species is almost ubiquitous in the British seas, ranging usually from about 4 to 40 fathoms.

Distribution.—Christiania Fiord, and thence to the Lofoten Islands and Finmark (G. O. Sars), Christiania, Hardanger, and Oster Fiords, Norway; Fosse de Cap Breton, Bay of Biscay, 180–200 fath.; off Isle of Capri, and at Naples (A. M. N.); Gulf of St. Lawrence (G. S. B.).

Fossil.—Scotland, South Wales, Ireland, Norway, Canada.

Genus VI.—KRITHE, Brady, Crosskey, and Robertson.

= *Ilyobates*, G. O. Sars.

[Type, *Krithe bartonensis* (Jones).]

1. *Krithe bartonensis* (Jones).

1856. *Cytherideis bartonensis*, T. R. Jones, Mon. Tert. Entom., p. 50, pl. v., figs. 2 *a-b* and 3 *a-b*.

1865. *Ilyobates præterita*, G. O. Sars, Oversight af Norges marine Ostracoder, p. 60.

1868. *Ilyobates bartonensis*, Brady, Mon. rec. Brit. Ostrac., p. 482, pl. xxxiv., figs. 11–14; and pl. xl., fig. 5.

1874. *Krithe bartonensis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 184, pl. ii., figs. 22–26.

1880. *Krithe bartonensis*, Brady, Report "Challenger," Ostracoda, p. 118, pl. xxvii., figs. 2 *a-l*.

Additional localities.—Off North coast of Scotland; Roseneath and Rothesay, in the Firth of Clyde; off the coasts of Durham and North Yorkshire (G. S. B. and

D. R.), Inverary, and off Tarbert, Loch Fyne, 25 fath.; off Valentia, Ireland (A. M. N.).

Distribution.—Christiania Fiord, 6–20 fath., and thence to Lofoten Islands, 40–50 fath. (G. O. Sars), Dröbak, 30–100 fath.; Hardanger Fiord, 210 fath.; Oster Fiord, West Norway, 100–200 fath.; Fosse de Cap Breton, Bay of Biscay, 180–200 fath. (A. M. N.): “Challenger,” off the Ki Islands (between Australia and New Guinea), 580 fath., Stat. 191; and off Christmas Harbour, Kerguelen Island, 120 fath., Stat. 149 (G. S. B.).

Fossil.—Scotland, England, Norway, Calabria (Seguenza), var. *monosteracensis*.

This species is extremely variable. In some Norwegian examples the shell is so produced as to be three times as long as the height, and the dorsal margin so evenly and equally arched throughout that there is no posterior truncation, though the infero-posteal angle remains; in other narrow male forms the infero-posteal angle is exerted, and forms a little rostrum; while in some female forms the shell is so much shorter than usual, that the outline closely corresponds with that of *Krithe glacialis*, except that the supero-posteal portion of the shell is not quite so much protruded, and is rounded without angularity.

2. *Krithe producta*, Brady.

(Plate xvii., figs. 5–7.)

1880. *Krithe producta*, Brady, Report “Challenger,” Ostracoda, p. 114, pl. xxvii., figs. 1 a–g.

Shell of *female* more flexuous and more tumid than that of *Krithe bartonensis*. Seen from the side, subreniform; greatest height situated in the middle, and equal to more than half the length; anterior extremity well and evenly rounded, posterior obliquely subtruncated, rounded off above, and obscurely angulated below, often slightly sinuated above the middle; the margin itself below the middle of the valve is not seen, being incurved and hidden under a projecting lip which ends at the ventral angle; dorsal margin boldly arched, ventral almost straight. Seen from above, ovate, widest in the middle, width equal to quite half the length, pointed in front, wide, truncate, and centrally deeply emarginated behind. Surface of valves quite smooth, or beset with numerous minute, closely-set punctures, and a few distant circular tubercles. The shell of the *male* is much narrower and more elongated. The foregoing description applies to the left valve, the right valve differs considerably in outline, and is narrower behind. Length of female, 1.1 mm.; of male, 1.3 mm.

Distribution.—This is extensive. “Porcupine” Expedition, 1869, Stat. 19, lat.

54° 53' N., long. 10° 56' W., 1360 fath.; Stat. 74, lat. 60° 39' N., long. 3° 9' W., 203 fath. "Valorous" Exped., 1875, Stat. 12, lat. 56° 11' N., long. 37° 41' W., 1450 fath. (A. M. N.). The following are the places in which it occurred in the "Challenger" Expedition:—Three in the North Atlantic (Stats. 70, 76, 85), ranging from lat. 28° 42', to 38° 25' N., and long. 18° 6' to 35° 50' W., in 900 to 1675 fath.; one South Atlantic (Stat. 120), lat. 8° 37' S., long. 34° 28' W., 350 fath.; also midway between the Cape of Good Hope and Kerguelen Island; off North Brazil; off Prince Edward's Island, and off Sydney (G. S. B.).

3. *Krithe angusta*, n. sp.

(Plate xvii., figs. 10–13.)

Shell of *female* narrow, oblong; seen from the side, of nearly equal height throughout; anterior margin well and evenly rounded, posterior obliquely rounded, without angularity above or below; dorsal margin straight; ventral sinuated rather in front of the middle; greatest height scarcely more than one-third the length. Seen from above, narrow, cuneiform; greatest width posterior less than one-third of the length; gradually tapering forwards to an acute extremity; posterior extremity rounded (without the characteristic emargination of the genus). Shell of *male* more produced than that of the female, greatly elongated, of nearly equal height throughout, but slightly higher in front; greatest height less than one-third the length; anterior, dorsal, and ventral margins as in female; posterior more oblique, no angle above, but infero-posteal corner produced, the point rounded; the usual lip of the genus only slightly indicated. Seen from above, of the same shape as, but still more compressed than, the female; greatest width equal one-fourth the length; posterior extremity narrowly subtruncate, but not emarginate. Valves transparent, glossy, with a few scattered opaque white specks, and the extremities ornamented with a series of radiating white tubes, which traverse the substance of the shell. Length, 4 mm.

Although we have not taken these assumed ♂ and ♀ together, nor examined the animals, yet, from analogy, there seems to be every reason to suppose that they represent the two sexes of one species. Numerically, the species is very scarce, and easily overlooked on account of its small size. It has certainly nothing to do with the young of *K. bartonensis*, which are short, high, obese, and remarkably truncate behind.

Habitat.—*Female*: Oster Fiord, West Norway, 100–375 fath.; off Sartoro, Bergen Fiord, 15–40 fath. *Male*: Dröbak, Christiania Fiord, 100 fath.; Har-danger Fiord, off Stordöen, 210 fath. It has only as yet been found in the Norwegian seas (A. M. N.).

4. *Krithe reniformis* (Brady).

(Plate XXI., figs. 23, 24.)

1868. *Paradoxostoma* (?) *reniforme*, Brady, Contrib. to Study of Entomostraca, Ann. and Mag. Nat. Hist., ser. IV., vol. II., p. 224, pl. xv., figs. 1, 2.

Shell, seen from the side, elongated, elliptical, of nearly equal height throughout; greatest height at the anterior extremity, and equal to about two-fifths of the length; anterior extremity very broadly and evenly rounded, point of greatest projection central; posterior extremity nearly as broad as the anterior, its upper portion is obliquely cut away, but the extremity itself is rounded, the point of greatest projection being nearly central; dorsal margin perfectly straight in all its central portion, and without arcuation behind; sweeping down obliquely to the extremity, but in front the downward slope is well-arched; ventral margin with a short but rather deep sinuation in front of the middle; both before and behind the sinuation the margin is gently convex. Seen from above, the form is slightly cuneate, the greatest breadth rather less than the height, situated behind the middle; sides converging gradually in front to an acute extremity; behind they are rounded, and meet much more suddenly, so that the extremity is rather blunt. Valves thin, glassy, and pellucid, dotted with opaque white specks. Length, .50 mm.

The type specimens were found by G. S. B. in sand from Tenedos; it has since been dredged by A. M. N. in 180–200 fathoms, in the Fosse de Cap Breton, Bay of Biscay, and in shallow water at Naples. From an examination of these specimens we find that they belong to the genus *Krithe*.

5. *Krithe glacialis*, Brady, Crosskey and Robertson.1874. *Krithe glacialis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 184, pl. vi., figs. 21–26.

Shell of *female*, as seen from the side, subrhomboidal, almost equal in height throughout; height equal to half or sometimes nearly two-thirds of the length; anterior extremity evenly rounded, posterior obliquely truncate, angled at junction with dorsal margin, and pointedly angled at junction with ventral margin; dorsal margin gently arched; ventral slightly convex in front, nearly straight behind. Outline, as seen from above, ovate, widest in the middle, acutely pointed behind, rectangularly truncate in front, greatest width slightly exceeding

half the length, posterior extremity slightly emarginate at each side of the median line. End view nearly circular. Shell of the *male* narrower and longer, dorsal margin nearly straight; ventral nearly straight, but slightly convex in front; infero-posteal angle more pronounced, the overhanging lip at the infero-posteal portion of the shell (as usual in the genus) well developed. Shell surface smooth, bearing several scattered circular papillæ "and a few rather short thick hairs." Lucid spots large, oblong, four in a transverse row a little below and in front of the centre of the valve, and two or three a little in advance of the main group.*

Length: female, .75; male, .95 mm. These measurements are taken from fossil (Errol) examples. Our recent specimens are somewhat smaller.

Habitat.—"Porcupine" Exped., 1869; Stat. 41, lat. 49° 4' N., long. 12° 22' W., 584 fath. (A. M. N.).

Fossil.—Scotland (Errol), Norway.

Genus VII.—*LOXOCONCHA*, G. O. Sars.

= *Normania*, Brady.

[Type, *L. impressa*, Baird.]

1. *Loxoconcha impressa* (Baird).

(Plate XXIII, fig. 7.)

Synonyms: *Loxoconcha rhomboidea*, G. O. Sars (nec. *C. rhomboidea*, Fischer);
Cythere carinata, Brady.

1868. *Loxoconcha impressa*, Brady, Mon. rec. Brit. Ostrac., p. 483, pl. xxv., figs. 34-40; pl. xl., fig. 4.

1875. *Loxoconcha impressa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 185, pl. viii., figs. 1-4.

1888. *Loxoconcha rhomboidea*, Dahl, Die Cytheriden der Westlich. Ostsee, p. 22, pl. ii., figs. 59-67.; pl. iii., figs. 68-71.

This species is so universally distributed in the British seas, that it is needless to add, as might be done very largely, to the already long list of localities given in the "Monograph." It occurs in all sorts of situations, from depths of 60 fath. up to shallow estuaries, and in brackish and even fresh water; as, for instance, in the Belfast Canal, and in the rivers Deben at Woodbridge and Stour at Man-

* This is the usual arrangement of the lucid spots in the genus; sometimes one or more in the transverse row are constricted or divided (in *K. producta*, as figured in "Challenger" Report, three of them are completely divided); sometimes there are in addition one, two, or three scattered lucid spots between the transverse row and the dorsal margin. All the above variations have been noticed in *K. producta*.

ningtree. It seems, however, to be more abundant and more finely developed on the southern and Atlantic than on the north-east coasts.

Distribution.—Coasts of Norway and Finmark, generally distributed (G. O. Sars and A. M. N.); Sweden (Lilljeborg); Germany (Zenker); Fosse de Cap Breton, Bay of Biscay, 30–60 fath.; Naples (A. M. N.); West Baltic (Dahl).

Fossil.—Scotland, Ireland, Norway, Calabria (Seguenza).

2. *Loxoconcha guttata* (Norman).

1865. *Loxoconcha granulata*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 64.

1868. *Loxoconcha granulata*, Brady, Mon. rec. Brit. Ostrac., p. 484, pl. xxvi., figs. 51, 52.

1868. *Loxoconcha guttata*, idem, ibidem, p. 486, pl. xxvii., figs. 40–44.

1869. *Loxoconcha granulata*, idem, Nat. Hist. Trans. North. and Durham, vol. iii., p. 368, pl. xiii., figs. 5–7.

1874. *Loxoconcha guttata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 186, pl. viii., figs. 5–7.

1880. *Loxoconcha guttata*, Brady, Report "Challenger," Ostracoda, p. 120, pl. xxix., figs. 1 a–f.

1885. *Loxoconcha guttata*, Carus, Prod. Faunæ Mediterranæ, p. 305.

L. guttata (Norman) was described from full-grown examples of the species of which *L. granulata* is the condition in middle age. Young specimens are more elongated in proportion to their height; the surface is finely punctate, the edge of the valves acute; the shell, seen dorsally, has acute extremities. With increasing age the punctations pass by degrees through smaller foveolæ, until they become the cells of the adult; the margin of the valves also becomes more thickened, ultimately appearing as a fillet, and the consequence of this is in full-grown specimens to produce the aspect, when viewed from above, which is illustrated in fig. 41 of the "Monograph."

Additional localities.—Off the North of Scotland; Firth of Forth; Clyde district generally; off Dungeness Bay, and off Eddystone Lighthouse; North Yorkshire; in the river Bure, Norfolk; off Penarth Head; Ilfracombe; the Scilly Isles; Dublin, Clifden, Birturbuy, and Westport Bays, and Loughs Swilly and Mulroy, Ireland (G. S. B. and D. R.); Inverary, and off Skipness in Loch Fyne; the Minch; off Berry Head, in Start Bay, and Dartmouth Harbour, Devon; Killary Bay, Co. Galway, and in Valentia Harbour, Ireland (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Christiania Fiord, Norway, 10–12 fath. (G. O. Sars); Lervig Bay, Stordöen, Norway; Fosse de Cap Breton, Bay of Biscay, 30–200 fath.; off Isle of Capri, Mediterranean (A. M. N.); Vigo Bay, Spain, "Challenger;" and Port Said (G. S. B.).

Fossil.—Scotland (Drip Bridge), Sicily.

3. *Loxoconcha viridis* (Müller).

1785. *Cythere viridis*, Müller, Entomostraca, p. 64, pl. vii., figs. 1, 2 (*non* Brady).
 1853. *Cythere viridis*, Lilljeborg, De Crust. ex. Ord. tribus, p. 168, pl. xviii., figs. 4-6; pl. xix., figs. 3-5.
 1854. *Cythere flavida*, Zenker, Monographie der Ostrac. (Archiv. für Naturgesch.), p. 86, pl. iv. B.
 1854. *Cythere rhomboidea*, Fischer, Abhand. d. Bayer. Acad. d. Wissensch. Bd. 7, p. 656 (*vide* Lilljeborg).
 1865. *Normania grisea*, Brady, Trans. Zool. Soc., vol. v., p. 883, pl. lxi., figs. 10 *a-c*.
 1868. *Loxoconcha elliptica*, Brady, Mon. rec. Brit. Ostrac., p. 435, pl. xxvii., figs. 38-39, 45-48; pl. xl., fig. 3.
 1874. *Loxoconcha elliptica*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 188; pl. xiv., figs. 23-25.
 1885. *Loxoconcha elliptica*, Carus, Prod. Faunæ Mediterraneæ, p. 307.
 1888. *Loxoconcha elliptica*, Dahl, Die Cytheriden der Westlich. Ostsee, p. 28, pl. iii., figs. 90-95, 99-106.

Additional localities.—A species restricted almost exclusively to brackish or sub-brackish situations, but in such places almost ubiquitous in the British Islands. The following are recent additions to the list of habitats:—Near the mouths of many Northumbrian rivers, and of the Humber and Deben; also in the Broads of Norfolk and Suffolk, and throughout the Fen districts; Westport, Ireland (G. S. B. and D. R.); Dartmouth Harbour; Newport, Co. Mayo (A. M. N.).

Distribution.—Sweden (Lilljeborg); Denmark (Müller); Iceland; Holland, rivers Scheldt and Maas (G. S. B.); Germany (Zenker), Cap Breton, Bay of Biscay (A. M. N.); Mediterranean (Seguenza); Finland (Cajander.); West Baltic (Dahl).

Fossil.—Scotland (Govan), Wales, (Cardiff), Sicily (Seguenza).

The form *grisea* was described from an immature *L. viridis*. Similar examples may usually be found in collections of that species which exhibit fully the various stages of growth.

4. *Loxoconcha multifora* (Norman).

1868. *Cytheropteron multiforum*, Brady, Mon. rec. Brit. Ostrac., p. 449, pl. xxix., figs. 38-42.
 1874. *Loxoconcha multifora*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 187, pl. xiv., figs. 11, 12 *a, b*.

Though we have seen none but empty shells of this species, and are unable to assign it with certainty to any genus, we are disposed to think that its affinities are more with *Loxoconcha* than with *Cytheropteron*.

Additional localities.—Off north coast of Scotland; Cumbrae and Rotheray Bay; Budle Bay, Northumberland; off north Yorkshire coast; river Ouse, Norfolk; off Eddystone; Ilfracombe; Fowey Harbour, Cornwall; Scilly Isles; Clifden, Birturby, and Westport Bays, Ireland (G. S. B. and D. R.); Start Bay, Devon;

Roundstone Bay, Ireland (A. M. N.); Irish Channel and Belfast Lough (Malcomson); 150 miles off the Land's End, 200 fath. (A. M. N.).

Distribution.—Off Sartoro, Bergen Fiord, 15–40 fath.; Lervig Bay, Hardanger Fiord, Norway, 10–20 fath.; Fosse de Cap Breton, Bay of Biscay, 30–200 fath. (A. M. N.); river Scheldt, Holland (G. S. B.).

Fossil.—Ireland (Portrush).

5. *Loxococoncha pusilla*, Brady and Robertson.

(Plate xvii., figs. 24, 25.)

1870. *Loxococoncha pusilla*, Brady and Robertson, Ann. and Mag. Nat. Hist., Ser. iv., vol. vi., p. 23, pl. viii., figs. 1–8.

Carapace, as seen from the side, subrhomboidal, nearly equal in height throughout; height equal to half the length; extremities obliquely rounded; superior and inferior margins straight. Seen from above, the outline is regularly ovate, widest in the middle, extremities nearly equally acuminate, width considerably less than the height. Shell delicate and fragile, translucent, faintly rugose, and marked also with a few scattered hairs and opaque white papillæ. Length, 4mm.

Habitat.—Montrose Basin; Firths of Forth and Clyde; Budle Bay, Northumberland; off Seaton Carew, Co. Durham, 4 fath.; rivers Wansbeck, Blyth, Deben, Ouse (Norfolk); Scheldt, Holland—scarce in all these places (G. S. B. and D. R.). Westport, Ireland (A. M. N.); two miles N.E. of Muck Island, Irish Channel, 50 fath., and several places between tide-marks in Belfast Lough (Malcomson).

Its small size and peculiar shell-structure distinguish *L. pusilla* readily from *L. elliptica* and *L. tamarindus*, with which alone it could be confounded; moreover, the young of the latter, when of the same size as *L. pusilla*, are subtriangular, one end being much narrower, while the young of the former retain the elliptical form of the adult, and are thus much higher in proportion to length than those of *L. pusilla*.

6. *Loxococoncha tamarindus* (Jones).

Synonyms: *Cythere levata*, Norman; *Loxococoncha longipes*, G. O. Sars.

1868. *Loxococoncha tamarindus*, Brady, Mon. rec. Brit. Ostrac., p. 435, pl. xxv., figs. 45–48.

1874. *Loxococoncha tamarindus*, Brady, Crosskey, and Robertson, Mon. rec. Brit. Ostrac., p. 188, pl. viii., figs. 8–11.

1885. *Loxococoncha tamarindus*, Carus, Prod. Faunæ Mediterraneæ, p. 306.

1886. *Loxococoncha cucujiformis*, ♂ (Brady MS.), Malcomson, Recent Ostracoda of Belfast Lough, Proc. Belfast Naturalists' Field Club, p. 261, pl. xxv., figs. 1, 2.

One of the most abundant and widely-distributed of British *Loxococonchæ*; seldom,

however, in littoral situations. The long list of localities given in the "Monograph" might be supplemented by others from almost all parts of the British and Irish coasts.

Distribution.—In the Christiania Fiord, 20–30 fath., and thence to the Lofoten Islands (G. O. Sars); Lungegaards-vandet, Bergen; off Sartoro, 15–40 fath.; and other places in the Bergen and Hardanger Fiords, Norway; Cap Breton, S. W. France (A.M.N.); Messina (Seguenza); Iceland; Piræus (G. S. B.).

Fossil.—In the Crag of Suffolk (Jones). In Post-tertiary formations: Scotland, Ireland, Norway, Calabria, and Sicily.

7. *Loxococoncha fragilis*, G. O. Sars.

(Plate xvii., figs. 32–34.)

1865. *Loxococoncha fragilis*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 65.

1870. *Loxococoncha fragilis*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 24, pl. x., fig. 8.

1874. *Loxococoncha fragilis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 189, pl. xiv., figs. 80–82.

Shell of the *female*, seen from the side, subrhomboidal; greatest height situated in front of the middle, and equal to at least half the length; anterior extremity rounded, posterior produced in the middle into a short obliquely truncated process; superior margin moderately arched over the eyes, thence sloping gently backwards; inferior sinuated in the middle, convex behind. Seen from above, compressed; greatest width situated in front of the middle, and much less than the height; posterior extremity slender and produced. Valves excessively thin and fragile, almost transparent, ornamented sparingly with very small tubercles, and but slightly hairy. Margins produced, except on the dorsum, so as to form an encircling fillet, which is marked with radiating, hair-like lines. Shell of the *male* narrower; length equal to twice the height; superior margin nearly straight and horizontal; posterior extremity obtusely rounded below. "Antennæ very slender; second joint of the superior short, much shorter than the united lengths of the two following, and shortly pilose on the anterior margin, last three joints much elongated and nearly equal; third joint of inferior antennæ very narrow, its anterior margin smooth, without any setæ. Feet very slender, second joint of the last pair about equal to the conjoined length of the two following. Copulative organs of the male obtusely produced in front. Eyes confluent." Length of female, 5mm.

Habitat.—Montrose Basin, Greenock, and Firth of Forth, Scotland; Budle

Bay, Northumberland (G. S. B. and D. R.); off Valentia, Ireland, 112 fath. (A. M. N.).

Distribution.—Christiania Fiord; Lofoten Islands, rare (G. O. Sars; Lungegaards-vandet, Bergen (A. M. N.).

Fossil.—Scotland.

Genus VIII.—*XESTOLEBERIS*, G. O. Sars.

[Type, *Xestoleberis aurantia* (Baird).]

1. *Xestoleberis aurantia* (Baird).

Synonyms: *Cythere nitida*, Lilljeborg; *Cythere viridis*, Zenker.

1868. *Xestoleberis aurantia*, Brady, Mon. rec. Brit. Ostrac., p. 437, pl. xxvii., figs. 34–37; pl. xxix., fig. 6.

1874. *Xestoleberis aurantia*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 190, pl. xvi., figs. 32, 33.

Additional localities.—Cumbrae, in Firth of Clyde; Northumberland Coast, littoral but more common at the mouths of rivers; estuaries of the Fen district and Thames; off Dungeness Bay; off Eddystone and the Mumbles; Ilfracombe and Penarth Head; Scilly Isles; Dublin, Clifden, Westport, and Roundstone Bays, and Lough Swilly, Ireland (G. S. B. and D. R.); Shetland; Head of West Loch Tarbert, Argyleshire; Scarborough, Whitby, Robin Hood's Bay, and Filey Brig, Yorkshire; Start Bay, Salcombe, and off Berry Head, Devon (A. M. N.); Irish Channel, and Belfast Lough (Malcomson).

Distribution.—Norway; Christiania Fiord, and thence to Lofoten Islands (G. O. Sars); Bergen and Hardanger Fiords (A. M. N.); Sweden (Lilljeborg); Prussia (Zenker); rivers Scheldt and Maas, Holland; Franklin Pierce Bay, lat. 79° 25' N., Capt. Feilden in Nares' Arctic Voyage (G. S. B.).

Fossil.—Scotland, South Wales, Ireland, Norway.

2. *Xestoleberis depressa*, G. O. Sars.

1850. (?) *Cytherina tumida*, Reuss, Foss. Entom. Oesterr. Tert. Beckens, p. 57, pl. viii., fig. 29.

1858. (?) *Cytheridea tumida*, Egger, Ostrak. Miocän-Schicht. Ortenburg, p. 17, pl. ii., fig. 11.

1868. *Xestoleberis depressa*, Brady, Mon. rec. Brit. Ostrac., p. 438, pl. xxvii., figs. 27–33.

1874. *Xestoleberis depressa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 190, pl. vii., figs. 13–19.

1878. *Xestoleberis depressa*, Brady, Ostracoda of Antwerp Crag, p. 400, pl. lxxvi., figs. 8 a–d.

1880. *Xestoleberis depressa*, Brady, Report "Challenger" Ostracoda, p. 124, pl. xxxi., figs. 1 a–g.

1885. *Xestoleberis depressa*, Carus, Prod. Faunæ Mediterraneæ, p. 308.

This species is so generally distributed, that it is needless to add to the list of localities given in the "Monograph." It is found all round the British coasts in depths varying from 2 to 50 fath., and even in greater depths.

Distribution.—Generally dispersed on Norwegian and Finmark coasts (G. O. Sars); Bergen and Hardanger Fiords, many places (A. M. N.); Spitzbergen (G. S. B.); Holstenbourg and Godhavn Harbours, Greenland; also in Davis Strait, lat. $69^{\circ} 31' N.$, long. $56^{\circ} 1' W.$, 100 fath., "Valorous" Exped. (A. M. N.); Bay of Biscay; Gulf of St. Lawrence (G. S. B.); Messina (Seguenza); Kerguelen Island, 20–25 fath., and lat. $52^{\circ} 4' S.$, long. $71^{\circ} 22' E.$, 150 fath., "Challenger" (G. S. B.).

Fossil.—Crag: Antwerp. Post-tertiary: Scotland, Ireland, Norway, Canada, Sicily, Calabria (Seguenza).

3. *Xestoleberis labiata*, Brady and Robertson.

(Plate xvi., figs. 27, 28.)

1874. *Xestoleberis labiata*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. xiii., p. 116, pl. iv., figs. 8–15.

1885. *Xestoleberis labiata*, Carus, Prod. Faunæ Mediterraneæ, p. 308.

Shell of *female*, as seen from the side, oblong, subtriangular, highest in the middle; height equal to rather more than half the length; anterior extremity narrow, sharply rounded off; posterior wide, obtusely rounded; superior margin well arched; inferior nearly straight, but produced downwards towards the posterior extremity into a bulging prominence. Seen from above, the outline is broadly ovate, tapering rapidly in front to an acute point, and very broadly rounded behind; greatest width equal to the height, and situated behind the middle. The shell of the *male*, seen laterally, is more slender and less tumid behind; seen from above, it is much more compressed and widest near the middle, the posterior extremity being somewhat narrowly rounded. The surface of the valves is smooth, distantly studded with small elevated round papillæ. The chief peculiarity of the species, however, is a remarkable labiate projection of the postero-inferior angle of the shell, which is very conspicuous on the right valve. Length, .6 mm.

Habitat.—Scilly Islands, 14 fath. (G. S. B. and D. R.); Salcombe, Devon; Falmouth (A. M. N.).

Distribution.—Messina, Sicily (Seguenza), off the Isle of Capri, Bay of Naples, 40 fath. (A. M. N.).

Fossil.—Sicily (Seguenza).

4. *Xestoleberis margaritea*, Brady.

(Plate XVI., figs. 25, 26.)

1865. *Cytheridea margaritea*, Brady, Trans. Zool. Soc., vol. v., p. 370, pl. lviii., figs. 6 a-d.
 1868. *Xestoleberis intermedia*, Brady, Les Fonds de la Mer, vol. i. (6^{me} & 7^{me} Livraisons), p. 94, pl. xii., figs. 3-7.
 1880. *Xestoleberis margaritea*, Brady, Report "Challenger" Ostracoda, p. 127, pl. xxx., figs. 2 a-g.
 1885. *Xestoleberis margaritea*, Carus, Prod. Faunæ Mediterraneæ, p. 307, ♀.
 1885. *Xestoleberis intermedia*, ibid, ibidem, p. 307, ♂.

Shell of *female*, tumid; seen from the side ovate; greatest height situated behind the middle, and equal to two-thirds of the length; extremities evenly rounded; dorsal margin moderately arched; ventral slightly sinuated in front of the middle. Seen from above, the outline is broadly ovate, pointed in front, and well rounded behind; width equal to the height. End view obscurely angulated above, broad and somewhat emarginate below. Surface of valves smooth, marked with a few distant small papillæ. Colour pearly-white, with translucent or milky cloudings. Length, .5 mm. The *male* is longer and less tumid.

Distribution.—Bay of Biscay, Marquis de Folin; Mediterranean; Mauritius(?); and by the "Challenger," Stat. 187, lat. 10° 36' S., long. 140° 55' E., 6 to 8 fath., off Booby Island (G. S. B.).

Our figure is drawn from a specimen dredged in the Bay of Biscay, altogether smaller and less tumid than the typical Mediterranean form, but in all other respects agreeing closely with it. The form described by Dr. Brady as *X. intermedia*, we now consider to be the male of *X. margaritea*.

Genus IX.—CYTHERURA, G. O. Sars.

[Type, *Cytherura gibba* (Müller).]1. *Cytherura gibba* (Müller).

(Plate XVIII., figs. 13-16, Plate XXII., figs. 6-12, and Plate XXIII., fig. 8.)

1785. *Cythere gibba*, Müller, Entomotraca, p. 66, pl. vii., figs. 7-9, ♀.
 1785. *Cythere gibbera*, ibid, ibidem, p. 66, pl. vii., figs. 10-12, ♂.
 1853. *Cythere gibbera*, Lilljeborg, De Crust. ex Ord. tribus, p. 167, pl. xix., figs. 1, 2, ♂.
 1854. *Cythere gibba*, Zenker, Monog. der Ostrac. (Archiv. für Naturgesch.), p. 84, pl. v., D. ♂. ♀.
 1864. *Cytherura gibba*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 70, ♂. ♀.
 1868. *Cytherura robertsoni*, Brady, Mon. rec. Brit. Ostrac., p. 444, pl. xxxii., figs. 16-18, ♀.
 1874. *Cytherura robertsoni*, Brady, Crosskey and Robertson, Mon. Post-tert. Entom., p. 221, ♂. ♀.
 1880. *Cythere gibba*, Wilh. Müller, Zeits. für die Gesamm. Naturwiss. VI., p. 248, pl. v., figs. 7, 12, 13, ♂. ♀.
 [non *Cytherura gibba*, Brady, Mon. rec. Brit. Ostrac.]

Shell of female subovate, height in front and behind nearly equal, greatest height subequal to half the length; anterior extremity widely rounded, dorsal

margin nearly straight in the middle portion, ventral margin sinuated. Seen from above, greatest width behind the centre. Shell of the male more elongated, oblong; seen from above, sinuated on each side about the middle of the length. Surface of valves punctate and very markedly and regularly reticulated with a network of raised lines.*

So much of the description applies both to this and the following species. *C. gibba* has the following additional characters, which distinguish it from *C. cornuta*.—

In both sexes of *C. gibba* the beak at the hinder extremity is small, and in the form of an inconspicuous central, rounded protuberance. The *female* has on each valve, just behind the middle, and projecting outwards from the ventral margin, a more or less conspicuous semioval flattened lateral protuberance or ala. Seen from *below*, the widest part is behind the middle where the just-described lateral ala forms a rounded prominence; the outline tapers in front to a sharp extremity, while the hinder end is broadly rounded, presenting only a minute median mucronate point, so small that it can hardly be called a beak. The *male*, seen from the side, instead of the flattened semioval lateral ala of the female, has the posterior portion of the shell regularly and evenly swollen into a rounded protuberance, in front of which a constriction passes transversely across the valves. The reticulation of the valves is much more elegantly developed in this species than in the next. Colour, greenish-black, either concolorous, which it commonly is in the female, or having a central transverse fascia, and the extremities of the shell creamy white. Length of male, .55 mm.; of female, .45 mm.

Habitat.—This is a typical brackish-water species, and often occurs abundantly in places where the admixture of saline ingredients is very slight. The following partial list of habitats will suffice to show its wide distribution:—River Clyde at Greenock; Montrose Basin; near the mouth of several Northumberland rivers; in the rivers Deben, Stour, and Ouse; in many of the Norfolk Broads; brackish pond at Westport, Co. Mayo; canal at Belfast (G. S. B. and D. R.); Head of West Loch Tarbert, Argyleshire; Seaton Sluice, Northumberland; Dartmouth Harbour; Newport, Ireland (A. M. N.); ? Irish Channel (Malcomson).

Distribution.—Norway (G. O. Sars); Sweden (Lilljeborg!); Denmark (Müller); Prussia (Zenker); Pomerania (Wilh. Müller!); Finland (Cajander); rivers Scheldt and Maas, Holland (G. S. B.).

Fossil.—Scotland (Loch Gilp), Norway.

* It is worth notice that the central areola, so characteristic of the shells of almost all *Cytherea*, is not a mere pigment patch, but consists of denser and more resistant tissue than the rest of the valve—perhaps a sort of defensive buckler over the central part of the animal. It offers more mechanical resistance to pressure, and is less easily acted on by chemical re-agents. When treated with acid it is often left entire after the rest of the shell has disappeared.

2. *Cytherura cornuta*, Brady.

(Plate XVIII., figs. 21, 22.)

1868. *Cytherura cornuta*, Brady, Mon. rec. Brit. Ostrac., p. 445, pl. xxxii., figs. 12-15 ♀.
 1868. *Cytherura gibba*, idem, ibidem, p. 444, pl. xxxii., figs. 68-70, ♂ (*non C. gibba*, Müller).
 1868. *Cytherura affinis*, idem, ibidem, p. 443, pl. xxxii., figs. 19-21, ♀ variety (*vic C. affinis*, Sars).
 1868. *Cytherura lineata*, idem, ibidem, p. 441, pl. xxxii., figs. 30-34, 67 (*junior*).
 1874. *Cytherura cornuta*, Brady, Crosskey, and Robertson, Mon Post-tert. Entom., p. 199, pl. xiii., figs. 23-25, ♀.
 1874. *Cytherura gibba*, idem, ibidem, p. 198, pl. xiii., figs. 26-29, ♂.
 1878. *Cytherura cornuta*, Brady, Ostracoda Antwerp Crag, Zool. Trans., vol. x., p. 402, pl. lxvi., figs. 9 a-k.
 1885. *Cytherura cornuta*, Carus, Prod. Faunæ Mediterranæ, p. 309.

The male of this species was mistaken in the "Monograph" for that of *C. gibba*, Müller, but the true *C. gibba* is the last species, which has generally been known in this country as *C. robertsoni*.

The female, viewed laterally, is not unlike that of *C. gibba*, from which it may be distinguished by the following characteristics. The posterior beak is much more pronounced, and forms a large angular process situated rather above the middle of the posterior extremity. There is no semi-ovate lateral ala, as in *C. gibba*, but instead of this the ventral margin is acute, and at a short distance above it on the side is a longitudinal rib, which, sometimes in the adult and always in the young, terminates posteriorly in a spinous point. The outline, seen from below, is pretty evenly ovate, the widest part being, if anything, in front of the middle; posterior extremity narrow, and having a conspicuous large central beak. The male is distinguished from that of *C. gibba* by the keel or rib, which, as in the female, runs along the side a little within the ventral margin, but does not end in a spine; the protuberance on the hinder part of the shell is more prominent and boss-like than in the female; the depression anterior to this commences above the boss, and thence passes obliquely forwards and downwards; the posterior rostrate process is much larger, and situated above the middle: seen from below, the outline is cuneiform, the greatest breadth being close to the posterior extremity; just in front of the rostrum the boss on each side projects beyond and conceals the rib. Length of female, .40 mm.; of male, .45 mm.

Cytherura lineata of the "Monograph" is the young condition of this species. In early stages the outline approaches more and more towards a triangular form as the age is less, the lateral rib terminates behind in a spine, and the surface sculpture consists of longitudinal striæ instead of the reticulation of the mature animal.

Additional localities.—Off the North coast of Scotland; Loch Fyne, Loch Ryan, and many places in the Firth of Clyde; off the Scilly Isles; Dublin, Westport,

Clifden, and Roundstone Bays, and Mulroy Lough, Ireland ; between tide-marks at Boulmer, Northumberland (G. S. B. and D. R.); Unst Haaf, Shetland; the Minch; Inverary; Berwick-on-Tweed; Salcombe, Devon (A. M. N.); Irish Channel, and Belfast Lough (Malcomson).

Distribution.—Dardanelles (G. S. B.).

Fossil.—Scotland, Ireland, Norway.

3. *Cytherura affinis*, G. O. Sars.

(Plate XVIII., figs. 19, 20.)

1865. *Cytherura affinis*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 77.

Shell, seen from the side, somewhat oblong, greatest height not quite equal to half the length; anterior margin very broadly and evenly rounded; posterior produced into a well-pronounced beak, which is situated above the middle, and has its termination obliquely truncate; dorsal margin forming a very low and depressed arch, with a very slight angularity in front of the middle; ventral margin scarcely concave, the concavity evidenced chiefly in front where at its junction with the anterior margin an angularity is formed. Valves very tumid below, where they are projected outwards and form a sharply-keeled edge; from this point of greatest tumidity the sides abruptly converge, like the gable of a house, and meet acutely above; just in front of the middle in the region of the lucid spots, which form a transverse row and are unusually near the ventral margin, there is a slight transverse depression. Surface of valves more or less reticulated, and sculptured with round puncta, which have a tendency to arrange themselves in longitudinal lines. Seen from above, the outline is elongated-subovate, the width fully equal to the height, the sides somewhat flattened, and obscurely sinuated in the position of the transverse furrow already described; in front the extremity is pointed, the sides, rather rapidly and flatly converging, form at their union an angle of about 80 degrees; behind they arcuately converge, and the rostrum forms a mucronate projection. Seen from below, the base is very broad and remarkably flat, and sculptured with longitudinal striæ. Length, .6 mm.

Distribution.—As yet only known in Scandinavia, Öxfjord, Finmark (G. O. Sars), Dröbak, Christiania Fiord, 120 fath.; and off Midso Lighthouse, Hardanger Fiord, 50–100 fath. (A. M. N.).

Fossil.—Norway (G. O. Sars).

The young differ from the adult in being less high in proportion to the length, the beak more central, the lateral ridge terminating behind in a spine-point, the surface much more strongly reticulate than in the adult, and the riblets more raised. It

reminds us of the young of *C. cornuta* (= *C. lineata*, Brady), but is higher in proportion to the length, and the sculpture different.

The shorter, higher, and more roundedly ventricose *C. affinis* of Brady, *Mon. Pl.* xxxii., figs. 19–21, is not the present species, but a variety of *C. cornuta* in which the lateral rib is not developed behind.

4. *Cytherura sella*, G. O. Sars.

(Plate XVIII., figs. 3–6.)

1865. *Cytherura sella*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 73, ♂ ♀.
 1868. *Cytherura cuneata*, Brady, Mon. rec. Brit. Ostrac., p. 442, pl. xxxii., figs. 85–88, 68, ♂.
 1869. *Cytherura flavescens*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 49, pl. viii., figs. 19–15 ♀.
 1869. *Cytherura flavescens*, idem, ibidem, vol. iii., p. 391, pl. xx., figs. 13, 14.
 1874. *Cytherura flavescens*, Brady, Crosskey, and Robertson, Mon. Post.-tert. Entom., p. 193, pl. xi., figs. 43–46 and pl. xvi., figs. 7, 8.
 1874. *Cytherura cuneata*, idem, ibidem, p. 196, pl. xi., figs. 42–47; pl. xii., fig. 15; pl. xiii., figs. 96, 97.
 1885. *Cytherura cuneata*, Carus, Prod. Faunæ Mediterraneæ, p. 309.

Female.—The lateral view is rhomboidal, but the height is equal to just half the length, and the posterior beak is less prominent than in the male. Seen from above, the shape is ovate, widest in the middle and tapering towards each extremity, width decidedly less than half the length, anterior extremity acuminate, posterior mucronate. The surface-sculpture is generally similar to that of the male, but the lattice-work is much coarser, and the interspaces are not so delicately punctated. Length, .43 mm.

Male.—Shell, seen from the side, subrhomboidal, height nearly equal throughout, scarcely equal to half the length; anterior extremity obliquely rounded; posterior produced about the middle into a short truncated or obtusely rounded beak, sinuated below the middle; superior margin almost straight or very feebly arched; inferior straight. Seen from above, the outline is wedge-shaped, greatest width situated near the posterior extremity and equal to the height; subacuminate in front, broadly mucronate behind. The surface is marked with distinct but delicate longitudinal ribs and with sinuous cross bars, which are somewhat irregular in distribution; the interspaces of the reticulations are finely punctate, this pattern being best seen on the posterior tuberosities of the shell. Length, .48 mm.

Specimens described in the "Monograph," as the female *C. cuneata*, are really only a less slender form of the male. The true female had not then been seen, and the few specimens of the female first subsequently found—lacking some of the most conspicuous characters of the male as to shape and sculpture—were erroneously

referred to a new species, under the name of *C. flavescens*. The large series of specimens which have of late years come under our observation leave no room to doubt the identity of the two forms, and wherever one occurs in abundance the other is sure to be found in equal numbers.

Cytherura sella occurs plentifully all round the British Islands, ranging from a depth of thirty fathoms or more up to low-water mark. It occurs also frequently in estuarine situations.

Distribution.—Christiania Fiord, 3–8 fath., rare (G. O. Sars); Lervig Bay, Stordöen, and Stoksund, 126 fath. (A. M. N.); Iceland; rivers Scheldt and Maas, Holland (G. S. B.); Fosse de Cap Breton, Bay of Biscay, 180–200 fath. (A. M. N.); Eastern Mediterranean, Smyrna (G. S. B.).

Fossil.—Scotland.

5. *Cytherura acuticostata*, G. O. Sars.

1868. *Cytherura acuticostata*, Brady, Mon rec. Brit. Ostrac., p. 445, pl. xxxii., figs. 1–11.

1874. *Cytherura acuticostata*, Brady, Crosskey, and Robertson, Mon. Post-tert Entom., p. 199, pl. xvi., figs. 1–3.

1885. *Cytherura acuticostata*, Carus, Prod. Faunæ Mediterraneæ, p. 811.

One of the commonest and most widely distributed species of the genus, varying, however, very considerably in external appearance, so far as that depends on the development of the characteristic surface-ridges and their spines.

This is one of the commonest and most abundant of British ostracoda, and must be looked upon as a purely marine form, notwithstanding its occurrence in such estuarine situations as the rivers Blyth, Humber, and Ouse, and even in fresh water at Whittlesea Dyke. Its usual habitat is in the sea, ranging from about 4 fathoms downwards. It is found at all points of the British coasts.

Distribution.—Christiania Fiord (G. O. Sars); Oster Fiord; Batalden, near Florø; Bergen Fiord; Lervig Bay (A. M. N.); Messina (Seguenza); off Capri, Bay of Naples (A. M. N.).

Fossil.—Scotland (Oban), Ireland (Belfast), Norway.

6. *Cytherura striata*, G. O. Sars.

(Plate XVIII., figs. 17, 18.)

1868. *Cytherura striata*, Brady. Mon. rec. Brit. Ostrac., p. 441, pl. xxxii., figs. 26-29, 62, 64, 65, ♂.
 1868. *Cytherura quadrata*, Norman, Last Report Dredging among the Shetland Isles, Brit. Assoc. Report., p. 292, ♀.
 1872. *Cytherura quadrata*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. ix., p. 55, pl. i., figs. 10, 11.
 1874. *Cytherura quadrata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 195, pl. xi., figs. 38-41.
 1874. *Cytherura striata*, iidem, ibidem, p. 196, pl. xiii., figs. 34, 35.
 1885. *Cytherura striata*, Carus, Prod. Faunæ Mediterraneæ, p. 310.
 1885. *Cytherura quadrata*, idem, ibidem, p. 311.

The female (*C. quadrata*, Norman) differs from the male in being shorter and higher, the ventral margin quite straight, the ala more developed, and the shell more tumid, and when seen from above its greatest width is situated towards the anterior extremity.

This is one of the commonest of the *Cytheruræ*, occurring in tidal pools, as well as in all depths of water round the British coasts, and extending commonly into the estuaries of rivers on the east coast of England and in Holland. G. S. B. and D. R. have found it also in freshwater dykes at Whittlesea. Any complete list of habitats would have to include almost all our marine dredgings.

Distribution.—Christiania Fiord, 3-8 fath. (G. O. Sars); Dröbak, 30-120 fath.; Haakelsund, Kors Fiord, 3-10 fath., and Lervig Bay, 10-25 fath., Norway (A. M. N.); rivers Scheldt and Maas, Holland (G. S. B.); Messina (Seguenza); Naples (A. M. N.).

Fossil.—Scotland, South Wales, Ireland, Norway, Canada, and Calabria.

7. *Cytherura exserta*, n. sp.

(Plate xx., figs. 24, 25.)

Shell, seen from the side, oblong; height nearly the same throughout, equal to two-fifths of the length; anterior margin broadly and evenly rounded, greatest protrusion central; posterior extremity with a very short beak situated slightly above the middle, its termination broadly truncate; dorsal and ventral margins subparallel, the former arcuately declining in front, while the hinder slope is scarcely convex; the latter slightly concave. Valves compressed at the extremities, very

tumid throughout their central portion, but having a slight depression towards the dorsal margin just in front of the middle, surface sculptured with longitudinal riblets. Seen from above, the aspect is unlike that of any other *Cytherura*, the central portion forms a short and very broad oval, the sides of which are very convex; greatest width much exceeding the height, and equal to more than half the length; beyond this oval the extremities are alike, the sides suddenly converging are projected forwards (or backwards) and form mucronate points. Length, .30 mm.

This is a very minute species, with strongly marked characters. Small as the size is, the shells have nothing of the appearance of immaturity, but are strongly calcareous.

Habitat.—Two specimens, dredged in 126 fath., in Stoksund, near the mouth of the Hardanger Fiord, Norway, in 1879 (A. M. N.).

8. *Cytherura angulata*, Brady.

(Plate XIX., figs 7, 8.)

1868. *Cytherura angulata*, Brady, Mon. rec. Brit. Ostrac., p. 440., pl. xxxii., figs. 22–25.

1870. *Cytherura insolita*, Brady, Nat. Hist. Trans. Northumberland and Durham, vol. iii., p. 871, pl. xiii., figs. 11, 12 (*monstrositas*).

1874. *Cytherura angulata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 197, pl. xii., fig. 14; pl. xi., figs. 48–51.

C. angulata occurs in dredgings from all parts of the British Seas, and in all depths of water from tide-marks to 30 fathoms; numerically, however, it is not by any means so common as many other species of *Cytherura*.

Distribution.—Norway, in the following places—Lervig, Stordöen, 3–25 fath.; Stoksund, 126 fath., and Dröbak, 30–100 fath. (A. M. N.); rivers Scheldt and Maas, Holland (G. S. B.).

Fossil.—Scotland, South Wales (Cardiff), Ireland, Norway.

9. *Cytherura atra*, G. O. Sars.

(Plate XVII., figs. 22, 23.)

1865. *Cytherura atra*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 75.

1874. *Cytherura similis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 192 (*partim*), pl. xi., figs. 16–18.

Shell of *female*, seen from the side, obliquely quadrangular, or subrhomboidal; greatest height sub-equal to half the length; anterior margin obliquely rounded, posterior obliquely truncate, or produced above the middle into a very short and

obtuse process; dorsal margin evenly arched; ventral gently sinuated, with an obtuse posterior angle. Seen from above, the form is ovate, greatest breadth situated behind the middle, rather less than the height, gradually attenuated in front and behind. Surface of valves distinctly and somewhat regularly reticulated, no median arcola. The whole shell remarkable for its deep black colour. Antennæ and antennules more robust than usual, terminal joint of the antennules very short. Terminal nail of feet moderately large and strong; second joint of last pair rather longer than combined length of two following joints. *Male* unknown. Length, .51 mm.

Habitat.—Very rare in the Lofoten Islands, in 3–8 fath. (G. O. Sars).

The above is Sars' description of the species, and the figures are taken from one of his specimens in the collection of A. M. N.

Fossil.—Post-tertiary: Scotland (Loch Gilp, Barrie, &c.).

10. *Cytherura undata*, G. O. Sars.

(Plate XIX., fig. 12 (*junior*)).

Synonym: *Cytherura humilis*, Brady.

1868. *Cytherura undata*, Brady, Mon. rec. Brit. Ostrac., p. 448, pl. xxxii., figs. 43–49, 66.

1868. *Cytherura pumila*, Norman, Last Report Dredging among the Shetland Isles, Brit. Assoc. Report, p. 392 (name only).

1874. *Cytherura undata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 194, pl. xi., figs. 9–15; pl. xii., fig. 17.

1874. *Cytherura pumila*, *idem*, *ibidem*, p. 198, pl. xii., figs. 33–35 (*junior*).

A widely-distributed species, occurring in moderate depths of water all round the islands, and reaching into the estuaries of rivers on the Northumberland coast; rarely found between tide-marks, but scarcely ever missing in dredged material from the British coasts.

Distribution.—Christiania Fiord, 3–8 fath., and thence to Finmark (G. O. Sars); Batalden, near Florø, 200 fath.; Dröbak, 120 fath.; Lervig Bay, 10–25 fath.; Stoksund, 126 fath.; Bukken, in Bergen Fiord, 40 fath. (A. M. N.); river Scheldt, Holland; Spitzbergen; Cumberland Inlet; Baffin's Bay, lat. 66° 10' N., long. 67° 15' W., 15 fath. (G. S. B. and D. R.): "Valorous" Expedition, Holsteinborg Harbour, 10 fath., and Davis Strait, Stat. 3, lat. 69° 31' N., long. 56° 1' W., 100 fath. (A. M. N.); Franklin-Pierce Bay, 13–15 fath., Capt. Feilden, in Nares' Arctic Voyage; Gulf of St. Lawrence (G. S. B.).

Fossil.—Scotland, Ireland, Norway, Canada.

We have come to the conclusion that *Cytherura pumila* of the Post-tertiary Monograph, which we here figure (Pl. XIX., fig. 12), must be regarded as the young of this species. It has a very different shape from the adult; the surface is densely punctate all over; at first one or two slight folds appear, and these

gradually increase in size and number, until the strongly ribbed state of the adult is attained. With the development of the ribs, there at the same time takes place an overgrowth on all parts of the surface, which entirely obliterates all traces of the punctation characteristic of the young shell.

11. *Cytherura producta*, Brady.

(Plate XIX., figs. 5, 6.)

1868. *Cytherura producta*, Brady, Mon. rec. Brit. Ostrac., p. 448, pl. xxxii., figs. 60, 61.

1874. *Cytherura producta*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 198, pl. xiii., figs. 80-88.

Additional localities.—This is one of the less common species, occurring usually in small numbers. Additional localities are Firth of Clyde, in several places; off the coasts of Durham and North Yorkshire; Dungeness Bay; off Eddystone Lighthouse; in the rivers Aln and Thames; the Scilly Isles; Westport and Roundstone Bays, and Mulroy Lough, Ireland (G. S. B. and D. R.); Bressay Sound, Shetland, tide-marks; off Tarbert, Loch Fyne, 25 fath. (A. M. N.); Irish Channel, and Island Magee, near Belfast (Malcomson).

Distribution.—Off Sartoro, Bergen Fiord, 15-40 fath.; and Lervig Bay, Stordöen, Norway (A. M. N.); river Scheldt, Holland (G. S. B.).

Fossil.—South Wales (Cardiff New Dock Basin).

12. *Cytherura grænländica*, n. sp.

(Plate XVIII., figs. 23, 24.)

Shell, seen from the side, somewhat peach-stone shaped; greatest height central, more than half the length; anterior margin subtruncate, or even slightly emarginate, most produced below the middle; posterior extremity with a well-pronounced, sub-central beak, which has its termination obliquely truncate; dorsal margin boldly arched, anterior declination much arched, posterior slope scarcely convex; ventral margin slightly sinuated in front, no angulation at its junction with the anterior margin, the margin behind the anterior sinuation is boldly convex. Valves moderately, and tolerably evenly convex, without angularity below, and not forming an acute ridge at their junction dorsally, as is the case in *C. affinis*, which the present resembles in its combination of reticulation and punctation of the surface sculpture. Seen from above, the greatest width, which is much less than the height and sub-equal to two-fifths of the length, is posterior, the sides thence at first very slowly, but at two-thirds the length more

rapidly but still gradually converge, in such a way that the anterior extremity is conical, with well-rounded and wide termination; behind the valves converge with an abrupt arcuation, and the rostrate process forms a small mucro. Viewed from below, the base is of moderate width, not flattened, and rounded at the sides. Length, .45 mm.

Habitat.—Holsteinborg Harbour, Greenland, 10 fath., "Valorous" Expedition, 1875 (A. M. N.); off Cape Frazer, 80 fath., Captain Feilden, in Nares' Arctic Expedition (G. S. B.).

In dorsal outline *C. græulanica* resembles most closely *C. sellu* ♂: but the lateral aspect and style of surface sculpture is altogether different. In surface sculpture it resembles *C. affinis*, but in lateral and dorsal aspects, and especially in the different kind of tumidity of the shell and absence of flattened ventral surface, it is far removed from that species. Lastly, as regards the lateral view, it assimilates rather closely to *C. concentrica*, but the very peculiar dorsal form is different.

13. *Cytherura nigrescens* (Baird).

(Plate XIX., figs. 1, 2.)

1868. *Cytherura nigrescens*, Brady, Mon. rec. Brit. Ostrac., p. 440, pl. xxxii., figs. 50-56; and pl. xxxix., fig. 7.

1874. *Cytherura nigrescens*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 192; pl. xi., figs. 28-32; and pl. xii., fig. 13.

1888. *Cytherura nigrescens*, Dahl, Die Cytheriden der Westlich, Ostsee, p. 30, pl. iii., figs. 107-109; pl. iv., figs. 110-114.

This species is found all round the British shores, ranging from tide-marks down to depths of at least 30 fathoms. It occurs also commonly in estuarine situations near the mouths of rivers, notably in those of Holland and the East Coast of England, and we have found it also in freshwater dykes at Whittlesea.

Distribution.—Sars says that it is found everywhere living upon algæ, near the shore of Norway—a statement which we (A. M. N.) can fully confirm; rivers Scheldt and Maas; Holland (G. S. B.); Fosse de Cap Breton, Bay of Biscay (A. M. N.).

Fossil.—Scotland, England, Ireland, Norway, and Canada.

14. *Cytherura simplex*, n. sp.

(Plate XVIII., figs. 1, 2.)

1872. *Cytherura simplex* (name only), Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. xi., p. 66.

1874. *Cytherura sarsii* ("local variety"), idem, ibidem, vol. xiii., p. 117, pl. iv., figs. 6-7.

Shell of *male* (?), seen from the side, greatly elongated, siliquose, of nearly equal height throughout, height to length as three to eight; anterior extremity well

rounded, without angularity above or below, greatest projection central; posterior extremity much narrower, not beaked, subtriangular, apex of triangle (*i. e.* extremity) central, obtuse, and rounded; dorsal margin forming a much depressed arch throughout, posterior declination rather steeper than the anterior; ventral margin slightly incurved throughout all its anterior portion, the sinuation closely corresponding in arcuation with the dorsal margin, at one-fourth of the length from behind an angularity is produced by the ventral margin here sweeping upwards and backwards without curvature to the extremity. Seen from above, the form is narrowly boat-shaped, the sides subparallel, the breadth less than the height and equal to one-third only of length; anterior extremity, or "bows," moderately sharp; posterior, or "stern," broadly rounded. Valves glassy and pellucid; the angulation of the ventral margin is made more evident from the fact that there is here a minute plica just within the edge, which plica sometimes terminates in a microscopic spine-point; central areola very narrow, occupying a much smaller part of the valves than in the allied species *C. nigrescens*, *C. similis*, and *C. rudis*, margined by an opaque white line, its front edge commences dorsally at one-fourth of length from anterior extremity, and passes downwards at first nearly transversely, then bends suddenly with a flexuous wave obliquely backwards, the areola behind is deeply and widely emarginate, so that its lower and posterior portion is tongue-shaped; from this tongue and from the front edging line numerous opaque hair-like lines radiate through the substance of the shell. Length, .5 mm.

Habitat.—St. Ninian's Bay, Isle of Bute; river Ouse; Thames Estuary, 7 fath.; off St. Mary's, Scilly Islands, 10–12 fath.; Birturbuy Bay, Ireland (G. S. B. and D. R.); off Fairlie, Firth of Clyde (A. M. N.); Belfast Lough, Dr. Malcomson (G. S. B.).

.. 15. *Cytherura concentrica*, Brady, Crosskey, and Robertson.

(Plate xvii., figs. 28, 29; Plate xix., figs. 3, 4.)

1868. *Cytherura concentrica* (?), Norman, Last Report Dredging among the Shetland Isles, Brit. Assoc. Report, p. 292 (name only).

1874. *Cytherura concentrica*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 194, pl. xi., figs. 7, 8; and pl. xv., fig. 21.

Shell somewhat peach-stone shaped, highest in the middle, height equal to half the length; anterior extremity broadly and obliquely rounded, most produced below the middle; posterior extremity formed by the dorsal and ventral margins equally and without angularity converging, and ultimately forming a short, obtuse, central beak; dorsal margin boldly arched, the arch more steep in front, where it

sweeps down almost to the infero-anteal rounded corner; ventral margin slightly sinuated in front of the middle. Seen from above, compressed, acuminate in front, sharply and strongly mucronate behind; width rather less than half the length. Shell-surface concentrically striated round the sides of the valves, the central portion of which is finely punctate or sculptured with little quadrangular or irregularly-sided cells. This is the more general ornamentation of the fossil specimens. In recent specimens the surface of mature shells is usually more smooth, sparingly punctate, the anterior part of the shell with a few longitudinal striæ, the posterior sometimes exhibiting more or less traces of concentric striation. Immature shells minutely punctate all over, the puncta running in lines which have a tendency to concentric arrangement especially round the margins. Length of fossil specimens, .6 mm. Length of recent specimens, .35 mm. Length of punctate young, .30 mm.

Some very small *Cytherura*, with closely punctate surface—the punctation assuming a concentric disposition round the margins—have been regarded by us as the young of the present species, and were recorded by Dr. Norman in his Shetland Report. The same form has since been met with in several other places on the British coast, and is figured in Plate x., figs. 28, 29. No unmistakable *C. concentrica*, closely agreeing with the fossil types, have been found in our seas. The small form must for the present be left in doubt.

We at present assume that these represent different conditions of our species, and the two forms have been found together off Fairlie, in the Firth of Clyde, but the larger recent specimens known to us are of somewhat less size than the fossil, and the beak is not quite so much produced. The small specimens might have been supposed to be the young of *C. nigrescens*, but we have not found intermediate links; while the difficulty is increased by another form known to us, and often found in company with these punctate specimens, which differs slightly in outline, and is devoid of the surface ornament; and this latter form looks more like the young of *C. nigrescens*.

British localities.—Among *Laminariæ*, in 5–7 fath., Bressay Sound, Shetland; the Minch; off Fairlie, Firth of Clyde; Seaton Delaval, Northumberland; Hartlepool; Robin Hood's Bay, Yorkshire; Salcombe, Devon (A. M. N.).

Distribution.—Lervig Bay, 10–25 fath.; off Batalden, near Florø; Stoksund, 80–100 fath., Norway (A. M. N.); Gulf of St. Lawrence; off Spitzbergen; off Cape Frazer, 50–80 fathoms, Capt. Feilden, in Nares' Arctic Voyage; and in lat. 73° 10' N., long. 53° 0' E. (G. S. B.).

Fossil.—Scotland.

16. *Cytherura similis*, G. O. Sars.

(Plate XVIII., figs. 7-9.)

1865. *Cytherura similis*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 72, ♀.
 1868. *Cytherura sarsii*, Brady, Mon. rec. Brit Ostrac., p. 442; pl. xxxii., figs. 39-42, ♂.
 1870. *Cytherura propinqua*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. rv., vol. v., p. 24, pl. x., figs. 1, 2, ♀.
 1874. *Cytherura sarsii*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 197, pl. xi., figs. 24 27; pl. xiii., figs. 18, 19, ♂.
 1874. *Cytherura similis*, idem, ibidem, p. 192 (partly, but not figures),* ♀.

Female very like *C. nigrescens*, but larger, as well as differing in other particulars. Shell, seen from the side, subovate; greatest height central, more than equal to half the length; anterior extremity evenly rounded; posterior extremity with the beak very short, much less prominent than in *C. nigrescens* and obtusely rounded; dorsal margin boldly and evenly arched; ventral slightly concave. Seen from above, more tumid than *C. nigrescens*, ovate, width equalling half the length. End-view ovate, tumid, widest towards the base, width and height equal. Surface of valves smooth, or obscurely reticulated at the extremities, and rarely all over the shell; median areola in form as that of *C. nigrescens*, obtusely angulated in front, and slightly emarginate behind. "Last joint of antennules very short, the three preceding subequal in length to each other. Nail of the feet of moderate length. Second joint of last foot equal to the combined length of the two following joints" (Sars). Length, .55 mm.

Male.—Oblong, subquadrangular, of nearly equal height throughout, height not equal to half the length. Outline as seen from above more compressed, long-ovate, widest behind the middle, width considerably less than the height, sides flattened in their central portion, gradually converging and acuminate in front, much more rapidly converging and submucronate behind. End view broadly ovate; widest in the middle; in other respects as the female. Length, .55 mm.; of about the same length, but less high than female.

Habitat.—Öyster-ooze, Stranraer; Dublin Bay, 3-4 fath.; Rothesay Bay, 10-12 fath. (G. S. B. & D. R.), off the Mumbles, 2-3 fath. (G. S. B.); off Fairlie, Firth of Clyde; off Skipness, Loch Fyne, 40 fath.; Seaton-Delaval, Northumberland, tide-marks (A. M. N.).

Distribution.—Very rare, Langesund, Norway; Öxfjord, Finmark (G. O. Sars); Dröbak, 120 fath.; Haakelsund, Kors Fiord, Norway, 3-10 fath. (A. M. N.); Smith Sound, lat. 78° 57' N., Capt. Feilden in Nares' Arctic Voyage (G. S. B.).

Fossil.—Post-tertiary: Scotland, Ireland; Norway.

* See under *Cytherura rudis* and *C. atra*.

17. *Cytherura rudis*, Brady.

(Plate XVIII., figs. 10–12; Plate XIX., fig. 21.)

1868. *Cytherura rudis*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 34, pl. v., figs. 15–17.
 1871. *Cytherura granulosa*, Brady and Crosskey, Ostracoda from Post-tert. deposits of Canada and New England, Geological Magazine, vol. viii., p. 5, pl. ii., figs. 14, 15, ♂.
 1871. *Cytherura cristata*, idem, ibidem, p. 6, pl. ii., figs. 12, 13, ♀.
 1874. (?) *Cytherura similis*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., pl. xii., fig. 16.

Shell of *female*, seen from the side, oval, greatest height central; equal to more than half the length, the height nearly equal throughout the greater part of the length; anterior extremity very broadly rounded, greatest protrusion below the middle, the arcuation being long and bold; posterior extremity much narrower, somewhat exserted centrally, but not beaked, slopes above and below this narrowly rounded centre, very slightly arched; dorsal margin boldly arched at the extremities, slightly flattened in the central third of its length; ventral margin very slightly sinuated centrally, and obtusely angled at the juncture with the upward slope behind. Seen from above, with subparallel sides, width less than height, sides suddenly converging behind, more gently in front. Surface of valves nearly smooth, in some specimens, recent as well as fossil; within the inferior border there is a very slightly elevated crescentiform ridge, which is extended partly round the posterior margin. Shell of *male*, seen from the side, elongated, elliptical, twice as long as broad, of nearly equal height throughout; anterior extremity very broadly and evenly rounded, as in the female; the greatest protrusion below the middle posterior and ventral margins, as in the other sex; dorsal margin nearly straight throughout the greatest part of its length, and remarkably subparallel to the ventral. Outline seen from above, subcuneiform, widest at the posterior extremity, where the valves converge with steep declivity, and their lips protrude mucronately; sides flattened, very slightly converging forward throughout the greater part of their length, but ultimately more suddenly, the extremity being narrow, but blunt. Length of male, .525 mm.; of female, .5 mm.

The granulose appearance of the surface is characteristic of old and somewhat worn shells, but not of living examples.

The specimen here figured and described represents the adult, but not aged shell. In some specimens the crescentic ridge figured in the type of *C. cristata*, Brady, is present; in others scarcely a trace of it can be seen. The type of *C. rudis*, Brady, is an aged specimen, in which the shell is much thickened, the crescentic ridge strong, and the surface sculptured with large cells, which are for the most part quadrangular, and also some transverse riblets, and this specimen is abnormal

in having the posterior extremity more produced and rostrate than usual; but on the same mounting are others which are exactly in form as the typical *C. cristata*, and the surface sculptured, though less coarsely, as in the typical *C. rudis*. We are disposed to refer to this species, also the ostracod which is figured on Plate XII., fig. 16 of the *Monograph of the Post-tertiary Entomostraca*, as *Cytherura (similis?)*, from the deposit at Loch Gilp; though in the recent specimens which have come under our notice we have not observed similar strongly pronounced longitudinal riblets.

Great difference of sculpture is similarly found to prevail in the female of *C. sella*, where hardly two specimens can be found alike, since sometimes it has a quite smooth surface, at others very elaborate and varied ornamentation.

We cannot doubt that the above characterized forms are sexes of one species; both in fossil and recent state they have been found together, and the differences are of similar character to those to be observed in the sexes of other species of *Cytherura*.

Habitat.—Godhavn Harbour, Greenland, 5–25 fath., “Valorous” Expedition, 1875 (A. M. N.); Ginevra Bay, Spitzbergen, Mr. Lamont; Smith Sound, 78° 37' N., 210 fath., Captain Feilden, in Nares’ Arctic Expedition (G. S. B.).

Fossil.—In Post-tertiary deposits at Portland, Co. Maine (Brady and Crosskey); Scotland (Loch Gilp)?

18. *Cytherura fulva*, Brady and Robertson.

(Plate XIX., figs. 9–11.)

1874. *Cytherura fulva*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. xiii., p. 116, pl. iv., figs. 1–5.

Shell of the *female* very tumid; seen laterally subquadrate, broadly rounded in front, produced behind into an obscure rounded subcentral beak; superior margin evenly and very slightly rounded, sloping steeply backwards towards the posterior extremity; inferior nearly straight, sinuated in front of the middle; greatest height situated in the middle and equal to rather more than half the length. Seen from below, the outline is very broadly ovate, widest in the middle, the width being somewhat greater than the height; anterior extremity broadly rounded, with a distinct central mucro, posterior also broad, but tapering to a subacuminate central point. Shell of the *male*, seen laterally, much more elongated, with nearly straight dorsal and ventral margins, the height equal to scarcely half the length; the outline, as seen from below, is also much more compressed. Surface of the shell obscurely reticulated and dotted, marked also especially on the inferior surface with faint longitudinal furrows. Length, .5 mm.

Habitat.—*C. fulva* was dredged pretty abundantly on a bottom of hard granitic sand, in a depth of 10–40 fath., off St. Mary's and St. Agnes (Scilly Islands), and more recently in depths of 20 and 30 fath., off the Durham Coast; Dungeness Bay, 7 fath.; Fowey Harbour, 3 and 4 fath.; off the Eddystone Lighthouse; in the river Ouse; between tide-marks at Boulmer, Northumberland, Clifden Bay, Ireland (G. S. B.); Loch Fyne; Stromness Bay; and Greenock (D. R.); Firth of Clyde; Salcombe, Devon; Westport Bay, and Valentia, Ireland; Seaton Sluice, Northumberland, between tide-marks (A. M. N.) Irish Channel and Belfast Lough (Malcomson). *Revue de Zoologie (Marine)*.

Distribution.—Fosse de Cap Breton, Bay of Biscay, 30–60 fath. (A. M. N.); rivers Maas and Scheldt (G. S. B.).

19. *Cytherura clathrata*, G. O. Sars.

1868. *Cytherura clathrata*, Brady, Mon. rec. Brit. Ostrac., p. 446, pl. xxix., figs. 43–46.

1874. *Cytherura clathrata*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 201, pl. xi., figs. 1–4.

Additional localities.—Boness, Firth of Forth; coasts of Durham, Northumberland, and North Yorkshire; between tide-marks at Whitley and Seaton Sluice, Northumberland; river Ouse, at Lynn (G. S. B. and D. R.); ten miles E. of Balta, Shetland, in 72 fath.; the Minch (A.M.N.); Irish Channel; Belfast Lough; and Island Magee, N.E. Ireland (Malcomson).

Distribution.—Lofoten Islands, 6–12 fath. (G. O. Sars); “Valorous” Expedition, Stat. 3, Davis Strait, lat. 69° 31' N., long. 56° 1' W., 100 fath. (A. M. N.); Deevie Bay and Ginevra Bay, Spitzbergen, Mr. Lamont; off Cape Victoria, Bache Island, Capt. Feilden in Nares' Expedition; Hunde Islands, Baffin's Bay, 60–70 fath., Dr. Sutherland's dredgings; Hammerfest Harbour (G. S. B.).

Fossil.—Scotland, England (Bridlington), Ireland (Portrush), Norway.

20. *Cytherura cellulosa*, Norman.

(Synonym: *Cytherura nana*, G. O. Sars.)

1868. *Cytherura cellulosa*, Brady, Mon. rec. Brit. Ostrac., p. 446, pl. xxix., figs. 47–50, 60.

1874. *Cytherura cellulosa*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 200, pl. xi., figs. 5, 6.

A common and very distinct little species, almost ubiquitous round the British coasts, between tide-marks and in moderate depths of water, and commonly reaching up into the mouths of rivers.

Distribution.—Christiania Fiord (G. O. Sars); Batalden near Floro, off Sar toro Bergen Fiord, Kors Fiord, Stoksund 120 fath.—all in Norway (A. M. N.); river Scheldt, near Antwerp (G. S. B.); Fosse de Cap Breton, Bay of Biscay, 180–200 fath.; Bay of Naples (A. M. N.).

Fossil.—Scotland, England, Wales, Ireland.

Genus X.—CYTHEROPTERON, G. O. Sars.

[Type, *Cytheropteron latissimum* (Norman).]

1. *Cytheropteron latissimum* (Norman).

Synonym: *Cytheropteron convexum*, G. O. Sars (*non Cythere convexa*, Baird).

1868. *Cytheropteron latissimum*, Brady, Mon. rec. Brit. Ostrac., p. 448, pl. xxxiv., figs. 26–30.

1874. *Cytheropteron latissimum*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 202, pl. viii., figs. 19–23.

1878. *Cytheropteron latissimum*, Brady, Ostracoda, Antwerp Crag., Trans. Zool. Soc., vol. x., p. 403, pl. lxi., figs. 1 a–d.

This species is found pretty plentifully on many parts of the British coasts, from low-water mark downwards, very rarely between tide-marks. It is most abundant and of finest growth on the northern and eastern coasts, dying out apparently towards the south. We have no record of its occurrence in the Mediterranean or Bay of Biscay, and it is extremely rare on the southern and western coasts of England and Ireland, though common in the west of Scotland. It was not found in any of the “Challenger” dredgings either from the Atlantic or elsewhere, but it occurs in material brought from the Arctic regions. The Scilly Island habitat noted elsewhere (Brady and Robertson, on Ostracoda taken among the Scilly Isles, Ann. and Mag. Nat. Hist., ser. iv., vol. xiii. (1874), p. 115) seems to be an error.

Distribution.—Christiania Fiord, and thence to Finmark (G. O. Sars); Lervig Bay, Norway, 3–25 fath. (A. M. N.); Iceland; river Scheldt, Holland; Spitzbergen and Baffin’s Bay (G. S. B.).

Fossil.—Scotland, England (Bridlington), Norway, Canada.

2. *Cytheropteron nodosum*, Brady.

1868. *Cytheropteron nodosum*, Brady, Mon. rec. Brit. Ostrac., p. 448, pl. xxxiv., figs. 81-84.

1874. *Cytheropteron nodosum*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 203, pl. viii., figs. 12-15.

Additional localities.—Shetland; Firths of Clyde and Forth; Montrose Basin; river Wansbeck, Northumberland; off coasts of Durham and North Yorkshire; off Lantern Hill, Ilfracombe, and Eddystone Lighthouse; Dungeness Bay; Scilly Isles (G. S. B. and D. R.); off Tarbert, Loch Fyne, 25 fath.; Dogger Bank; Salcombe, Devonshire (A. M. N.).

Distribution.—Off Sartoro, Bergen Fiord, 15-40 fath.; Lervig Bay, 3-25 fath.; Hardanger Fiord, off Stordöen, 50-100 fath.; Fosse de Cap Breton, Bay of Biscay, 180-200 fath. (A. M. N.); Gulf of St. Lawrence (G. S. B. and D. R.).

Fossil.—Scotland, England, Ireland, Canada, and Norway.

3. *Cytheropteron pyramidale*, Brady.

(Plate xx., figs. 1-3.)

1868. *Cytheropteron pyramidale*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 84, pl. v., figs. 11-14.

Shell 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 slightly convex, sinuated in front and bending upwards behind. Outline, as seen from above, obovate, widest about the middle, suddenly and sharply acuminate in front, broadly mucronate behind; width and height about 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, .54 mm.

This species partakes of the characters of *C. latissimum* and *C. punctatum*; but from the first-named species differs in the proportions and shape of the shell, and from the latter in the style of surface-sculpture.

Distribution.—The type specimens were dredged by Messrs. Robertson and Crosskey, in 25-30 fath., muddy bottom at Dröbak, Christiania Fiord. Davis Strait, lat. 69° 31' N., long. 56° 1' W., 100 fath., "Valorous," 1875 (A. M. N.);

Lincoln's Bay, Grinnell Sound 82° 8' N., Tyndall Glacier 27 fath., off Cape Frazer 50 and 80 fath., Captain Feilden in Nares' Arctic Expedition; Deevie and Ginevra Bays, Spitzbergen, Mr. Lamont (G. S. B.).

The specimens taken off the Lantern Hill, Ilfracombe, and referred to this species, we now look upon as belonging to *C. nodosum*.

4. *Cytheropteron inflatum*, Brady, Crosskey, and Robertson.

(Plate xx., figs 19-21.)

1868. *Cytheropteron inflatum* (B., C., and R.), Brady, Contrib. to Study of Entomostraca, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 33, pl. v., figs. 8-10.

1874. *Cytheropteron inflatum*, Brady, Crosskey, and Robertson, Post-tertiary Entom., p. 204, pl. viii., figs. 24-27; pl. xiv., figs. 26-29.

Shell, seen laterally, subrhomboidal or subtriangular, greatest height in the middle, and equal to two-thirds of the length; anterior extremity rounded, posterior produced into a wide, obtuse, median beak; superior margin very strongly arched, gibbous, highest in the middle; inferior convex in the middle in the situation of the lateral ala. Seen from above, the outline is broadly ovate, with equally tapering and sharply mucronate extremities; greatest width situated in the middle, and equal to more than half the length. End view almost quadrate, scarcely at all tapered at the apex. Surface of the shell minutely and closely punctate; longitudinally striated on the ventral surface, alaeform processes evenly and boldly rounded, and but slightly prominent. Length, .65 mm.

British Habitat.—Loch Fyne (A. M. N.).

Distribution.—Stoksund, near mouth of Hardanger Fiord, 126 fath., Norway (A. M. N.); Ginevra Bay, Spitzbergen, Mr. Lamont; Cumberland Inlet, Baffin's Bay, 15½ fath.; and North Atlantic (G. S. B. and D. R.).

Fossil.—Scotland, Canada.

5. *Cytheropteron subcircinatum*, G. O. Sars.

(Plate xx., figs. 26-28.)

1865. *Cytheropteron subcircinatum*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 81.

Shell, seen from the side, subovate, greatest height central, more than half the length; anterior extremity rather narrowly rounded, greatest projection nearly central; posterior extremity slightly produced into a short central beak, which is broadly truncate at the end; dorsal margin very boldly arched, anterior and posterior declination of nearly equal length; ventral margin slightly concave in front,

then overlung by the convexity of the lateral protuberance, behind which it slopes upwards to the hinder extremity. Seen from above, the form is very broadly oval, breadth greater than the height, and in Sars' type-specimen equal to two-thirds of the length (in ours to somewhat less), broadly pointed in front, mucronate behind. Valves having the lateral protuberance extending along the greater part of the length, its greatest convexity central, thence towards both ends gradually sloping away into the body of the valve without angularity; surface pitted with small round foveolæ. Length, .50 mm.

This is not *C. subcircinatum*, Brady, Mon., which is the *C. depressum* of this Paper. (See p. 218.)

Our Norwegian examples have been identified by Professor Sars, who has also kindly sent to us a drawing of the type-specimen.

C. subcircinatum approaches to *C. latissimum* (Norman), from which, however, as Sars pointed out in his description, it may at once be distinguished, "protuberantiâ laterali fere semicirculariter arcuatâ, minimeque angulatâ."

Habitat.—Christiania Fiord, Norway, very rare (G. O. Sars); Lervig Bay, Stordoen, Norway, 2–10 fath. (A. M. N.).

6. *Cytheropteron læve*, n. sp.

(Plate xx., figs. 29–31.)

Shell, seen from the side, nearly ovate, greatest height in front of the middle, equal to two-thirds of the length; anterior extremity remarkably broadly, and evenly rounded throughout; posterior extremity much narrower, the dorsal slope anterior to it being long, evenly rounded; dorsal margin evenly arched (the central portion in one of the valves slightly flattened), anterior slope very slight and gradual, posterior much steeper; ventral margin straight. The greatest tumidity is, as usual in the genus, on the ventral portion of the posterior half, but this tumidity is only effected by the gentle rising of the shell on all sides, and it as well as all parts of the surface is smooth and devoid of sculpture. Seen from above, the greatest tumidity is at about one-fourth the length from the posterior extremity, behind which the sides rapidly and without convexity converge, while forwards the approach to each other is gradual for some distance, until an angularity is formed by their more rapid convergence to the anterior extremity, which is narrower than the posterior. Length, .6 mm.

Two single valves, dredged by H. M. S. "Porcupine," Stat. 41, 1869, lat. 49° 4' N., long. 12° 22' W., in 584 fath. (A. M. N.).

7. *Cytheropteron punctatum*, Brady.

Synonym : *Cytheropteron tricorne*, Brady (*non C. tricorne*, Bornemann).

1868. *Cytheropteron punctatum*, Brady, Mon. rec. Brit. Ostrac., p. 449, pl. xxxiv., figs. 45-48.

Additional localities.—Off Farland Point Cumbrae, amongst shell debris in 19 fath.; Lochgoil, 30 fath.; off Girvan, 12-15 fath., and other places in the Firth of Clyde; Westport and Roundstone Bays, Ireland; off Penarth Head, and Mumbles, South Wales (G. S. B. and D. R.); Shetland, 10 miles east of Island of Balta, 75 fath.; off Tarbert, Loch Fyne, 25 fath. (A. M. N.); Belfast Lough (Dr. Malcomson).

Distribution.—Off Sartoro, Bergen Fiord, Norway, 15-40 fath.; Fosse de Cap Breton, Bay of Biscay, 180-200 fath. (A. M. N.).

8. *Cytheropteron intermedium*, G. S. Brady.

1878. *Cytheropteron intermedium*, Brady, Ostracoda Antwerp Crag, Trans. Zool. Soc., vol. x., p. 403, pl. lxxix., figs. 3 a-c.

1880. *Cytheropteron intermedium*, Brady, Report "Challenger" Ostracoda, p. 187, pl. xxxiv., figs. 1 a-d.

Shell elongated. Seen from the side, flexuous, subrhomboidal, depressed in front, highest near the middle, height equal to more than half the length; anterior extremity obliquely rounded; posterior produced above the middle into a small, slender beak, below which it sweeps downwards with an oblique gentle curve; dorsal margin moderately arched; ventral sinuated in front, convex behind the middle. Seen from above, the outline is hastate, widest behind the middle where the lateral alæ project outwards at an obtuse angle; from this point the lateral margins converge in a gentle curve towards the front, terminating in a produced subacuminate extremity; backwards the sides converge from the extremities of the alæ at first almost rectangularly, then more gradually to form the posterior extremity, which, like the anterior, is subacute. End view equilaterally triangular, rounded at the apex; lateral angles produced and truncated; sides gently obtusely convex. Shell almost smooth; ventral surface slightly nodulated and irregular. Length, .5 mm.

Distribution.—Vigo Bay, Spain, 11 fath., "Challenger" Expedition (G. S. B.).

Fossil.—Crag; Antwerp (G. S. B.).

9. *Cytheropteron crassipinnatum*, n. sp.

(Plate xx., figs. 16-18.)

Shell, seen from the side, subovate, highest in the middle, greatest height equal to two-thirds of the length; anterior extremity not broad, obliquely rounded, greatest projection below the middle; hinder extremity produced into a well-developed, blunt beak; dorsal margin boldly arched, posterior declination longer than the anterior; ventral margin slightly concave in front, then convex—the convexity chiefly occasioned by the outline of part of the overhanging ala—behind the margin slopes gradually upwards to form the beak. Seen from above, the form is in front broadly triangular, the central portion of the base of the triangle produced behind into a very large central mucro formed by that portion of the shell which is behind the alæ, lateral angles almost rectangular but furnished with a minute triangular outwardly-directed point, the sides tapering, with slight convexity at first, to the rather blunt anterior extremity; greatest width equal to about four-fifths of the length. Valves solid, their surface sculptured with irregular cells, the alæ very solid and blunt at the edge; on a line with and above the point whence the ala springs behind there is a slight protuberance on the side of the shell. Length, .40 mm.

In outline this species, whether seen dorsally or laterally, is very like the young of *C. alatum*, but may be distinguished from it by the solidity and bluntness of the edge of the alæ, and by the surface sculpture. The same characters distinguish it from *C. hamatum*, and well-marked differences in the dorsal aspects separate it from the last-named species, and also from *C. punctatum*, to which latter species it approaches in the substantial character of the ala.

Dredged fifteen miles off Valentia, Ireland, in 1870 (A. M. N.).

10. *Cytheropteron hamatum*, G. O. Sars.

(Plate xx., figs. 13-15.)

1868. *Cytheropteron vespertilio*, Brady, Ann. and Mag. Nat Hist., ser iv., vol. ii., p. 33, pl. v., figs. 6, 7 (non *Cypridina vespertilio*, Reuss).

1869. *Cytheropteron hamatum*, G. O. Sars, Nye Dybvandscrustaceer fra Lofoten. Vidensk-Selsk Forhand. p. 172.

Shell of female, seen from the side, shortly subovate, highest in the middle, height equal to more than half the length; anterior extremity obliquely rounded,

most prominent below the middle; posterior extremity somewhat produced, forming a short beak, which inclines upwards; dorsal margin boldly arched, anterior declination much steeper than posterior; ventral margin slightly sinuated in front, afterwards convex; lateral ala well developed, its edge acute, behind forming a right angle with the shell, and furnished at its tip with an acute spine, which is directed outwards, and generally curved forwards at its extremity. Seen from above, very wide, the proportionate width in front being greater than in allied species, nearly the greatest breadth is thus attained before the middle of the shell, and thence the outline is continued with scarcely any additional expansion to the alæ; behind the alæ the valves are suddenly contracted; both extremities are acuminate, and the angle formed by the junction of the valves nearly equal; greatest diameter equal to more than half the length. Surface of valves finely punctate or pitted; anterior extremity, in living examples, very finely toothed. Length, .70 mm.

The *Cypridina vespertilio*, Reuss, to which Dr. Brady first referred this species is scarcely this form, the hind margin of the alæ showing remnants of teeth-like points, such as are only known to us among recent species in *C. alatum*, which, when actual comparison has been made, may prove to be Reuss's species.

Distribution.—Lofoten Islands, 120–300 fath. (G. O. Sars); Stoksund, Hardanger Fiord, Norway, 80–100 fath. (A. M. N.); Ginevra Bay, Spitzbergen, Mr. Lamont; Cumberland Inlet, Davis Strait, lat. 66° 10' N., long. 65° 15' W., 15 fath. (G. S. B.)

Fossil.—Scotland (Dryleys and Elie).

11. *Cytheropteron arcuatum*, Brady, Crosskey, and Robertson.

(Plate, xx., figs. 28–30).

1874. *Cytheropteron arcuatum*, Brady, Crosskey and Robertson, Mon. Post-tert. Entom., p. 203, pl. viii. figs. 16–18; and pl. xiv., figs. 19–22.

Shell seen laterally very broadly subovate or subelliptical, highest in the middle, height equal to nearly three-fourths of the length, broadly and evenly rounded in front, behind produced very narrow, and scarcely rounded; dorsal margin forming an extremely bold arch, sloping gently towards the front, and very steeply behind; ventral sinuated in front of the middle, and upcurved behind. Seen from above, the outline is arrow-headed or subhexagonal, width equal to two-thirds of the length, the lateral margins, or alæ, in the middle of their course, almost straight and parallel, the straight portions forming in front an obtuse angle at the point where they converge in nearly straight lines to the acute anterior extremity, ending behind in a rectangular truncation, from which projects in the middle the large

triangular posterior termination of the shell. End view triangular, equilateral, the ventral line prominent in the middle, the upper angle tapering, acute, and somewhat twisted. The valves are irregularly waved and sulcate in a transverse direction, and just within the middle third of the ventral portion is a well developed ala with rounded margin and rectangular posterior extremity. Length, .44 mm.

Habitat.—Dredged in 80 fath., Cape Frazer; Baffin's Bay. This species is more like *C. hamatum*, Sars., than any other, but differs in its very strongly arched outline, and in its rounder, wider, and less produced extremities. In the few recent specimens which we have seen, the lateral alæ are obtusely rounded, and have no spine whatever; but in fossil specimens there is frequently a terminal spine.

Fossil.—Scotland and Ireland, post-tertiary.

12. *Cytheropteron alatum*, G. O. Sars.

(Plate xx., figs. 8–10.)

1865. *Cytheropteron alatum*, G. O. Sars, Oversight af Norges marine Ostracoder, p. 81.

1868. *Cytheropteron alatum*, Norman, Last Report Dredging among the Shetland Isles, Brit. Assoc. Report, p. 294.

1872. *Cytheropteron alatum*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ix., p. 60, pl. ii., figs. 4–6.

1872. *Cytheropteron inornatum*, idem ibidem, p. 61, pl. ii., figs. 1–3.

Shell, seen from the side, long ovate, with very large and acutely-pointed lateral alæ, greatest height central, equal (exclusive of ala projection) to rather more than half the length; all the margins of the shell are very acute; anterior extremity well and evenly rounded; posterior extremity produced centrally into a very large rostrate process, obliquely truncate at the extremity; dorsal margin very boldly arched; ventral sinuated in front of the middle, well arcuated behind; lateral ala seen prominently projected over the ventral margin, this alar process is of very large size, with sharply acute edges, terminating outwardly in a sharp point, and having the straight hinder margin edged with a series of about ten flattened plates, of which the two innermost are usually larger than the rest. Seen from above, the form presented is a very wide, acutely-angled triangle, the sides of which are only very slightly convex, while the base consists of the dentated hinder edges of the alæ, between which the rostrate posterior portion of the shell is projected (beyond the base of the triangle described) as a very acute triangular median process; width between the apices of the lateral alæ greater than the length. End view triangular, base greatly exceeding the height, sides slightly concave, basal angles (ends of alæ) excessively produced and acute. Surface of valves white, pellucid, smooth or finely punctate. Length, .70 mm.

Half-grown examples differ considerably from the adult, and might easily be confused with other species. This condition was described by Dr. Brady under the name *C. inornatum*; the shell is higher in proportion to its length, the alæ much less developed, and their hinder margin devoid of the flattened teeth. From *C. punctatum* it is distinguished by the more delicate structure of the shell, the acute margins, large alæ, more produced beak, and smoother surface. See also remarks under *C. crassipinnatum*.

Habitat.—Shetland, 5–8 miles east of the Island of Balta, in 40–50 fath. ; off Tarbert, Loch Fyne, 25 fath. ; off Valentia, Ireland, 112 fath. (A. M. N.) In the Clyde district it has occurred in Kilchattan, Fintry, and Rothesay Bays, Loch Striven, and near Ardrossan (G. S. B. and D. R.).

Distribution.—Christiania Fiord, Norway in 20–30 faths. (G. O. Sars!)

13. *Cytheropteron mucronalatum*, Brady.

1880. *Cytheropteron mucronalatum*, Brady, Report "Challenger" Ostracoda, p. 140, pl. xxxii., figs. 8 a–d.

Shell, seen from the side, broadly subovate, or nearly semicircular; height equal to more than two-thirds of the length; anterior extremity broadly rounded, and bearing a few strong but short and blunt spines; posterior narrower, also rounded and furnished with a few spines, which are more acute than those of the front margin; dorsal margin very boldly arched, the arch continued down both ends of the shell to the ventral margin, but the hinder slope is longer than the anterior; ventral gently convex. Seen from above, the outline is ovate, widest in the middle, width equal to more than half the length, but not equal to the height; sides converging gradually towards the front, but more rapidly behind, both extremities running out in obtusely mucronate form, with equal terminations. End view an acute-angled triangle, the angles all well pronounced, sides longer than the base, and very slightly convex; base indented in the middle. Valves white, pellucid, or even transparent and glassy, smooth; close within, and overhanging and concealing the ventral margin runs a much elevated crest, commencing (which is unusual in the genus) at the anterior extremity of the shell, crowned by two linear riblets, and gradually rising higher until it nearly reaches the hinder extremity, where it abruptly terminates, and bears just before the termination a single, strong, but not very long spine; the valves attain their greatest tumidity at this crest, and more especially on the hinder part of the shell, whence they rapidly converge, like the sides of a high-pitched roof, to the dorsum, where their junction is very acute; ventral surface almost flat, but having a central longitudinal depression. The right

and left valves are remarkably different in size and shape, the dorsal margin of the right being abruptly truncated, and forming a perfectly straight line, very much below the level of the valve of the left side, which is very boldly rounded. Length, 1.3 mm.

Dredged by the "Challenger," near the Azores, Stat. 70., lat. 38° 25' N., long. 35° 50' W., 1650 fath. (G. S. B.); and by the "Valorous" Expedition, 1875, in the North Atlantic, Stat. 15, lat. 55° 58' N., long. 28° 42' W., 1485 fath.; and Stat. 16, lat. 55° 10' N., long. 25° 58' W., 1785 fath. (A. M. N.).

In the Pacific it was dredged by the "Challenger" in from 1450 to 2050 fath., at five stations, ranging from off Japan to near the coast of Patagonia. This remarkably fine species has thus probably a world-wide distribution in extreme depths of the oceans.

14. *Cytheropteron montrosiense*, Brady, Crosskey, and Robertson.

(Plate xix., figs. 25, 26.)

1866. *Cythere rhomboidea*, Brady, New and imperfectly-known Ostracoda, Trans. Zool. Soc. Lond., vol. v., p. 381, pl. lxii., figs. 5 a-b (*non C. rhomboidea*, S. Fischer, 1854).
1868. *Cytheropteron montrosiense* (B., C., & R.), Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. ii., p. 33, pl. v., figs. 1-5 (figured, but not described).
1874. *Cytheropteron montrosiense*, Brady, Crosskey, and Robertson, Mon. Post.-tert. Entom., p. 204, pl. viii., figs. 23-36; and pl. xiv., figs. 13-16.

Shell of *female* (?), as seen from the side, subrhomboidal, nearly equal in height throughout, height equal to more than half the length; anterior margin broadly rounded; posterior obliquely truncate below, produced above into a broad projection or beak; dorsal margin slightly convex, sinuated, or in old specimens deeply sulcate behind just before its junction with the flattened beak; ventral margin straight in front, convex behind. Outline, as seen from above, rhomboidal, suddenly widened behind the middle; extremities pointed, the posterior strongly mucronate. End-view broadly triangular, the sides very convex; the base flat, and expanded at the sides. Surface of valves with the lateral protuberance or ala very prominent, but short, forming a large irregularly rounded projection behind the middle of the ventral margin, lateral surface pitted with large polygonal excavations, ventral surface longitudinally rugose. Shell of the *male* (?) higher in front, the dorsal margin sloping steeply backwards, lateral and posterior protuberances poorly developed; surface markings smaller. Length, .55 mm.

British locality.—Roundstone Bay, Ireland (G. S. B. and D. R.).

Distribution.—Cumberland Inlet, in Baffin's Bay, 15 fath., lat. 66° 10' N., long. 67° 15' W. (G. S. B. and D. R.); Ginevra Bay, Spitzbergen, Mr. Lamont, lat. 82° 27' N., 6 fath.; Atlantic Ocean, 45 fathoms, Commander Dayman (G. S. B.).

Fossil.—Scotland, England (Hopton Cliff), Ireland (Woodburn), Norway.

The young of this species is described by the authors of the "Post-tertiary Entomostraca," as having the valves glabrous, and devoid of all trace of pitted sculpture.

15. *Cytheropteron angulatum*, Brady and Robertson.

(Plate XIX., figs. 17, 18.)

1872. *Cytheropteron angulatum*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. ix., p. 62, pl. ii., figs. 7, 8.

1874. *Cytheropteron angulatum*, Brady, Crosskey, and Robertson. Mon. Post-tert. Entom., p. 206, pl. viii., figs. 37-40.

Shell of *female*, viewed laterally, subrhomboidal, flexuous, bending slightly downwards in front, and twisted much upwards behind, greatest height central, equal to half or more than half the length; anterior extremity broadly rounded; posterior without any infero-posteal angle, in that part sloping obliquely and convexly backwards, and upwards, until at the supero-posteal angle a little upward-bent lobe is produced; dorsal margin boldly arched; anteriorly the sweep is continued right round until the ventral margin is reached; posteriorly there is a very slight concavity in front of the pointed corner, where it joins the posterior margin; ventral margin straight or very gently convex in the middle, where, however, it is hidden by the projection of the ala, the anterior portion convex, the posterior arcuately sloping upwards. Seen from above, subpentagonal, somewhat boat-shaped, widest in front of the middle; sides in front of this rapidly converging at an angle of fully 75° ; behind the outline consists of a series of sinuations, the posterior extremity very wide, the corners jutting outwards, and termination flexuous; the greatest width is a little less than the height. Surface of valves flattened, and, except at the alæ, exceedingly rugged, the lateral ala not much elevated, but having at some little distance within, and parallel to the margin, a strongly-marked longitudinal ridge, below which is a groove, which is deepest behind, and is crossed in front by a transverse bar which sometimes takes a nodulous form; above the ridge several irregularly flexuous ribs stretch transversely across the valves to the dorsal margin, coalescing here and there into large rounded eminences, and having in their interspaces numerous, irregularly angulated depressions; at the posterior extremity there is an elevated and lappet-like projection, having a curve upwards, and it is the presence of this lappet, which mainly contributes to the very unusual aspect of this species. In two or three specimens (? *males*) the lappet is absent, the appearance of the shell being thus considerably altered. Length, 40 mm.

British localities.—Roseneath and Kilehattan Bay, 45–56 fath., Firth of Clyde; Roundstone Bay, Ireland (G. S. B. and D. R.); Loch Fyne, off Tarbert, 25 fath. (A. M. N.).

Fossil.—Scotland, England (Bridlington), Canada.

From its abundance in the glacial clays of Scotland it may be expected that this species will hereafter prove to be a recent Arctic form.

16. *Cytheropteron depressum*, n. sp.

(Plate xx., figs. 22, 23.)

1868. *Cytheropteron subcircinatum*, Brady, Mon. rec. Brit. Ostrac., p. 447, pl. xxxiv., figs. 39–42 (but not *C. subcircinatum*, G. O. Sars, for which see p. 209).

The description of this species in the “Monograph,” should be regarded as inaccurate, as it was drawn up from Sars’ description of the true *C. subcircinatum*, in conjunction with the examination of the single British specimen then known of the present species. In the Plate, what was regarded as the posterior extremity is really the anterior.

Shell, seen from the side, subovate, greatest height equal to more than half the length, and situated at the commencement of the posterior dorsal slope, the ventral surface is remarkably broad and flat, the valves being projected directly outwards and forming a sharp angle at the junction of the ventral and lateral margins, anteriorly the true narrowly rounded margin is seen lying below and a little in advance of the commencement of the gibbosity; posterior extremity wider than the anterior, rounded, its greatest projection central; dorsal margin flattened in its central portion, posterior declination longer than the anterior; ventral margin formed by two arcuations, the anterior of which occupies more than two-thirds of the length, and is formed by the keeled edge of the protuberance, the posterior commences at the point where the edge of the protuberance passes upwards, and is formed by the true margin of the lips. The outline of the shell, seen dorsally, is a broad oval, with boldly arched sides, greatest breadth exceeding the height, and equal to more than two-thirds of the length; extremities broad, the anterior slightly the wider; from each valve, at its extremities, is projected a little microscopic point. Valves glassy, subhyaline, with scattered opaque white specks. Length, .35 mm.

Habitat.—Off North Yorkshire; Scilly Islands; off Eddystone Lighthouse; Westport, Clifden, Roundstone, and Galway Bays, and Lough Swilly, Ireland (G. S. B. and D. R.); Dartmouth Harbour; Valentia, Ireland (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Rivers Scheldt and Maas, Holland (G. S. B.).

17. *Cytheropteron testudo*, G. O. Sars.

(Plate XXI., figs. 1, 2.)

1869. *Cytheropteron testudo*, G. O. Sars, Nye Dybvandscrustaceer fra Lofoten, Vidensk-Selsk. Forhand, p. 29.

Shell, seen from the side, ovate, with a rostrate projection behind; valves unequal, the right higher and more strongly arched than the left; greatest height central much more than half the length, ventrally extremely broad and almost flat; from the basal edge the sides rapidly converge in a roof-like manner, so that dorsally they are narrow and keeled at their junction; anterior margin most prominent below, thence sweeping with a continuous and almost semicircular curve round the dorsal margin to the posterior extremity, where the dorsal and ventral margins continued evenly backwards form a central narrow, sharp-pointed, horizontally directed beak; ventral margin itself hidden by the very acute edge of the lateral protuberance, which is projected outwards, and presents an evenly convex outline. Seen from above, very broadly oval, the greatest breadth central, much greater than the height, and equal to two-thirds of the entire length; sides boldly and evenly arched; front rounded, and remarkably obtuse, though not truncate (the valves meeting at an angle of fully 150 degrees); behind the beak forms, beyond the oval, a mucronate projection, which has a narrowly truncate termination. Valves thin, pellucid, white, growing opaque and milky with age; surface wholly devoid of rugæ, but covered with closely-set minute impressed punctations, and bearing also a few scattered circular papillæ; ventral surface marked with rather faint longitudinal ribs. Length, .5 mm.

Distribution.—Very rare in 120 fath., Lofoten Islands (G. O. Sars); in two places in the Hardanger Fiord, namely, off Stordöen, in 210 fath., and in Stoksund, 126 fath., and also off Batalden near Florø, Norway (A. M. N.).

18. *Cytheropteron humile*, n. sp.

(Plate xx., figs. 4-7.)

Shell extremely depressed; seen from the side, the height is nearly the same throughout and equal to only one-third of the length; the extremities are obliquely subtruncated, sloping very steeply from above, and only slightly rounded; superior margin straight, with a very slight sinuation in the middle; inferior also straight or but very slightly arcuate. Seen dorsally, the shape is broadly ovate,

with obscurely pointed, nearly equal extremities; the greatest width, situated in the middle, is equal to more than two-thirds of the length, and twice the height; the ventral surface is almost perfectly flat, very faintly upturned at the ends, and almost imperceptibly hollowed in the middle. Shell-surface finely and closely punctate, and bearing also numerous rather large, flattened, circular papillæ; the ventral surface has a few faint longitudinal lines in the centre, and round the edges only bears a series of hair-like papillæ. Length, .33 mm.

Several examples of this very distinct and interesting but minute species were dredged in the Clyde, off Fort Matilda, Greenock, by Mr. Thomas Scott of that place, to whose kindness we are indebted for the opportunity of describing it. More recently we have received specimens from the Marquis de Folin, dredged off Vigo (G. S. B.).

A most remarkable little species, on account of the excessive width as compared with the height.

Genus XI.—BYTHOCY THERE, G. O. Sars.

[Type, *Bythocythere turgida*, G. O. Sars.]

1. *Bythocythere constricta*, G. O. Sars.

1868. *Bythocythere constricta*, Brady, Mon. rec. Brit. Ostrac., p. 451, pl. xxxv., figs. 47–52.

1874. *Bythocythere constricta*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 208, pl. xvi., figs. 9, 10.

1878. *Bythocythere constricta*, Brady, Ostracoda Antwerp Crag, Trans. Zool. Soc., vol. x., p. 405.

Additional localities.—Off north coast of Scotland; off Roseneath and other places in the Firth of Clyde; Loch Long and Loch Fyne; coasts of Durham and North Yorkshire, 20–35 fath.; off Lantern Hill, Ilfracombe; off the Eddystone and Mumbles, South Wales; Scilly Islands; Loughs Mulroy and Swilly, and Dublin Bay, Ireland (G. S. B. and D. R.); thirty miles off Aberdeen; Scarborough, tide-marks; off Valentia, Ireland (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—A single specimen, 20–30 fath., Christiania Fiord, Norway (G. O. Sars); off Sartoro, Bergen Fiord, 15–40 fath., and Kors Fiord, 180 fath., Norway; Fosse de Cap Breton, Bay of Biscay, 30–60 fath. (A. M. N.); Deevic Bay; Spitzbergen, Mr. Lamont (G. S. B.).

Fossil.—Crag; Antwerp. Post-tertiary; Scotland.

2. *Bythocythere turgida*, G. O. Sars.

1868. *Bythocythere turgida*, Brady, Mon. rec. Brit. Ostrac., p. 452, pl. xxxiv., figs. 85-88.

1870. *Bythocythere turgida*, Brady, Nat. Hist. Trans. Northumberland and Durham, vol. iii., p. 372, pl. xiii., figs. 1-4.

Additional localities.—Off Eddystone Lighthouse; Kilchattan, Roseneath and Rothesay Bays, Firth of Clyde; off Durham and North Yorkshire, 20-45 fath.; among the Scilly Islands; Roundstone Bay, Ireland (G. S. B. and D.R.); St. Magnus Bay, and off the Island of Balta, Shetland, 50-73 fath.; off Valentia, Ireland (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Hollingspollen, near Dröbak, Norway, 10-12 fath. (G. O. Sars); Spitzbergen (?), Mr. Lamont; Gulf of St. Lawrence, Mr. G. M. Dawson (G. S. B.).

3. *Bythocythere insignis*, G. O. Sars.

(Plate XXIII., figs. 1, 2.)

1869. *Bythocythere insignis*, G. O. Sars, Nye Dybvandskrustaceer fra Lofoten (Vidensk-Selsk. Forhand, p. 173).

Shell of male irregularly rugose and impressed, having two large nearly rectangular lateral protuberances interrupted in the middle by a transverse furrow, and behind irregularly crenulated. Seen from the side, the form is elongated subrhomboidal, the greatest height scarcely equalling half the length; dorsal margin nearly straight; ventral sinuated in the middle; anterior extremity obtusely rounded; posterior obliquely truncate or exerted into an obtuse process, which is continuous with the dorsal margin. Seen from above, subrhomboidal, greatest width situated behind the middle, and more than half the length; width gradually decreasing in front, suddenly behind; both extremities acuminate. Valves thin and pellucid, sparingly furnished with short hairs. No eyes. Antennules very slender, consisting of seven joints as in the other species, the last of moderate length, slightly shorter than the preceding. Terminal portion of the copulatory organs irregularly triangular, furnished with a single, short, apical seta. Length, 0.76 mm.

Habitat.—Very rare in 120 fath., Lofoten Islands (G. O. Sars).

Our figures are taken from a drawing kindly sent to us by the author.

4. *Bythocythere bicristata*, n. sp.

(Plate XIX., figs 15, 16.)

The shell, seen laterally, is obliquely subquadrate, not much higher in front than behind, the greatest height equalling about two-thirds of the length; anterior extremity oblique, moderately well rounded; posterior subangular above, and much rounded off below; dorsal margin slightly gibbous at the anterior third and sloping rather steeply in front, almost straight behind; inferior slightly convex. Seen from above, the outline is doubly triangular, the anterior two-thirds forming a large triangle, from the posterior border of which projects a smaller one; the extremities obtuse, and the two large lateral protuberances rounded. End view subquadrangular, the base very wide, convex, with sharply produced lateral angles, the apex much narrower, and rounded at the angles; lateral margins slightly concave. The surface of the shell is smooth, or nearly so; the lateral aspect of each valve marked by a deep transverse median furrow, and dilated just within the ventral margin, so as to form a prominent longitudinal ridge, which ends in an abruptly rounded angle at the posterior third. Length, .65 mm.

This is a well-marked and very distinct species, the only examples of which were dredged in the Unst Haaf, Shetland (A. M. N.).

5. *Bythocythere recta* (Brady).

(Plate XIX., figs. 13, 14.)

1868. *Cytheropteron rectum*, Brady, Mon. rec. Brit. Ostrac., p. 476.

1869. *Cytheropteron rectum*, Brady and Robertson, Dredging West Ireland, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 372, pl. xx., figs. 6-8.

1874. *Cytheropteron rectum*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 206; pl. xiv., figs. 17, 18.

1886. *Bythocythere pavo*, Malcomson, Proc. Belfast Naturalists' Field Club, p. 261, pl. xxv., figs. 5-7 (junior).

Additional localities.—Westport Bay, Ireland, 4 fathoms (G. S. B. and D. R.); St. Magnus' Bay, Shetland (A. M. N.); Belfast Lough and Irish Channel (Malcomson); Dungeness Bay (G. S. B.).

Distribution.—Fosse de Cap Breton, Bay of Biscay, 180–200 fath. (A. M. N.).

Fossil.—Scotland (Crofthead).

We have examined the types of Malcomson's *Bythocythere pavo*, and are satisfied that it is the young of *Bythocythere recta*. It shows the commencement of the future wing-like protuberance, as is slightly indicated in fig. 5 (Malcomson); and the style of surface ornament is that of *B. recta*, which in this respect is unlike any other Ostracod with which we are acquainted. We have met with it in several localities.

6. *Bythocythere dromedaria*, G. O. Sars.

(Plate xx., figs. 11, 12.)

1865. *Bythocythere dromedaria*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 86.

Shell of *female*, as seen from the side, ovate, greatest height situated in front of the middle, and more than half the length; evenly rounded in front, exerted behind in the form of an obtuse process above the middle; dorsal margin very flexuous, forming a very prominent arch in front, then more deeply sinuated, and as it were impressed; ventral margin gently sinuated in front of the middle, and behind this slightly arcuated. Seen from above, the form is broadly ovate, greatest breadth central, and subequal to the height, lateral margin evenly arched; both extremities, but more especially the hinder, produced and acuminate. Valves thin and pellucid, without any distinct structure, ornamented at both extremities with some radiating lines near the margin. Colour, white. Last joints of the antennules equal in length to the preceding. Second joint of the last feet shorter than the combined length of the two following; terminal nail very slender and almost straight. Termination of the copulatory organs of the male short, subcordiform. No eyes. Length of female, 0.80 mm.

Habitat.—Not common in 30–40 fath., Christiania Fiord, Norway (G. O. Sars).

We are indebted to Prof. G. O. Sars for the type specimens from which our figures are taken.

7. *Bythocythere simplex* (Norman).

(Plate xxiii., fig. 9.)

Synonym: *Bythocythere acuminata*, G. O. Sars.

1868. *Bythocythere simplex*, Brady, Mon. rec. Brit. Ostrac., p. 450, pl. xxxiii., figs. 23-27; and pl. xl., fig. 8.
1874. *Bythocythere simplex*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 308, pl. vii., figs. 20, 21.

Additional localities.—Many localities in the Firth of Clyde; coasts of Durham and North Yorkshire, common in depths of 20-45 fath. (G. S. B. and D. R.); St. Magnus' Bay, and ten miles east of Balta, Shetland, 50-73 fath. (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Dispersed on the Norwegian coast as far north as the Lofoten Islands, in 12-30 fath. (G. O. Sars); Hunde Islands, Baffin's Bay, 60-70 fath. Dr. Sutherland (G. S. B.).

Fossil.—Scotland, Ireland.

8. *Bythocythere recurva*, n. sp.

(Plate xix., figs. 24, 25.)

Shell thin and rather fragile. Seen from the side, subovate, with a rostrate process behind; greatest height anterior, equal to half the length, greatest compression where the shell is highest, gradually becoming less high and more tumid posteriorly, especially towards the ventral margin, a sharp keel surmounting the most tumid part, and running parallel with and above the ventral margin, which lies beneath; anterior margin very widely and obtusely rounded; posterior margin exerted in the form of a beak which curves downwards, and the distal or posterior margin of which is rounded; a few bead-like tubercles stud the anterior and posterior margins just within the borders; dorsal margin nearly straight; ventral margin convex, especially in front. Surface of valves smooth and glassy. Seen from above, subovate, greatest width behind the middle, extremities equally and moderately acuminate. Length, .5 mm

A single valve of this very distinct form dredged in the Fosse de Cap Breton, Bay of Biscay, 30-60 fath. (A. M. N.).

GENUS XIV.—CYTHERIDEIS, T. R. JONES.

[Type, *C. subulata*, Brady. = *Cythere flavida*, Baird; non Müller.]

Shell slender, elongate, subovate, tapering and depressed towards the front, not much compressed laterally. Hinge-margins nearly simple; shell smooth, finely punctate; right valve overlapping the left in the centre of the ventral surface. Antennules slender, sparingly setose; last joint short, and bearing six short terminal setæ; penultimate and antepenultimate joints each bearing a single apical seta. Mandible slender and curved, divided below into about four very small indistinct teeth; palp four-jointed, its first joint bearing on the inferior margin a conical tooth-like process; third joint set along its entire length with a comb-like series of straight equal setæ. First segment of the maxillæ much stouter and larger than the rest. In other respects as in *Cythere*.

1. *Cytherideis subulata*, Brady.

1850. *Cythere flavida*, Baird, Brit. Entom., p. 168, pl. xxi., figs. 11, 12 a (non Müller).
 1856. *Cytherideis flavida*, Rupert Jones, Mon. Tert. Entom., England, p. 50, *partim*.
 1868. *Cytherideis subulata*, Brady, Mon. rec. Brit. Ostrac., p. 454, pl. xxxv., figs. 43–46.
 1872. *Cytherideis subulata*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. rv., vol. ix. p. 55, pl. i., figs. 12, 13.
 1874. *Cytherideis subulata*, var. *fasciata*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. rv. vol. xiii., p. 117, pl. v., figs. 1–5.
 1875. *Cytherideis hilda*, Brady and Robertson, On Dredging off the Durham and North Yorkshire Coasts (Brit. Assoc. Report), p. 187.
 1884. *Cytherideis foveolata*, Malcomson, Proc. Belfast Naturalists' Field Club, p. 261, pl. xxv., figs. 8–12.
 1885. *Cytherideis subulata*, Carus, Prod. Faunæ Mediterraneæ, p. 303.

Generally distributed round the British coasts, mostly in deep water, but occasionally (as in the Island of Cumbrae) between tide-marks, and not unfrequently also in tidal rivers.

Distribution.—Fosse de Cap Breton, Bay of Biscay, 30–60 fath. (A. M. N.); Eastern Mediterranean, Port Said; Cape Verd Islands; Iceland (G. S. B.).

Fossil.—Crag (England).

This species varies a good deal in shape, size, and surface-markings. The young shell is very regularly and delicately punctated, but the markings become coarser, or are entirely obliterated with age. The form catalogued, but not described, by Messrs. Brady and Robertson, under the name of *C. hilda*, seems to be merely the young of *C. subulata*, while the variety *C. fasciata* is a large local variety

in which the punctured markings are almost absent, and which in the fresh state is conspicuously banded with black, and has a delicate epidermic reticulation. This form is about one-eighth longer than the typical *C. subulata*, and is less compressed in front. The specimens dredged by Dr. Malcomson in the Irish Channel and erroneously referred to *C. foveolata*, we consider to be the young of the present species.

2. *Cytherideis foveolata*, Brady.

(Plate XIX., figs. 19, 20.)

1870. *Cytherideis foveolata*, Brady, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 454, pl. xix., figs. 1-8: *Cytherideis foveolata*, Brady, Proc. Zool. Acclimat. Soc. London, vol. vi., p. 10, figs. 1-8.

Shell elongate, compressed; seen from the side, siliquose, slightly depressed in front; greatest height situated about the middle, and equal to rather more than one-third of the length; extremities rounded, the anterior much the narrower; dorsal margin almost straight, ventral slightly sinuated in the middle. Seen from above, elongate ovate, widest near the middle, tapering gradually towards the front, more abruptly behind; extremities acuminate; width equal to about one-third of the length. Shell-surface smooth, minutely and somewhat densely punctate, semi-transparent, horny. Length, .80 mm.

Distribution.—Gulf of St. Lawrence, Mr. G. M. Dawson (G. S. B.); Davis Strait, lat. 60° 55' N., long. 55° 30', 57 fath., "Valorous" Expedition, 1875 (A. M. N.).

C. foveolata is larger and more robust than *C. subulata*, and has the valves more conspicuously and densely punctated. Instead of the form, as seen from above, being cuneate, widest behind, and sharply acute in front, in *C. foveolata*, the greatest breadth is central, and the anterior extremity much less acute. In the Greenland specimens, moreover, the margins of the valves at the anterior extremity are denticulated, and there are several concentric raised lines on the infero-anteal portion of the valves.

Genus XV.—CYTHEROIS, Willh. Müller.

[Type, *Cytherois fischeri* (G. O. Sars).]

Antennules long, six-jointed, sparingly setiferous, second joint very long. Antennæ 3-4 jointed, urticating seta very long, twice geniculated, poison-gland small, last joint with a very strongly-developed terminal seta. Biting portion of the mandible long and slender, without teeth; palp long and slender, two-jointed, beset about the last joint with bristles, branchial appendage rudimentary, consisting of one long seta. Maxilla of the ordinary character, with one very much elongated

and geniculated segment. Mouth broader than usual, with coalescent upper and under lip and rudimentary sucking disc. Shell structureless; hingement of two teeth on the right valve at the front and hinder end of the bar, and a median overlapping edge on the left valve.

Cytherois fischeri (G. O. Sars).

(Plate XXI., figs. 20–22.)

1865. *Paradoxostoma fischeri*. G. O. Sars, Oversigt af Norges marine Ostracoder, p. 96.
 1869. *Sclerochilus* (?) *gracilis*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. iii., p. 372, pl. xx., figs. 11, 12.
 1870. *Paradoxostoma fischeri*, Brady, Nat. Hist. Trans. Northumberland and Durham, vol. iii., p. 362, pl. xii., figs. 1–3.
 1874. *Paradoxostoma fischeri*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 215, pl. xvi., figs. 23, 24.
 1884. *Cytherois virens*, Wilh. Müller, Archiv. für Natugesch., p. 15, pl. ii., figs. 10–13.
 1885. *Paradoxostoma fischeri*, Carus, Prod. Faunæ Mediterraneæ, p. 312.
 1888. *Paradoxostoma fischeri*, Dahl, Die Cytheriden der Westlich. Ostsee., p. 34, pl. iv., figs. 115–126.

The shell, seen sideways, is subtriangular, highest in the middle, height equal to less than half the length; anterior extremity somewhat narrowed and obliquely rounded, posterior broader and well rounded; superior margin boldly and evenly arched, inferior gently sinuated in the middle. Dorsal view elongated, subovate, thrice as long as broad, broadest in the middle; tapering towards the extremities, which are pointed, the posterior rather the more obtuse. Shell-surface smooth and polished, marked with irregularly disposed dendritic patches of black or dark green. Length, .65 mm.

This species is so generally distributed round the British shores that it is needless to specify localities; its favourite haunts are amongst algæ between tide-marks and in the laminarian zone; but it occurs also frequently in estuaries and brackish water, as in the rivers and broads of the East Anglian fen district, and has been found as far inland as Whittlesea. In such situations it is usually colourless, but when living amongst algæ it is prettily maculated.

Distribution.—Christiania Fiord, shallow water (G. O. Sars); Sylt, Pomerania (Wilh. Müller); Messina, Sicily (Seguenza).

Fossil.—Scotland, South Wales, Ireland.

Fam. V.—PARADOXOSTOMATIDÆ.

Genus I.—PARADOXOSTOMA, Fischer.

[Type, *Paradoxostoma dispar*, Fischer.]1. *Paradoxostoma variabile* (Baird).

(Plate XXIII., fig. 10.)

1785 (?). *Cythere flavida*, Müller, Entom., p. 66, pl. vii., figs. 5, 6.1868. *Paradoxostoma variabile*, Brady, Mon. rec. Brit. Ostrac., p. 459, pl. xxxv., figs. 1-7, 12-17 ; pl. xli., fig. 8.1874. *Paradoxostoma variabile*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 213, pl. x., figs. 29-32.1888. *Paradoxostoma variabile*, Dahl, Die Cytheriden der Westlich, Ostsee, pl. iv., figs. 127-136.

Generally distributed round the British Islands, between tide-marks and down to about 20 fathoms' depth. Specimens taken amongst seaweeds between tide-marks are usually richly maculated, while those from deep water are often nearly or quite destitute of colour.

Distribution.—Found throughout the coasts of Norway (G. O. Sars and A. M. N.); Holsteinborg Harbour, Greenland: "Valorous" Expedition (A. M. N.); Hunde Islands, Baffin's Bay, 60-70 fath., Dr. Sutherland; and Davis Strait, lat. 67° 17' N., long 62° 21' W., laminarian zone; rivers Scheldt and Maas, Holland; Spitzbergen, Mr. Lamont (G. S. B.).

Fossil.—Scotland, Ireland, Norway, Canada.

2. *Paradoxostoma ensiforme*, Brady.1868. *Paradoxostoma ensiforme*, Brady, Mon. rec. Brit. Ostrac., p. 460, pl. xxxv., figs. 8-11.1874. *Paradoxostoma ensiforme*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 215, pl. x., figs. 27, 28.1878. *Paradoxostoma ensiforme*, Brady, Ostracoda Antwerp Crag, p. 406, pl. lxiv., fig. 2.1880. *Paradoxostoma ensiforme*, Brady, Report "Challenger" Ostrac., p. 150, pl. xxxv., figs. 3 a-d.1885. *Paradoxostoma ensiforme*, Carus, Prod. Faune Mediterraneæ, p. 312.

This species occurs commonly in the dredge off the coasts of Great Britain and Ireland, and is perhaps quite as widely distributed as the preceding; occurring also, though not so frequently, between tide-marks.

Distribution.—Lervig Bay, Stordöen, Norway, 3-25 fath.; Fosse de Cap Breton, Bay of Biscay, 30-60 fath.; shallow water, Naples, and off the Isle of

Capri, 40 fath. (A. M. N.); Vigo Bay, Spain, 11 fath., "Challenger"; Piræus; Besika Bay; rivers Scheldt and Maas, Holland (G. S. B.).

Fossil.—Crug: England, Antwerp. Post-tertiary: Scotland, England, South Wales, Ireland.

3. *Paradoxostoma abbreviatum*, G. O. Sars.

1868. *Paradoxostoma abbreviatum*, Brady, Mon. rec. Brit. Ostrac., p. 458, pl. xxxv., figs. 22-25.

1874. *Paradoxostoma abbreviatum*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 214.

1880. *Paradoxostoma abbreviatum*, Brady, Report "Challenger" Ostrac., p. 150, pl. xxxv., figs. 1 a-d.

The distribution of this species, like the last, is general round the British coasts, but it is less numerically abundant, and not so often met with between tide-marks.

Distribution.—Rare; Christiania Fiord, Norway, in laminarian zone (G. O. Sars); Batalden, near Floro, 200 fath.; and Stoksund, in the Hardanger Fiord, 80-100 fath.; Lervig Bay, 3-25 fath.; Lungegaards-vandet, Bergen; Haakelsund, Kors Fiord, all in Norway; Fosse de Cap Breton, Bay of Biscay, 180-200 fath. (A. M. N.); river Scheldt, Holland; also Balfour Bay, Kerguelen Island, 20-50 fath., "Challenger" (G. S. B.).

Fossil.—Scotland, South Wales.

4. *Paradoxostoma obliquum*, G. O. Sars.

1868. *Paradoxostoma obliquum*, Brady, Mon. rec. Brit. Ostrac., p. 459, pl. xxxv., figs. 18-21.

Additional localities.—Lamlash Bay and Cumbrac, Firth of Clyde; Northumberland coast, between tide-marks; off Lantern Hill, Ilfracombe; the Mumbles, South Wales; Scilly Islands; Clifden and Westport Bays, Mulroy Lough, and Lough Swilly, Ireland (G. S. B. and D. R.); Robin Hood's Bay, Yorkshire, tide-marks; Mylor Creek, Falmouth; Valentia Harbour, Ireland (A. M. N.); Irish Channel and Belfast Lough (Malcomson).

Distribution.—Öxfjord, Finmark, very rare (G. O. Sars).

5. *Paradoxostoma normani*, Brady.

1868. *Paradoxostoma normani*, Brady, Mon. rec. Brit. Ostrac., p. 458, pl. xxxv., figs. 39, 40.
 1886. *Paradoxostoma truncatum*, Malcomson, Proc. Belfast Naturalists' Field Club, p. 262, pl. xxv., figs. 3, 4.
 1886. *Sclerochilus contortus*, var. *abbreviatus*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser iv., vol. iii., p. 372, pl. xx., figs. 15, 16.

Additional localities.—Montrose Basin; Seaton Sluice and Budle Bay, Northumberland; off the Durham coast, 10–20 fath.; off Robin Hood's Bay, Yorkshire, 30 fath.; Dungeness Bay; among the Scilly Isles; and in Westport and Roundstone Bays, and Lough Swilly, Ireland (G. S. B. and D. R.); among laminariæ, Bressay Sound, and St. Magnus' Bay, also 5–8 miles east of Baltá, Shetland, 5–50 fath., living; Whitby, Yorkshire, 7 fath.; Dartmouth Harbour (A. M. N.); Irish Channel, and Rockport, Co. Down (Malcomson).

Distribution.—Fosse de Cap Breton, Bay of Biscay, 180–200 fath. (A. M. N.).

Having examined specimens of Mr. Malcomson's *P. truncatum*, we are satisfied that it is only a form of the present species. In the specimens with which he favoured us before his lamented death, there is no such decided angle at the infero-antéal corner as is represented in his figure 3, that angle being much more rounded off.

6. *Paradoxostoma pulchellum*, G. O. Sars.

(Plate xxi., figs. 29, 30.)

1868. *Paradoxostoma pulchellum*, Brady, Mon. rec. Brit. Ostrac., p. 459, pl. xxxv., figs. 41, 42.
 1870. *Paradoxostoma pulchellum*, Brady and Robertson, Nat. Hist. Trans. Northumberland and Durham, p. 363, pl. xii., figs. 4, 5.

Additional localities.—Loch Ryan; Firth of Clyde; Boulmer, Northumberland; Hartlepool, tide-marks; Roundstone Bay and Mulroy Lough, Ireland (G. S. B. and D. R.); Loch Carron, Arrán, N. B.; Falmouth (A. M. N.); Belfast Lough (Malcomson).

Distribution.—Vallø, Christiania Fiord, rare (G. O. Sars); Lervig Bay, Stordöen, Norway (A. M. N.).

7. *Paradoxostoma hibernicum*, Brady.

(Plate XXI., figs. 15–17.)

1868. *Paradoxostoma hibernicum*, Brady, Mon. rec. Brit. Ostrac., p. 460, pl. xxxv., figs. 35, 36; and pl. xl., fig. 7.
 1868. *Paradoxostoma sarniense*, idem, ibidem, p. 460, pl. xxxv., figs. 26–29, pl. xl., fig. 9.
 1870. *Paradoxostoma hibernicum*, Brady and Robertson, Nat. Hist. Trans. Northumberland and Durham, vol. iii., p. 362, pl. xii., figs. 10, 11.

During the last twenty years, having had opportunities of seeing this species from many localities, we have come to the conclusion that *L. sarniense* must be united with it.

The great flattening of the ventral margin, especially on the posterior half, where it is much expanded, combined with the usual presence in it of fine transverse opaque white lines are points which especially characterize this species, though partially shared by *P. flexuosum*, as well as by the genus *Macherina*.

Additional localities.—Firth of Clyde; Budle Bay, Seaton Sluice, and Boulmer, in Northumberland; Durham coast, 20–30 fath.; Scilly Islands; Clifden, Birturbay and Westport Bays, and Lough Swilly, Ireland (G. S. B. and D. R.); Filey Brig, Yorkshire; Clew Bay and Valentia Harbour, Ireland (A. M. N.); Rockport, Co. Down (Malcomson).

8. *Paradoxostoma vitreum*, G. O. Sars.

(Plate XXI., figs. 27, 28.)

1865. *Paradoxostoma vitreum*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 95.

Shell of *female*, seen from the side, elongated, subovate, higher behind than in front; greatest height behind the middle, and less than half the length; anterior extremity narrowly rounded, point of greatest projection central; posterior extremity broadly and obtusely rounded; dorsal margin forming a depressed arch, flattened centrally, front declination gentle, behind the middle moderately arcuate, and at the hinder extremity descending nearly perpendicularly; ventral margin very slightly sinuated in the centre. Seen from above, the outline is narrowly ovate, greatest breadth central, and less than the greatest height. “Shell of the *male* much more elongated and narrower, nearly three times as long as high. Antennules very long and very slender, second joint greatly elongated, three

following joints subequal to each other, their combined length about equal to that of the second joint; antennæ moderately strong, the second joint larger than usual, the last furnished with two nails of unequal length. Mandibles more robust than usual, inferior extremity obtusely acuminate. First maxillæ having three unequal lobes. Feet having the two distal joints subequal. Extremity of the copulatory organs of the male subtriangular, obtusely angulated in front, somewhat exerted behind. Length of female, .51 mm.; of male, .53 mm."

Habitat.—Balta Sound, Shetland, laminarian zone (A. M. N.).

Distribution.—Thorshaven, Faroe Islands, collected by Mr. E. C. Davison (G. S. B.); rare in 6-12 fath. in the Christiania Fiord, and also at Langesund, Norway, at the same depth (G. O. Sars); Lervig Bay, Stordöen, Norway, 3-25 fath. (A. M. N.)

We are indebted to Professor G. O. Sars for types of this species, with which our own have been compared. In the young the broad posterior extremity is not so much developed, and at this age it approaches very closely to the young of *Cytherois fischeri*, from which it differs in its very compressed form, and much less concave ventral margin. The young of *P. pulchellum* also approaches this form, but is higher in proportion to the length.

9. *Paradoxostoma fasciatum*, n. sp.

(Plate xxi., figs. 25, 26.)

Shell, seen laterally, elongated, subovate, somewhat depressed in front, greatest height situated behind the middle, and equal to more than one-third of the length; anterior extremity rounded and somewhat flattened, posterior evenly rounded; dorsal margin forming a flattened arch, with one continuous curve from end to end, but more convex behind; ventral margin somewhat convex, faintly sinuated near the middle. The outline, seen dorsally, is much compressed, fusiform, with sharply-pointed extremities, five times as long as broad. Surface of the valves smooth and polished, marked with a broad median black band; edges, especially those of the posterior and ventral portions, much compressed. Length, .84 mm.

Habitat.—Jersey (A. M. N.); Clew Bay, Co. Mayo, 2-4 fath. (G. S. B. and D. R.).

This species is extremely like *P. vitreum*, Sars, but is larger and much more compressed, and both ventral and dorsal margins are more protuberant behind the middle; the black transverse band is also characteristic.

10. *Paradoxostoma arcuatum*, Brady.

(Plate XXI., figs. 5, 6.)

1868. *Paradoxostoma* (?) *arcuatum*, Brady, Mon. rec. Brit. Ostrac., p. 461, pl. xxxv., figs. 37, 38.1874. *Paradoxostoma arcuatum*, Brady, Crosskey, and Robertson, Mon. Post-tert. Entom., p. 217.

A rare species, of which only a single specimen was known at the time of the publication of Dr. Brady's Monograph. It has since been found in the following localities, but is apparently everywhere very rare:—St. Magnus' Bay, Shetland; Dartmouth Harbour; Roundstone Bay, Ireland (A. M. N.); Clifden Bay, Ireland; Granton (G. S. B. and D. R.).

Fossil.—Raised-beach, at Obau, Scotland.

11. *Paradoxostoma orcadense*, Brady and Robertson.

(Plate XXI., figs. 18, 19.)

1872. *Paradoxostoma orcadense*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. ix., p. 53, pl. i., figs. 5-7.1874. *Paradoxostoma cuneatum*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. xiii., p. 117, pl. v., figs. 6, 7.

Carapace, as seen from the side, elongated, subreniform or subtriangular, highest near the middle, lower in front than behind; height equal to two-fifths of the length; extremities well rounded, the anterior being rather the narrower; superior margin sloping at first gently forwards almost in a right line from its highest point, but well arched behind; inferior sinuated in the middle. Seen from above, ovato-cuneate, widest near the posterior extremity; width equal to nearly one-third of the length, subacuminate in front, rounded behind. Animal unknown. Length, .55 mm.

Habitat.—Stromness Bay, Orkney, sandy bottom; White Bay, Cumbrae, and off Glen Sannox, Arran; dredged in New Grimsby Harbour, and off St. Mary's, Scilly; Berehaven, Ireland (G. S. B. and D. R.).

The Scilly specimens are smaller and rather more angular than the types, and were at first supposed to be distinct (described as *P. cuneatum*), but further examination leads us to conclude that they belong properly to *P. orcadense*.

Distribution.—Lervig Bay, Norway, a single specimen; Fosse de Cap Breton, Bay of Biscay, 180-200 fath. (A. M. N.).

12. *Paradoxostoma hodgei*, Brady.

(Plate XXI., figs. 7, 8.)

1870. *Paradoxostoma hodgei*, Brady, Nat. Hist. Trans. Northumberland and Durham, vol. iii., p. 371. pl. xii., figs. 12, 13.

Carapace, seen from the side, elongated, subreniform; greatest height situated in the middle, and not much exceeding one-third of the length; extremities narrowed and rounded, the posterior the narrower; superior margin boldly and evenly arched, inferior sinuated in the middle, behind the sinuation well arched, and curving gently upwards towards the extremity. Seen dorsally, the outline is compressed, linear-ovate, about five times as long as broad, widest in the middle, and tapering gradually and equally to the extremities, which are subacutely pointed. Shell smooth and polished, transparent, yellowish. Length, .65 mm.

Dredged off the Durham coast; off Callum's Bay, Bute, and in Lough Swilly, Ireland (G. S. B. and D. R.); off Tarbert, Loch Fyne, 25 fath. (A. M. N.).

13. *Paradoxostoma rostratum*, G. O. Sars.

(Plate XXIII., figs. 3, 4.)

1865. *Paradoxostoma rostratum*, G. O. Sars, Oversigt af Norges marine Ostracoder, p. 97.

Shell, seen from the side, elongated, narrowly subelliptical, greatest height nearly central, much less than half the length; anterior extremity very narrow, obtusely pointed, and slightly curved downwards; posterior extremity obtusely rounded; dorsal margin evenly arcuate; ventral margin perfectly straight throughout its entire length. Seen from above, the outline is nearly equally broad in front and behind; lateral margins nearly straight, and subparallel in the middle, greatest breadth rather less than the height, both extremities acuminate. Valves thin, smooth, horny; their ventral margin moderately thickened, and laterally more emarginate than usual towards the front; dorsal margin of the left valve slightly prominent in the middle. Anterior extremity of the valves protected by a rounded concave laminar process. Animal unknown. Length, .74 mm.

Habitat.—Very rare at Öxfjord, Finmark (G. O. Sars).

The foregoing is Sars' description of the species, and the illustration we are enabled to give is from an outline drawing, which he has most kindly sent to us.

14. *Paradoxostoma productum*, n. sp.

(Plate XXI., figs. 9, 10.)

Shell of *male* (?), seen from the side, siliquose, much curved, greatest height behind the middle, about equal to one-third of the length: anterior margin most produced above the middle, to which point the dorsal margin evenly and arcuately slopes, below this point of furthest projection the margin slopes obliquely; posterior margin much exerted, the sides sloping above and below to a central narrowly-produced rounded point; dorsal margin well and evenly arched throughout, in front right down to the extremity, behind extended nearly horizontally at the pointed termination; ventral margin in front of the middle deeply concave, behind the middle boldly arched, the hinder half of the shell being much higher than the anterior half. Seen from above, the outline is very narrow and elongated, greatest width central, much less than the height, and not one-fourth of the length; sides evenly but lowly arched, extremities equally acuminate and pointed. Valves white, perfectly smooth, and lustrous. Length, .55 mm. Shell of *female* (?) smaller, of similar shape, but not quite so produced behind, more tumid, greatest breadth equal to the height. Length, .40 mm.

Of the larger form, which we have called the male, we have only seen two specimens, the smaller form was taken with it; but in the other three localities the latter only was found. A specimen of the smaller form, of which we have examined the animal, appears to be a female; but we have not been able to determine the sex of the larger form.

As yet only found in Norway; off Sartoro, in the Bergen Fiord, in 15–40 fath.; Lervig Bay, Stordöen, 25 fath.; and in two places in Stocksund, which is near the mouth of the Hardanger Fiord, in 80–100, and in 126 fath. (A. M. N.).

15. *Paradoxostoma flexuosum*, Brady.

(Plate XXI., figs. 11, 12.)

1868. *Paradoxostoma flexuosum*, Brady, Mon. rec. Brit. Ostrac., p. 461, pl. xxxv., figs. 31–34.1872. *Paradoxostoma flexuosum*, Brady and Robertson, Ann. and Mag. Nat. Hist. ser. iv., vol. ix., p. 55, pl. i., figs. 8, 9.1874. *Paradoxostoma flexuosum*, Brady, Crosskey, and Robertson. Mon. Post-tert. Entom., p. 216, pl. xvi., figs. 19, 20.1874. *Paradoxostoma tenerum*, *ibidem*, *ibidem*, p. 217, pl. xvi., figs. 21, 22.

The form described under the name *Paradoxostoma tenerum*, in the "Monograph of the Post-tertiary Entomostraca," is probably only the female of *P. flexuosum*.

We have seen it in several dredgings associated with the latter species; but never having been fortunate enough to find any but empty shells, we are unable to speak with absolute certainty in the matter. In the following list of localities *f.* or *t.* imply that the forms *flexuosum* or *tenerum* were observed:—

Additional localities.—North coast of Scotland: Stromness; Firths of Forth and Clyde; off the Durham and North Yorkshire coasts: rivers Ouse and Humber; Scilly Isles: Penarth Head; Dungeness Bay; Eddystone Lighthouse; Birturbay, Clifden, Westport, and Roundstone Bays, and Loughs Swilly and Mulroy, Ireland (G. S. B. and D. R.); Shetland, *f.* and *t.*; Inverary, 25–40 fath., *t.*; off Skipness, Loeh Fyne, *f.*; Dartmouth Harbour, *f.* and *t.*; Valentia Harbour, Ireland, *f.* and *t.* (A. M. N.); Irish Channel and Belfast Lough, *f.* (Malcomson).

Distribution.—Rivers Scheldt and Maas, Holland (G. S. B.); Oster Fiord, 100–200 fath., *f.*; off Sartoro, Bergen Fiord, 15–40 fath., *f.*; Lervig Bay, Hardanger Fiord, 3–25 fath., *f.* and *t.*; Dröbak, in the Christiania Fiord, 30–100 fath.; Fosse de Cap Breton, Bay of Biscay, 180–200 fath.; Davis Strait, lat. 69° 31' N., long. 56° 1' W., 100 fath., "Valorous" Exped. (A. M. N.).

This is an extremely variable species, differing in amount of arcuation of the dorsal margin, and degree of sinuation of the ventral, and in the proportions of height and length; also in the narrower or broader extremities, and in the amount of convexity; but we have seen so many intermediate links that, different as the forms at first sight appear, we are unable to recognise them as distinct species.

Genus II.—MACHÆRINA (μάχαίρα, a knife).

= *Xiphichilus*, Brady (name preoccupied among Pisces).

[Type, *Machærina tenuissima* (Norman).]

Shell very thin and fragile, smooth, glassy, pellucid; valves compressed, elongate, pointed at both ends, nearly equal; ventral margins much compressed, forming a flattened, knife-like plate, which is widest behind the middle, and marked by several opaque transverse hair-like lines. Outline, as seen from above, compressed, tapering evenly from the middle to each extremity. Hinge simple. Limbs excessively long and slender. Antennules six-jointed and quite destitute of setæ. Antennæ sparingly setiferous. Mandibles very long and slender, styliform, palp (?) biarticulate, slender and terminating in two long setæ. Abdomen produced into two long tapering processes, which are destitute of claws.

1. *Machærina tenuissima* (Norman).

(Plate XXI., figs. 13, 14.)

1868. *Bythocythere tenuissima*, Norman, Last Report Dredging among the Shetland Isles, Brit. Assoc. Report, p. 294.
1870. *Xiphichilus tenuissima*, Brady, Nat. Hist. Trans. Northumberland and Durham, vol. iii., p. 369, pl. xii., figs. 6-9; and pl. xiv., figs. 5-10.

Elongated, doubly fusiform, extremities equal and gradually attenuated to acute points. Seen from the side, the outline is slender, flexuous, with very produced mucronate extremities, four times as long as broad, the greatest height being near the middle; dorsal margin regularly arched; ventral flexuous but slightly convex, especially behind the middle, where the margins of the valves are much appressed so as to form a sharp, knife-like flange. Dorsal view excessively compressed and elongated, quite five times as long as broad, tapering equally from the middle to the extremities, which are very acute and attenuated. Surface perfectly smooth. Antennules excessively slender, having the first four joints of nearly equal length, and about nine times as long as broad, the last two about one-third the length of the preceding. Antennæ having a single seta at the apex of each joint, and one in the middle of the penultimate; urticating seta long and slender, triarticulate; last leg having the second joint excessively long, the third about one-fourth, and the last one-half of its length, claws long, slender, and slightly curved. Length, 1.15 mm.

Dredged in St. Magnus' Bay, Shetland, 30-60 fath.; off Fairlie, Firth of Clyde, Roundstone Bay, Killary Bay, and off Valentia, Ireland (A. M. N.); off the Island of Cumbrae; Kilchattan Bay, Bute; off Skelmorlie, Ayrshire; off the Durham coast, 15-30 fath.; off Great Ormes Head (G. S. B. and D. R.); Belfast Lough (Malcomson).

2. *Machærina amygdaloides* (Brady).

(Plate XVII., figs. 20, 21.)

1870. *Xiphichilus amygdaloides*, Brady, Nat. Hist. Trans. Northumberland and Durham, vol. iii., p. 370, pl. xiii., figs. 8-10.

Shell, as seen from the side, oblong-oval, or almond-shaped, gently tapering to the extremities, which are much narrowed, rounded, and nearly equal in height; superior margin gently and evenly arched, but slightly sinuated in front of the

middle; ventral margin sinuated in the middle, behind which it pouts considerably; greatest height in the middle, and equal to rather more than one-third the length. Seen from above, the outline is much compressed, rhomboidal, or doubly fusiform, tapering equally from the middle, where it is widest, to the acutely-pointed extremities; greatest width scarcely equal to half the height, and to about one-fifth of the length; surface perfectly smooth, the transverse opaque lines of the knife-like ventral margin very conspicuous when seen from below. Animal unknown. Length, 55 mm.

One British specimen only known, found by Mr. D. Robertson among sand dredged off Papa, Shetland.

Distribution.—Fosse de Cap Breton, Bay of Biscay, 180–200 fath., a single specimen; Bay of Naples, shallow water, three specimens (A. M. N.).

Although so few specimens have been found of this species, it would seem to have a wide geographical range. One of the Naples specimens differs from the others in being longer in proportion to the height, and in having the posterior extremity extended centrally in a sort of rostrate process, with rounded termination. This, perhaps, may prove to be the male.

APPENDIX.

OSTRACODA OF THE FRENCH GOVERNMENT'S EXPEDITIONS IN THE
"TRAVAILLEUR" AND "TALISMAN."

During the progress of this work there have been kindly sent to us by our friend the Marquis de Folin some Ostracoda which he has picked out from the dredgings of the French Government Expeditions in the "Travailleur" and the "Talisman." Some of these species are from dredgings which fall within the limits of the present Paper; others are from off the coast of Africa; but all are from such great depths that they may be expected hereafter to be found to have a wide range over the bed of the North Atlantic. Under these circumstances we have considered it best to notice them in an Appendix, more especially as the greater number of the forms will be found described in preceding pages.

3. *Bairdia subcircinata*, Nobis (see p. 113).

1880. *Bairdia formosa*, Brady, Ostracoda of the "Challenger" Expedition, p. 52, pl. x., figs. 1 a-e.
(Not *B. formosa*, Brady, Ann. and Mag. Nat. Hist., 1868.)

Dredged by the "Talisman," in a depth of 2200 mètres, June 23rd, 1883, and in 1918 mètres, lat. 27° 31' N., long. 16° 27' W.

5. *Bairdia vietrix*, Brady (see p. 115).

Well-characterised specimens were found in material dredged by the "Talisman" in 1918 mètres, lat. 27° 31' N., long. 16° 27' W.; in 2334 mètres near the "Arguin Bank;" and in 836 to 1350 mètres off the west coast of Morocco.

8. *Bairdia simplex*, Brady.

1880. *Bairdia simplex*, Brady, Report "Challenger" Ostracoda, p. 51, pl. vii., figs. 1 a-d.

Shell, viewed laterally, oblong, subovate, nearly twice as long as high; extremities rather narrow; anterior much broader than the posterior, evenly

rounded: dorsal margin arched, ventral straight, or slightly convex. The outline, as seen from above, is compressed, ovate, about twice as long as broad, widest in the middle, extremities subacuminate. End view broadly ovate, widest in the middle, width equal to two-thirds of the height. Shell-surface smooth, with a few scattered hairs. Length, 1.3 mm.

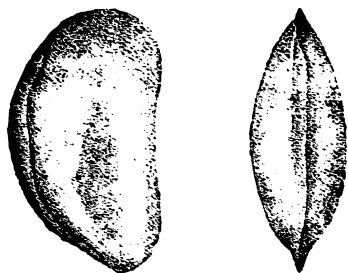
A single specimen only, from 4060 mètres. It was procured in 1883, but there is nothing further to show the habitat.

9. *Bairdia abyssicola*, Brady.

1880. *Bairdia abyssicola*, Brady, Report "Challenger" Ostracoda, p. 52, pl. vii., figs. 4 a-c.

Shell, seen from the side, subreniform: highest in the middle: height equal to about three-fifths of the length: anterior extremity much compressed at the edge, broadly rounded, and, as it were, bent downwards: posterior rounded, somewhat narrowed, and flattened, and produced below the middle: dorsal margin very boldly arched throughout: ventral sinuated in the middle. Seen from above, the outline is narrowly ovate, compressed at the extremities, which are acute. Surface of shell quite smooth and polished. Length, ♂, 1.5 mill., ♀, 1.8 m.

The specimens above described exactly correspond with the figure in "Challenger" Report, 4 b, there called the right valve, except that the dorsal sinuation near the anterior extremity is either altogether absent, or in other cases less pronounced, than is represented in that figure. With these specimens occur others, which we suppose to be males. In these, while the general characters are preserved, the height is much less in proportion to the length, and the dorsal margin is straight in its central portion; the general form, therefore, is more elongated.



Bairdia abyssicola, s. 30.

The leading character of the species is the marked compression of the shell at the extremities. The left valve is much larger than the right, and overhangs it dorsally, in a similar manner to that of *Bythocypris bosquetiana*. (See pl. xiv., fig. 4.)

In "Talisman" dredging in 2200 mètres, June 23, 1883.

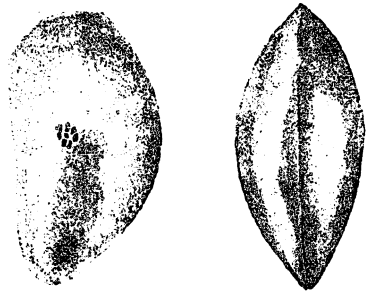
10. *Bairdia folini*, Brady.

1886. *Bairdia folini*, Brady, Les Fonds de la Mer, vol. iv., p. 195, pl. xiv., figs. 4, 5.

Shell, viewed laterally, having the dorsal margin boldly arched in front, terminating in a very broadly-rounded anterior margin, which has no angularity either above or below, and the greatest projection of which is central; behind, the dorsal curve continues downwards, until a narrow, well-rounded posterior termination is formed, the whole of which termination lies below the central line of the shell; ventral margin straight, but with a slight symptom of sinuosity. Greatest height central, subequal to half the length. Seen from above, the outline is narrowly ovate, greatest breadth central, equal to nearly half the length; anterior extremity subacute, posterior acute. Surface of valves perfectly smooth and polished, without hairs, and without spines. Length, 1.75 m.

Dredged by the "Talisman," August 24th, 1883, in 4060 mètres.

In form this somewhat resembles *B. abyssicola*, but is very distinct; the valves are subequal, the left not being, as in that species, much larger than the right, and overhanging the latter dorsally; the posterior extremity is narrower, the convexity is greater, and the extremities have not the remarkable compression of *B. abyssicola*.



Bairdia folini, $\times 25$.

11. *Bairdia affinis*, Brady.

1886. *Bairdia affinis*, Brady, Les Fonds de la Mer, vol. iv., p. 195, pl. xiv., figs. 6, 7.

Shell, seen from the side, subreniform, the left valve much larger than the right, less sinuated in outline, and overlapping at all points except in front; greatest height situated in the middle, and equal to three-fifths of the length; anterior extremity broad, obliquely subtruncate, scarcely rounded; posterior narrow, not produced, rounded, and forming, with the dorsum, one continuous, boldly-arcuate curve; inferior margin slightly sinuated in the middle, and very gently upcurved behind. Seen from above, the outline is compressed, oval, widest in the middle, about twice and a-half as long as broad, only slightly tapered towards the extremities, which



Bairdia affinis, $\times 40$.

are equal and subacute. Surface of the shell perfectly smooth. Length, 1.05 mm.

One specimen only of this species was found in a dredging made by the "Talisman," on the 7th of July, 1883, in a depth of 1918 mètres.

12. *Bairdia hirsuta*, Brady.

1880. *Bairdia hirsuta*, Brady, Ostracoda of the "Challenger" Expedition, p. 50, pl. viii., figs. 3 *a-d*.

Habitat.—Strait of Bocayna, between Lanzarote and Fuerteventura, Canary Islands; coast of Soudan, 932 mètres, July 12th, and 2334 mètres, July 15th, 1883; west coast of Morocco, 836 mètres, 17th June, 1883.

1. *Macrocypris minna* (Baird), (see p. 117).

In lat. 28° 35' N., long. 15° 36' W., 1238 mètres; lat. 32° 31' N., long. 12° 08' W., 1350 mètres; off west coast of Morocco, June, 1883, 636–1200 mètres; and in lat. 23° N., long. 19° 50' W., 932 mètres.

2. *Macrocypris angusta* (G. O. Sars), (see p. 117).

In lat 23° N., long 19° 50' W., 932 mètres.

3. *Macrocypris siliquosa*, Brady (see p. 118).

Localities.—West coast of Morocco, 630, 836, 1350 mètres; in lat. 23° N., long. 19° 50' W., 932 mètres; in lat. 20° N., 2333 mètres; lat. 32° 31' N., long. 12° 08' W., 1350 mètres.

Bythocypris bosquetiana (Brady), (see p. 120).

One specimen dredged near the Arguin Bank, lat. 20° N., 2333 mètres; others in a depth of 932 mètres, lat. 33° N., long. 19° 50' W.; and West coast of Morocco, 836 to 1200 mètres.

13. *Cythere sulcifera*, Brady (see p. 133).

Well-developed and characteristic specimens of this species were dredged by the "Talisman," June 16th, 1883, lat. 32° 31' N., long. 12° 08' W., in 1315 mètres; July 7th, 1883, lat. 27° 31' N., long. 16° 27' W., 1918 mètres; and June 27th, 1883, east of the Canary Islands, 975 mètres.

39. *Cythere cchinata*, G. O. Sars (see p. 150).

Between "la mer des Gargattes" and the Azores; and 11th August, 1883, 2792 mètres; "Coast of Soudan," 932 mètres; west coast of Morocco, 836 mètres, 17th June, 1883; in lat. 25° 01' N., long. 19° 15' W., 2638 mètres; in lat. 28° 35' N., long. 15° 36' W., 1238 mètres; and in other localities of which we have not full particulars.

40. *Cythere acanthoderma*, Brady (see p. 151).

North of St. Michael, Azores, in 2295 mètres.

41. *Cythere dictyon*, Brady (see p. 152).

North of St. Michael, Azores, 2995 mètres, and 4000 mètres; between the Azores and the Bay of Biscay, 5005 mètres; and between "la mer des Gargattes" and the Azores.

50. *Cythere emuciata*, Brady (see p. 159).

An elongated variety of this species, in which the height is less than usual, but of which only a single example occurred, was procured by the "Talisman" in 2995 mètres, to the north of St. Michael, Azores.

69. *Cythere milne-edwardsii*, n. sp.

Shell, viewed laterally, oblong; height nearly equal throughout, but greatest quite in front in a line with the hinge joint, which is very prominent, and situated in a very forward position; anterior and posterior extremities obliquely truncate, the obliquity only slight, in both instances the greatest projection is below; all four corners completely rounded off; dorsal and ventral margins straight and parallel, the ventral only slightly longer than the dorsal. Surface of valves rugose, with depressed tubercles and small blunt spines, none of which are conspicuous above the rest by greater size; two low and indistinct riblets pass longitudinally and convergingly along the middle portion of the shell, not reaching the front, and roundly united in a loop-like manner at a short distance from the posterior extremity. Seen from above, the sides are gently convex, converging rather abruptly in front and more gradually behind, and everywhere showing an irregularly sinuous and dentated outline. Length, 1 mm.



Cythere milne-edwardsii, × 40.

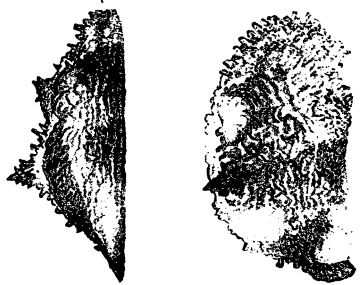
Dredged by the "Talisman" off the west coast of Morocco, 836 to 1200 mètres, and near the "Arguin Bank," Africa, lat. 20° N., July 15, 1883, in 2333 mètres.

We have named this species after Professor Alphonse Milne-Edwards, under whose direction the "Talisman" exploration was conducted.

70. *Cythere scaberrima*, Brady.

1886. *Cythere scaberrima*, Brady, Les Fonds de la Mer. vol. iv., p. 198, pl. xiv., figs. 10, 11.

Shell of peculiar shape; height equal to nearly half the length; dorsal margin gently arched, ventral nearly straight; anterior extremity widely and somewhat obliquely rounded, greatest projection above the middle; posterior margin very obliquely truncate, sloping backwards from above, and so projected below that the ventral margin is much longer than the dorsal, and at the infero-posteal corner the union of the ventral and posterior margins is projected backwards in beak-like manner, with truncated apex. Seen from above, the outline (of the single valve) is triangular, widest behind the middle, the anterior portion very much broken and spinous, the posterior somewhat less so. Surface of the shell very rugose; across the centre of the valves is a deep sinus, in front of and behind which the surface rises in an umbonal manner, while towards the dorsal margin these protuberances terminate in two much elevated, rugged and acutely-pointed spikes; the whole surface of the valves, including the spikes, to their very summit, is covered with spines, subequal in size, though a few at the margins are somewhat larger than the rest. In the interior of the valves the margins of the extremities are widely outspread and thickened; across their centre runs a strong transverse bar, in front and behind which are two deep sinuses, which are represented externally by their umbonal protuberances. Length, 1.1 mm.



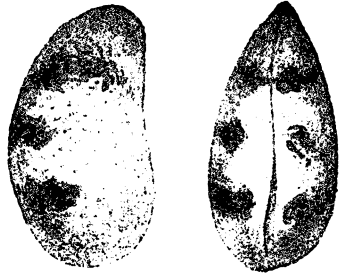
Cythere scaberrima, × 40.

A single valve only, from a "Talisman" dredging, made on 7th August, 1883, in 3535 mètres.

4. *Xestoleberis margaritea*, Brady (see p. 190).

1866. *Cytheridea margaritea*, Brady, Trans. Zool. Soc., vol. v., p. 370, pl. lviii., figs. 6 *a-d*.

The types of this species, being picked out of sponge-sand, were, of course, merely empty, bleached shells. They agree, however, very closely in shape with specimens sent to us by the Marquis de Folin, which were dredged off Muros, Galicia, and are also all empty shells. But Dr. Norman's collection contains specimens from the Bay of Naples undoubtedly identical with those from Muros, containing the soft parts of the animal, and showing the natural coloration of the shell—yellowish, with three dark transverse bands, or blotches, on each valve.



Xestoleberis margaritea, . 75.

We do not now consider the specimens called *X. margaritea* in the "Challenger" Report to be rightly referred to that species. We give here drawings of the Neapolitan form, and on re-examination of specimens from the several localities, we no longer entertain the opinion expressed in the body of this memoir (p. 190) as to the identity of *X. intermedia* with this species.

2. *Krithe producta*, Brady (see p. 180).

Dredged by "Talisman," in 4060 mètres; locality not stated; also lat. 25° 1' N., long. 19° 15' W., 2638 mètres.

13. *Cytheropteron mucronalatum*, Brady (see p. 215.)

Between the Azores and the Bay of Biscay, 27th August, 1883, 5005 mètres.

ADDENDA ET CORRIGENDA.

Cypria serena (Koch) (p. 70).

Fossil.—Tertiary: English Crag (Jones, as *C. ovum*).

Page 73, line 6, for "*Cypris fuscata*" read "*Monoculus fuscatus*."

Eripecocypris reptans (Baird) (p. 84).

Fossil.—Tertiary: English Crag.

Potamocypris fulva, Brady (p. 93).

Distribution.—Dr. Wilhelm Müller has lately sent us this species from Greifswald, Germany. This is the first time it had been found, we believe, on the Continent.

Fossil.—Post-tertiary: Scotland (Dalmuir).

Paracypris polita, G. O. Sars (p. 95).

Fossil.—Tertiary: Antwerp Crag.

Candona candida, Baird (p. 98).

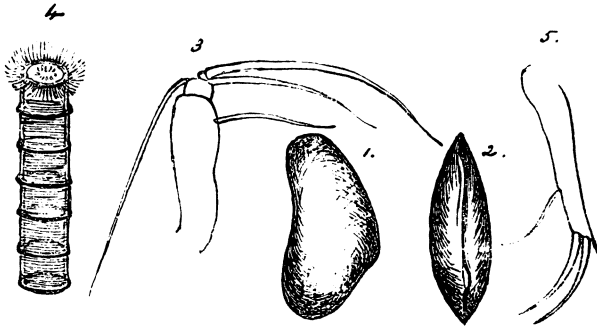
Fossil.—Post-tertiary: England, Scotland. Tertiary: English Crag.

Candona hyalina, Brady and Robertson (p. 104).

1870. *Candona hyalina*, Brady and Robertson, Ann. and Mag. Nat. Hist., ser. iv., vol. vi., p. 18; pl. ix., figs. 5-8; and pl. v., figs. 4-11.

Shell of the *male*, seen from the side, elongate, flexuous, highest behind the middle, height equal to half the length; anterior extremity narrow, rounded, but somewhat flattened; posterior broader and well rounded; dorsal margin forming a rounded gibbous prominence behind the middle, then sloping with a long, gentle curve to the front—much more steeply, and with a hollow curve, backwards; ventral margin deeply sinuated in the middle. Seen from above, the outline is much compressed, ovate, widest in the middle; extremities equal, and acutely pointed, width scarcely equal to one-third of the length; hinge margins flexuous, that of the left valve overlapping the right with a gentle curve in front of the middle, and with a very abrupt and short but strongly-marked curve near the posterior extremity. Shell very thin and translucent. Antennules slender, and very sparingly setiferous. Caudal rami bearing two long and nearly equal terminal claws, and one minute seta, also a long and slender lateral seta attached a little beyond the middle of the ramus. Vorticillate sac destitute of radiating filaments, except on the apical whorl. Copulative organs extremely complex. Apical joint of the second foot bearing three very long and slender setae but no hook, penultimate joint with a single seta of moderate length. Length of shell, 1.4 mm.

The single specimen on which the foregoing description is founded having been mislaid, we were unable, while engaged in the examination of the *Candona* for the purposes of this Memoir, to verify the original description,³ and came to the conclusion that *C. hyalina* was probably only *C. fabaeformis*, a species which, when *C. hyalina* was described, was very imperfectly known to us. But the dissection of the male type specimen of *C. hyalina* has since been found, and we have now no doubt whatever as to its specific distinctness. As to the specimens ascribed by Messrs. Brady and Robertson to the females of



Candona hyalina (male).

1. Shell, seen from left side. 2. The same, seen from above.
3. Extremity of second foot. 4. Verticillate sac (diagrammatic).
5. Caudal ramus.

this species, we are unable to express any decided opinion. The question needs to be considered afresh with the help of a larger series of specimens. The specimen here figured, which is the only one upon which we can pronounce certainly, was taken at Barton Broad, Norfolk. The other localities given by Brady and Robertson are, Whittlesea, Wroxham, and Ormesby Broads.

The drawing here given of the verticillate sac is quite diagrammatic, the specimen having been too much distorted in mounting to be represented, as it is now seen in the dissected mounting.

Hypocypris gibba (Ramdohr) (p. 107).

Fossil.—Tertiary: English Crag.

Darwinula stercoronis, Brady and Robertson (p. 122).

Fossil.—Post-tertiary: England (Whittlesea).

Cythere (?) *semipunctata*, Brady (p. 180).

Fossil.—Post-tertiary: Scotland (Oban).

Cythere semilunaris = *Cythere amissa* (p. 186).

We find that *Cythere amissa* is a name already in use, having been employed by Prof. T. R. Jones for an Eocene Fossil (*Geological Magazine*, 1870, vol. vii., p. 156); we therefore substitute *C. semilunaris* as the name for the species which we have described.

³ See p. 104.

Cythere gibbosa, Brady and Robertson (p. 136).

Fossil.—Post-tertiary: Ireland (Portrush).

Cythere convexa, Baird (p. 140).

Fossil.—Tertiary: English Crag.

Cythere limicola (Norman) (p. 142).

Fossil.—Tertiary: Antwerp Crag.

Cythere hoptonensis, Brady, Crosskey, and Robertson (p. 158).

Fossil.—Post-tertiary: England (Hopton Cliff).

Cythere concinna (Jones) (p. 162).

Fossil.—Tertiary: English Crag.

Cythere dawsoni, Brady (p. 166).

Fossil.—Tertiary: (?) Antwerp Crag.

Krithe bartonensis (Jones) (p. 179).

Fossil.—Tertiary: English Crag.

BTROGYPRI.

bosquetiana, Brady, X

CYTHERE.

lutea, Müller, X X X X
 pellicuda, Baird, X X X X X
 confusa, Brady and Norman, X X X X X
 porcellanea, Brady, X X X X X
 macallana, Brady, X X X X X
 tenera, Brady, X X X X X
 mamillata, Brady, X X X X X
 semipunctata, Brady, X X X X X
 badia, Norman, X X X X X
 crispata, Brady, X X X X X
 cribrosa, Brady, Crosskey, and Robertson, X X X X X
 tores, Brady, X X X X X
 sulcifera, Brady, X X X X X
 corpulenta, Brady and Norman, X X X X X
 lanellifera, Brady and Norman, X X X X X
 semilunaris, Brady and Norman, X X X X X
 gibbosa, Brady and Robertson, X X X X X
 rubida, Brady, X X X X X
 oblonga, Brady, X X X X X
 albomaculata, Baird, X X X X X
 leioderma, Norman, X X X X X
 robertsoni, Brady, X X X X X
 convexa, Baird, X X X X X
 speyeri, Brady, X X X X X
 marginata, Norman, X X X X X
 jeffreysii, Brady, X X X X X
 limicola, Norman, X X X X X
 cuneiformis, Brady, X X X X X
 navicula (Norman), X X X X X
 globulifera, Brady, X X X X X
 cluthe, Brady, Crosskey, and Robertson, X X X X X
 complexa, Brady, X X X X X
 villosa (G. O. Sars), X X X X X
 pulchella, Brady, X X X X X
 borealis, Brady, X X X X X
 fuscata, Brady, X X X X X
 macchesneyi, Brady and Crosskey, X X X X X
 septentrionalis, Brady, X X X X X
 echinata (G. O. Sars), X X X X X
 acanthoderma, Brady, X X X X X
 dictyon, Brady, X X X X X
 dasyderma, Brady, X X X X X
 scabrouneata, Brady, X X X X X
 scaberrima, Brady, X X X X X
 trispicata, Brady and Norman, X X X X X
 latimarginata, Speyer, X X X X X
 lepida, Brady and Norman, X X X X X
 hoptonensis, Brady, Crosskey, and Robertson, X X X X X
 crenulata (G. O. Sars), X X X X X
 quadridentata, Baird, X X X X X
 emaciata, Brady, X X X X X
 runcinata, Baird, X X X X X
 tuberculata (G. O. Sars), X X X X X
 milne-edwardsii, Brady and Norman, X X X X X
 bradii, De Folin, X X X X X
 coninna, G. O. Sars, X X X X X

Prince Edward's Island, Bass Strait, &c.

Gulf of St. Lawrence.

Gulf of St. Lawrence.

Vigo Bay.

Australia, Kong-Kong, &c.

Cape Verd. Vigo Bay.
Gulf of St. Lawrence.

Cape Verd. Ascension Is., &c.

N. & S. Pacific, S. Atlantic, &c.
Indian and Pacific Oceans, &c.
Indian, S. Atlantic, and Pacific Oceans, &c.

Bass Strait, New Zealand,
[Japan.

Portugal.

Gulf of St. Lawrence.

TABLE OF DISTRIBUTION OF THE "MARINE" OSTRACODA CONTAINED IN THIS MEMOIR.

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SPECIES.	Channel Isles.	England.	Scotland.	Ireland.	Madeira Province.	S. W. France.	Mediterranean.	Holland.	Norway.	Finmark.	Spitzbergen.	Iceland.	Greenland.	Atlantic (Abyssal).	1-15 faths.	15-100 faths.	100-500 faths.	500-3000 faths.	Post-tertiary- Fossil.	Tertiary- Fossil.	Other Localities in which the Species have occurred.
BYTHOCYTHERE—continued.																					
bieristata, Brady and Norman,	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
recta (Brady),	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
dromedaria, G. O. Sars,	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
simplex (Norman),	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
recurva, Brady and Norman,	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
PÆDOCYTHERE.																					
caudata, G. O. Sars,	X	X	X	X	..	X	X	..	X	..	..	..	..	..	X	X	X	X	X	..	Off Kerguelen, off Prince Ed- ward's Island.
SCLEROCHILUS.																					
contortus (Norman),	X	X	X	X	..	X	X	X	X	X	X	..	X	..	X	X	X	..	..	..
CYTHERIDEIS.																					
subulata, Brady,	X	X	X	X	..	X	X	..	..	..	..	..	..	..	..	..	..	..	..	X	Cape Verd Islands.
foveolata, Brady,	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Gulf of St. Lawrence.
CYTHEROIS.																					
fischeri (G. O. Sars),	..	X	X	X	..	..	X	..	X	..	..	..	..	..	X	X	..	..	X	..	Pomerania.
PARADOXOSTOMATIDE.																					
PARADOXOSTOMA.																					
variabile (Baird),	X	X	X	X	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
ensiforme, Brady,	X	X	X	X	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
abbreviatum, G. O. Sars,	X	X	X	X	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
obliquum, G. O. Sars,	X	X	X	X	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
normani, Brady,	X	X	X	X	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
pulchellum, G. O. Sars,	X	X	X	X	
hibernicum, Brady,	X	X	X	X	Vigo Bay. Kerguelen Island

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OF THIS MONOGRAPH.

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NOTE.—More Synonyms (in italics) are given in this Index than it was thought necessary to introduce into the body of the work. The pages referred to under such a name contains the species of which such additional name is the Synonym.

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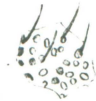
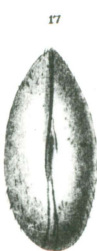
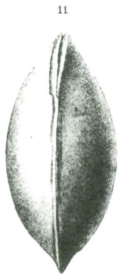
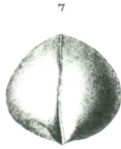
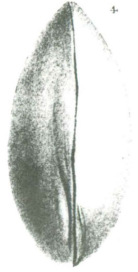
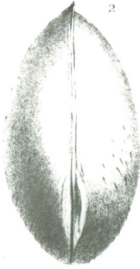
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EXPLANATION OF PLATE VIII.

PLATE VIII.

Figure.

1.	Cypris affinis, female, seen from left side.	x 40
2.	" " " " above,	"
3.	" olivacea. " " left side,	"
4.	" " " " above,	"
5.	" tumefacta, female, seen from left side.	x 40
6.	" " " " above.	"
7.	" " " " end view,	"
8.	" ornata, female, seen from left side.	x 20
9.	" " " " above,	"
9a.	" " portion of shell-surface (reflected light),	x 50
10.	" dromedaria, female, seen from right side.	x 22
11.	" " " " above,	"
12.	" cambrica, female, seen from left side.	x 60
13.	" " " " below,	"
14.	Erpetocypris strigata, female, seen from left side,	x 16
15.	" " " " above,	"
16.	Cypridopsis newtoni, female, seen from left side.	x 50
17.	" " " " below.	"
18.	Cypris flava, female, seen from left side,	x 22
19.	" " " " above,	"
20.	Cypridopsis variegata, female, seen from left side,	x 60
21.	" " " " above,	"
21a.	" " shell structure (transmitted light),	x 200



20a



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EXPLANATION OF PLATE IX.

PLATE IX.

Figure.

1.	<i>Candona fabæformis</i> , male, seen from left side,	. . .	× 40
2.	" " " " above,	. . .	"
3.	" " female, seen from left side,	. . .	"
4.	" " " " above,	. . .	"
5.	<i>Cypris hirsuta</i> , female, seen from left side,	. . .	"
6.	" " " " above,	. . .	"
7.	<i>Candona euplectella</i> , seen from left side,	. . .	× 50
8.	" " " " above,	. . .	"
8a.	" " shell structure,	. . .	× 210
9.	" <i>acuminata</i> , female, seen from left side,	. . .	× 40
10.	" " " " above,	. . .	"
11.	" <i>rostrata</i> , male, " left side,	. . .	"
12.	" " " " above,	. . .	"
12a, b.	" " juvr.,	. . .	"
13.	<i>Erpetocypris fasciata</i> , female, " left side,	. . .	"
14.	" " " " above,	. . .	"
15.	<i>Cypris clavata</i> , seen from left side,	. . .	× 24
16.	" " " " above,	. . .	"
17.	<i>Macrocypris angusta</i> , seen from left side,	. . .	× 40
18.	" " " " above,	. . .	"
19.	<i>Candona kingsleii</i> , male, seen from left side,	. . .	× 40
20.	" " " " above,	. . .	"
21.	" " female, " left side,	. . .	"
22.	" " " " above,	. . .	"
23.	<i>Scottia browniana</i> , female, seen from left side,	. . .	× 50
24.	" " " " above,	. . .	"

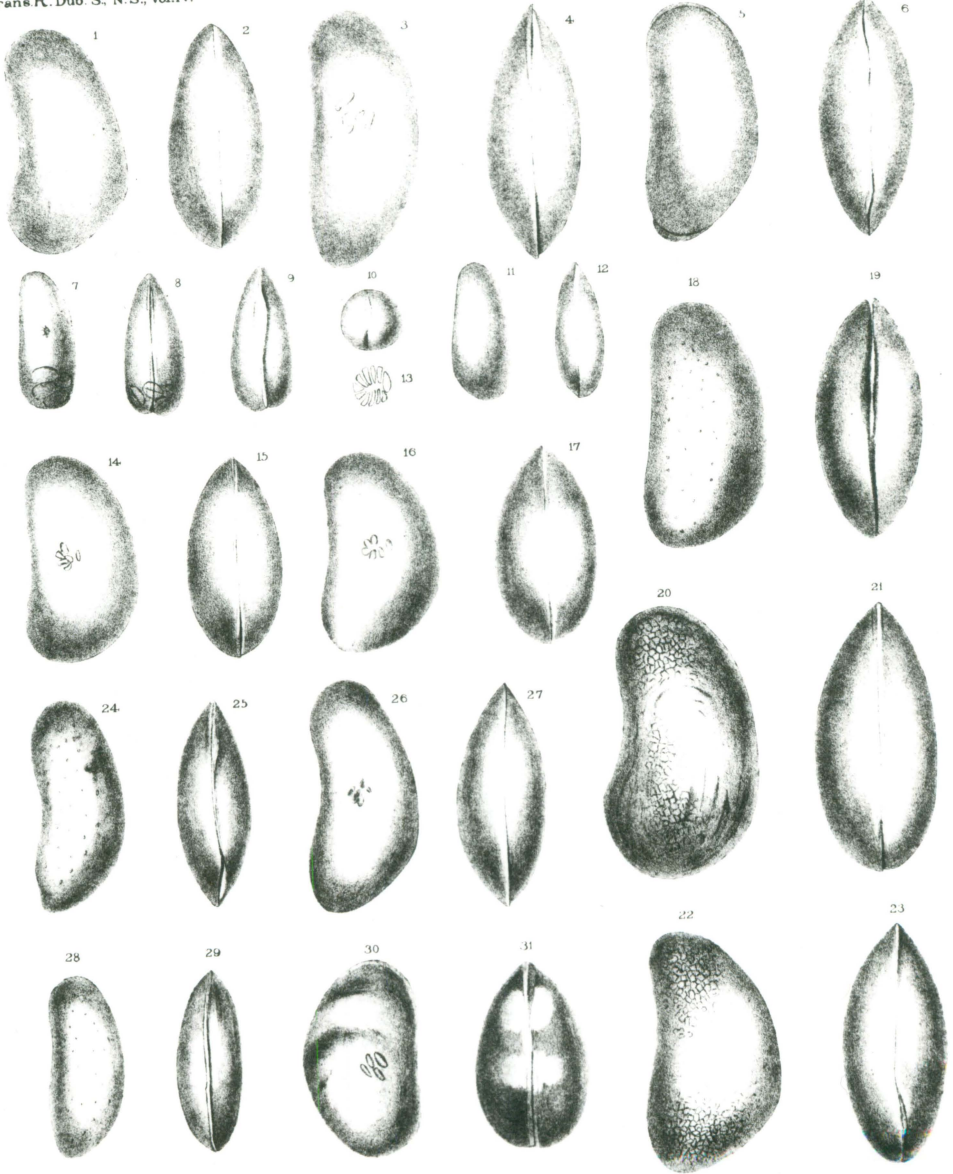


EXPLANATION OF PLATE X.

PLATE X.

Figure.

1.	<i>Candona candida</i> , var. <i>claviformis</i> , male, seen from left side,	× 36
2.	" " " " " above,	"
3.	<i>Cypris fischeri</i> , female, seen from left side,	× 28
4.	" " " " " above,	"
5.	<i>Candona acuminata</i> , seen from left side,	× 40
6.	" " " " " above,	"
7.	<i>Darwinula stevensoni</i> , female, seen from left side,	× 40
8.	" " " " " above,	"
9.	" " " " " below,	"
10.	" " " " " front,	"
11.	" " " " male, " left side,	"
12.	" " " " " above,	"
13.	" " " " lucid spots more highly magnified.	"
14.	<i>Candona candida</i> , var. <i>tumida</i> , male, seen from left side,	× 36
15.	" " " " " above,	"
16.	" " " " female, " left side,	"
17.	" " " " " above,	"
18.	<i>Candona candida</i> , var., female, seen from left side (Ackworth),	× 36
19.	" " " " " above,	"
20.	" " " " male, " left side (Chester Rd.),	"
21.	" " " " " above,	"
22.	" " " " female, " left side (Chester Rd.),	"
23.	" " " " " above,	"
24.	" " <i>elongata</i> , " " left side,	"
25.	" " " " " above,	"
26.	" " " " male, " left side,	"
27.	" " " " " above,	"
28.	<i>Argilloecia cylindrica</i> , seen from left side,	× 80
29.	" " " " " above,	"
30.	<i>Cypridopsis picta</i> , female, seen from right side,	× 210
31.	" " " " " above,	"



EXPLANATION OF PLATE XI.

PLATE XI.

Cypria sculpta (female).

Figure.

1. Antennule.
2. Antenna.
3. Mandible and palp.
4. Caudal ramus.
- 4a. Portion of shell of young.

Cypria ophthalmica (male).

5. Second pair of maxillæ.
6. Caudal ramus.
7. Verticillate sac.
8. The same, viewed endwise.
9. Copulative organs.

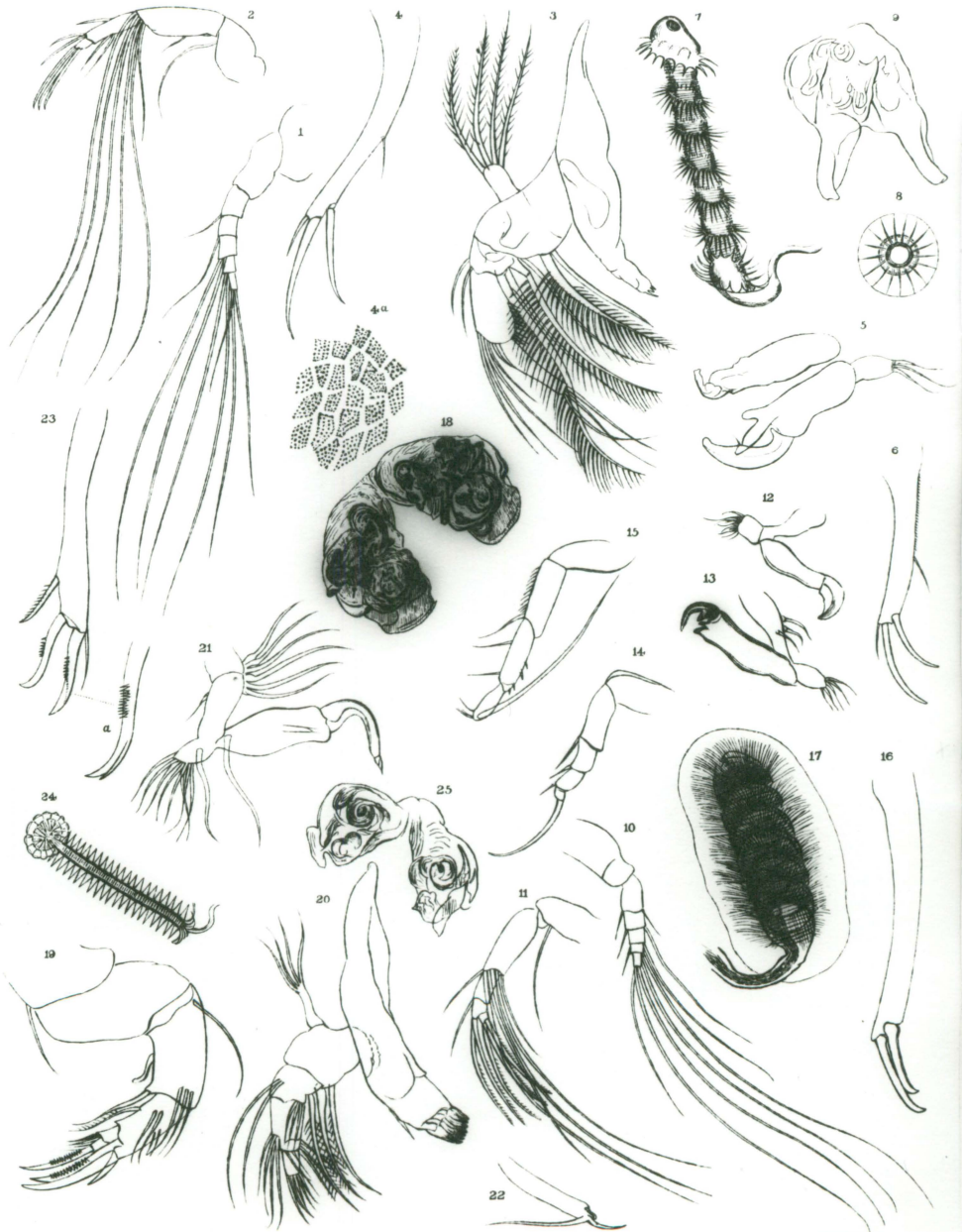
Cylocypria globosa (male).

10. Antennule.
11. Antenna.
12. Second maxilla, left side.
13. right side.
14. Foot of first pair.
15. .. second pair.
16. Caudal ramus.
17. Verticillate sac.
18. Copulative organs.

Scottia browniana (male).

19. Antenna.
20. Mandible and palp.
21. Second maxilla.
22. Last joint of second foot.
23. Caudal ramus.
- 23a. Claw of the same, more highly magnified.
24. Verticillate sac.
25. Copulative organs.

[All the figures highly magnified.]



EXPLANATION OF PLATE XII.

PLATE XII.

Figure.

1. *Erpetocypris fasciata*, end of caudal ramus.
2. *Cypris fischeri*, caudal ramus.
3. .. *fuscata*, shell showing (*a*) outer, and (*b*) inner, pigmented layer.
4. caudal ramus.
5. .. *affinis*, portion of shell.
6. (young).
7. caudal ramus.
8. .. *incongruens*, portion of shell.
9. caudal ramus.
10. .. *obliqua*, portion of shell.
11. *Erpetocypris strigata*, portion of shell (young).
12. *Cypris hirsuta*,

Cypris flava.

13. Antenna.
14. Mandible and palp.
15. Second maxilla of female.
16. male (right side).
17. (prehensile portion of left side).
18. Extremity of second foot.
19. Verticillate sac of male.
20. Copulative organs of male.
21. Portion of shell.

Candona rostrata.

22. Antennule.
23. Antenna.
24. Second maxilla of male.
25. Extremity of same seen obliquely (right side).
26. left side).
27. Extremity of second foot.
28. Caudal ramus.
29. Verticillate sac of male; (*a*) vas deferens.
30. Copulative organs of male.
31. Portion of shell (young).

Candona pubescens.

32. Antenna.
33. Second maxilla of male (right side).
34. left side).
35. Caudal ramus.
36. Portion of shell of adult.
37. Portion of shell of young.
38. Caudal ramus.

[The figures are all highly magnified, and those of shell structure are as viewed by transmitted light.]



G. S. Brady, del.

Geo West & Sons lith et imp.

EXPLANATION OF PLATE XIII.

PLATE XIII.

Darwinula stercorosi.

Figure.

1. Antennule.
2. Antenna.
3. Mandible and palp.
4. First maxilla.
5. Second maxilla and **palp.**
6. Foot of first pair.
7. „ second pair.
8. Extremity of abdomen.
9. Copulative organ of male.

Metacypris cordata.

10. Antennule.
11. Antenna.
12. Mandible and palp.
13. Maxilla.
14. Foot of first pair.
15. „ second pair.
16. „ third „
17. Copulative organ of male.

Erpetocypris tuncifera.

18. Antenna.

Candona kingsleii.

19. Mandible of male.

Bairdia complanata.

20. Antennule.
21. Antenna.
22. Mandible.
23. Maxilla.
24. First foot.
25. Second foot.
26. Caudal ramus.

Erpetocypris reptans.

27. Antenna.

Candona parabolica.

28. Animal seen from left side, magnified.
29. „ „ above, „
30. „ „ natural size (after Koel).



EXPLANATION OF PLATE XIV.

PLATE XIV.

Cylocypris globosa.

Figure.

1. Shell of male, seen from left side, . . . × 50
 2. " " " above, . . . "

Metacypris cordata.

3. Shell of female, seen from left side, . . . × 84
 4. " " " below, . . . "
 5. " " " front, . . . "
 6. " male, " left side, . . . "
 7. " " " above, . . . "
 8. Right valve of female, seen from inside, . . . "
 9. Left " " " " " "
 10. Hinge margins, seen from above, . . . "
 11. Ventral margins, seen from below, . . . "
 12. Posterior margins, seen from behind, . . . "

Cythere pellucida.

13. Shell of female, seen from left side, . . . × 40
 14. " " " above, . . . "
 15. " male, " left side, . . . "

Cythere confusa.

16. Shell of female, seen from left side, . . . × 40
 17. " " " above, . . . "
 18. " male, " left side, . . . "

Cythere macallana.

19. Shell of female, seen from left side, . . . × 60
 20. " " " above, . . . "
 21. " male, " left side, . . . "

Cythere porcellanea.

Figure.

22. Shell of female, seen from left side, . . . × 60
 23. " " " above, . . . "
 24. " male, " left side, . . . "

Cythere cluthæ.

25. Shell, seen from left side, . . . × 100
 26. " " above, . . . "
 27. " " below, . . . "

Aglia complanata.

28. Shell, seen from left side, . . . × 60
 29. " " above, . . . "

Cythere gibbosa.

30. Shell, seen from left side, . . . × 80
 31. " " above, . . . "

Cythere robertsoni.

32. Shell, seen from left side, . . . × 84
 33. " " above, . . . "

Bythocypris bosquetiana.

34. Shell, seen from right side, . . . × 50
 35. " " above, . . . "

Cythere ters.

36. Shell, seen from left side, . . . × 80
 37. " " above, . . . "



EXPLANATION OF PLATE XV.

P L A T E X V.

Figure.

1.	Cythere <i>crispata</i> , seen from left side,	x 80
2.	" " " above,	"
3.	" <i>badia</i> , " left side,	x 70
4.	" " " above,	"
5.	" <i>crenulata</i> , seen from left side,	x 50
6.	" " " above,	"
7.	" <i>pulchella</i> , " left side,	"
8.	" " " above,	"
9.	" <i>fuscata</i> , male, seen from left side,	"
10.	" " " " above,	"
11.	" " female, " left side.	"
12.	" <i>leioderma</i> , " left side,	x 40
13.	" " " above,	"
14.	" <i>canadensis</i> , " left side.	x 60
15.	" " " above,	"
16.	" <i>latimarginata</i> , " left side,	x 50
17.	" " " above,	"
18.	" <i>borealis</i> , female, " left side,	x 40
19.	" " " " above,	"
20.	" <i>lepida</i> , " left side,	x 50
21.	" " " above,	"
22.	" <i>rubida</i> , " left side,	x 60
23.	" " " above,	"
24.	" <i>runcinata</i> (female ?) left side,	x 40
25.	" " " " seen from above.	"
26.	" <i>hoptonensis</i> , seen from left side,	x 50
27.	" " " " above,	"
28.	" <i>scabrocuneata</i> , right valve, from outside,	x 40
29.	" " " " " above,	"
30.	" <i>runcinata</i> (male ?) seen from left side,	"
31.	" " " " " above.	"



EXPLANATION OF PLATE XVI.

P L A T E X V I.

Figure.

1.	Cythere emarginata, female, seen from left side,	. .	× 50
2.	" " " " above,	. .	"
3.	" bradii, " " left side,	. .	"
4.	" " " " above,	. .	"
5.	" trispicata, right valve, " outside,	. .	× 60
6.	" " " " above,	. .	"
7.	" costata, female, " left side,	. .	× 40
8.	" " " " above,	. .	"
9.	" echinata, " " left side,	. .	"
10.	" " " " above,	. .	"
11.	" corpulenta, female, seen from left side,	. .	× 80
12.	" " " " above,	. .	"
13.	" septentrionalis, from left side,	. .	× 40
14.	" " " below,	. .	"
15.	" navicula, from left side,	. .	84
16.	" " " below,	. .	"
17.	" cribrosa, from left side,	. .	× 60
18.	" " " above,	. .	"
19.	" dawsoni, " left side,	. .	—
20.	" " " above,	. .	"
21.	Cytheridea stigmosa, from left side,	. .	× 100
22.	" " " above,	. .	"
23.	" fascis, " left side,	. .	× 60
24.	" " " above,	. .	"
25.	Xestoleberis margaritea, from left side,	. .	× 50
26.	" " " above,	. .	"
27.	" labiata, " left side,	. .	"
28.	" " " above,	. .	"



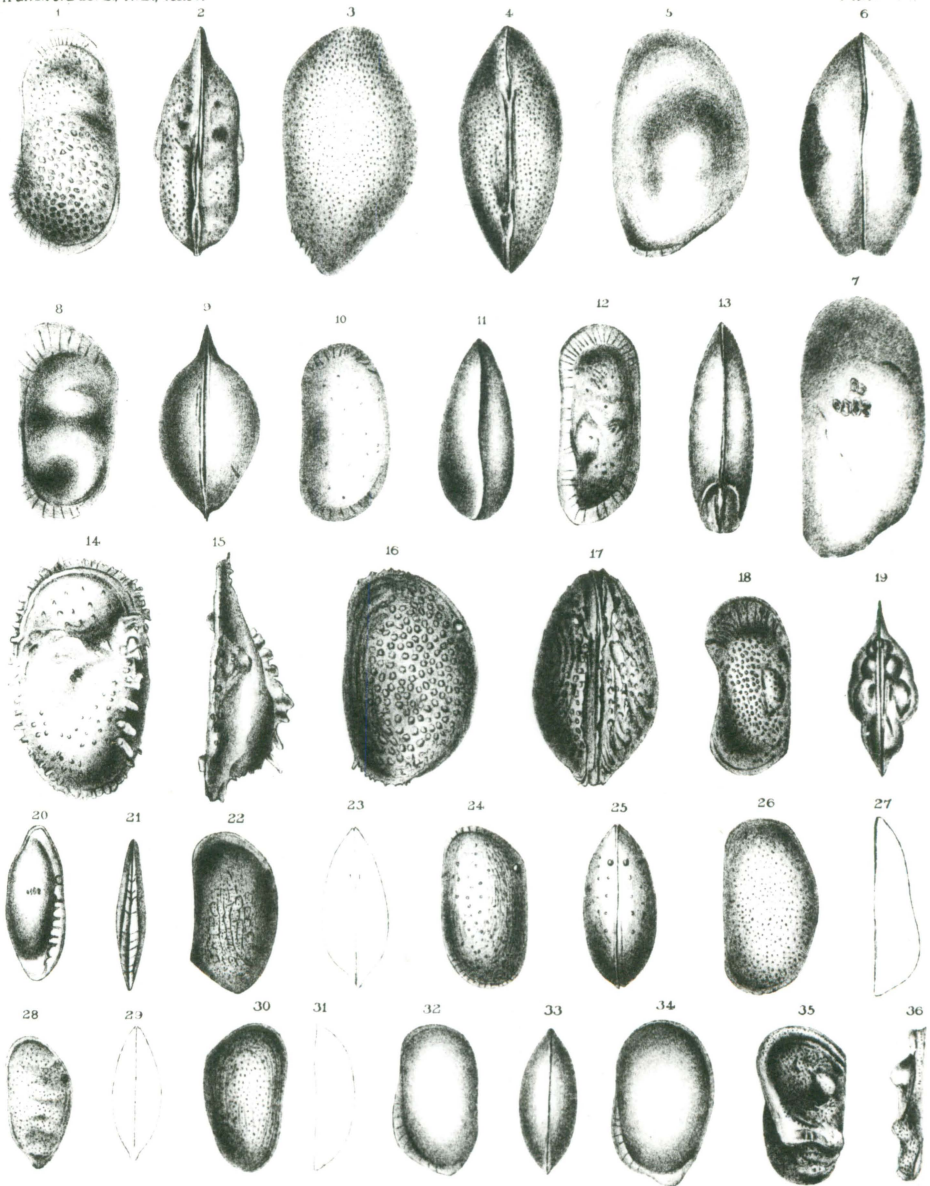
EXPLANATION OF PLATE XVII.

P L A T E X V I I .

Figure.

1.	Limnocythere sancti-patricii, male, seen from left side,	× 60
2.	" " " " " " above,	" "
3.	Bairdia crosskeiana, seen from left side,	× 10
4.	" " " " " " above,	" "
5.	Krithe producta, female, seen from left side,	× 40
6.	" " " " " " above,	" "
7.	" " " " " " male, " " left side,	" "
8.	Limnocythere relictæ, seen from left side,	× 60
9.	" " " " " " above,	" "
10.	Krithe angusta, female, seen from left side,	× 80
11.	" " " " " " above,	" "
12.	" " " " " " male, " " left side,	" "
13.	" " " " " " above,	" "
14.	Cythere audax, right valve, seen from outside,	× 40
15.	" " " " " " above,	" "
16.	" speyeri, seen from left side,	× 50
17.	" " " " " " above,	" "
18.	Limnocythere inopinata, var. compressa, seen from left side,	× 60
19.	" " " " " " above,	" "
20.	Machacrina amygdaloides, seen from right side,	× 40
21.	" " " " " " below,	" "
22.	Cytherura atra,* seen from left side,	—
23.	" " " " " " above,	—
24.	Loxococoncha pusilla, seen from left side,	× 84
25.	" " " " " " above,	" "
26.	Cytheridea similis, left valve, seen from outside,	× 40
27.	" " " " " " below,	" "
28.	Cytherura concentrica (?), young shell, seen from left side,	× 80
29.	" " " " " " above,	" "
30.	Cythere m'chesneyi, right valve, seen from outside,	× 50
31.	" " " " " " above,	" "
32.	Loxococoncha fragilis, male, seen from left side,	× 70
33.	" " " " " " above,	" "
34.	" " " " " " female, " " left side,	" "
35.	Cythere cluthæ, left valve, seen from outside,	× 80
36.	" " " " " " above,	" "

* The outlines are after G. O. Sars, the sculpture from a fossil specimen.



G. S. Brady, del.

Geo. West & Sons, lith. & imp.

EXPLANATION OF PLATE XVIII.

PLATE XVIII.

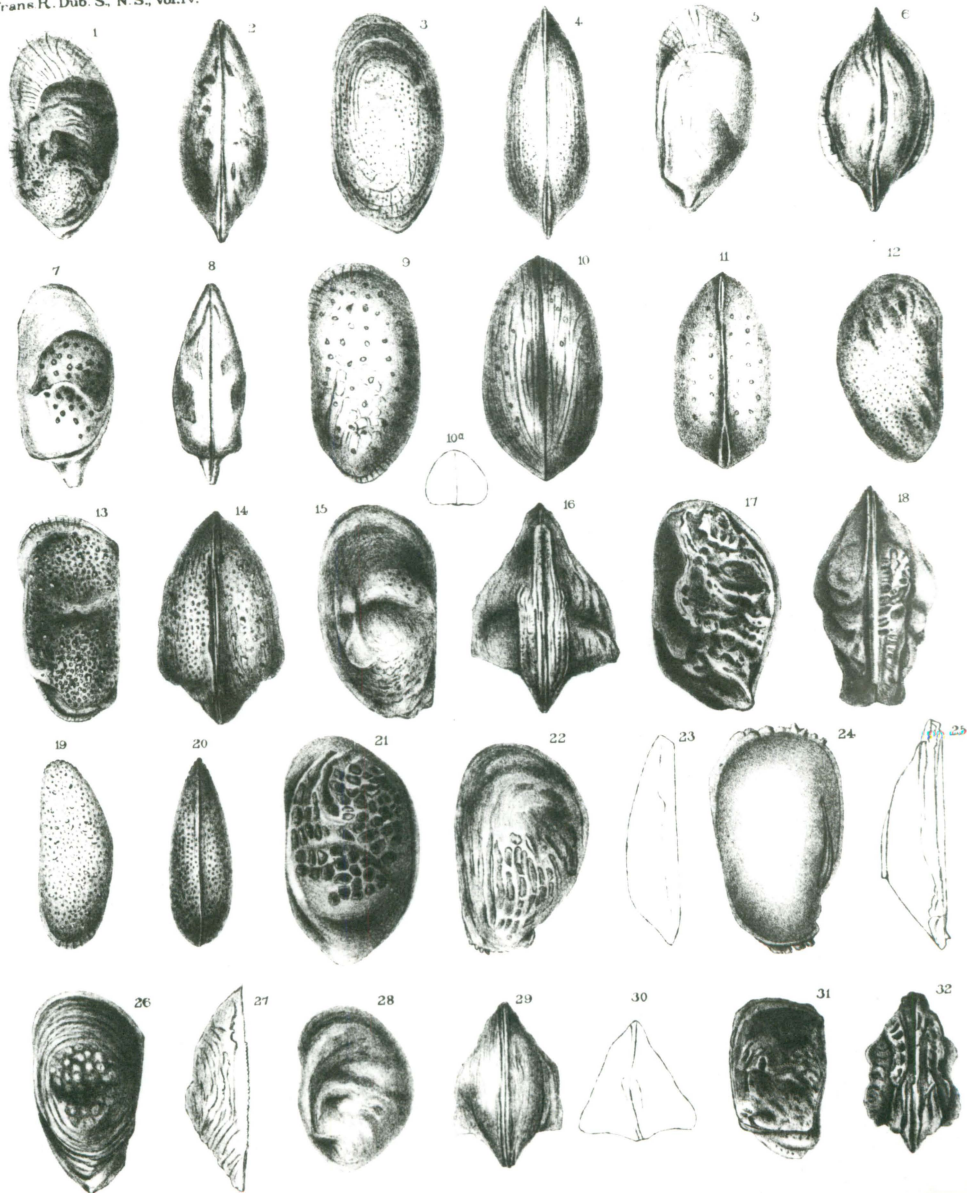
<i>Cytherura simplex.</i>		
Figure.		
1.	Shell, seen from left side,	× 100
2.	„ „ above,	„
<i>Cytherura sella.</i>		
3.	Shell of male, seen from left side,	× 100
4.	„ „ „ above,	„
5.	„ female, „ left side,	„
6.	„ „ „ above,	„
<i>Cytherura similis</i>		
7.	Shell of female, seen from left side,	× 80
8.	„ male, „ „	„
9.	„ „ „ above,	„
<i>Cytherura rudis.</i>		
10.	Shell of male, seen from left side,	× 80
11.	„ „ „ above,	„
12.	„ female, „ left side,	„
<i>Cytherura gibba.</i>		
13.	Shell of female, seen from left side,	× 80
14.	„ „ „ above,	„
15.	„ male, „ left side,	„
16.	„ „ „ above,	„
<i>Cytherura striata.</i>		
17.	Shell of female, seen from left side,	× 100
18.	„ „ „ above,	„
<i>Cytherura affinis.</i>		
19.	Shell, seen from left side,	× 80
20.	„ „ above,	„
<i>Cytherura cornuta.</i>		
21.	Shell of male, seen from left side,	× 80
22.	„ „ „ above,	„
<i>Cytherura groenlandica.</i>		
23.	Shell, seen from left side,	—
24.	„ „ above,	—

EXPLANATION OF PLATE XIX.

P L A T E X I X.

Figure.

1.	Cytherura nigrescens, female, seen from left side.	100
2.	.. .. above,	..
3.	.. concentrica, .. left side,	x 80
4.	.. .. above,	..
5.	.. producta, .. left side,	..
6.	.. .. above,	..
7.	.. angulata, .. left side,	..
8.	.. .. above,	..
9.	.. fulva, female, .. left side,	..
10.	.. .. above,	..
10a.	.. .. end view,	x 40
11.	.. .. male, seen from above,	x 80
12.	.. undata, .. right side (junior),	..
13.	Bythocythere recta, seen from left side,	..
14.	.. .. above,	..
15.	.. bicristata, seen from left side,	x 66
16.	.. .. above,	..
17.	Cytheropteron angulatum, seen from left side,	x 80
18.	.. .. above,	..
19.	Cytherideis foveolata, .. left side,	x 50
20.	.. .. above,	..
21.	Cytherura rudis, <i>nov.</i> , from left side,	x 80
22.	Cythere sulcifera, left valve, from outside,	x 40
23.	.. .. above,	..
24.	Bythocythere recurva, right valve, from outside,	x 80
25.	.. .. above,	..
26.	Cytheropteron montrosiense, left valve, from outside,	x 80
27.	.. .. above,	..
28.	.. arcuatum, seen from left side,	..
29.	.. .. above,	..
30.	.. .. behind,	..
31.	Cythere complexa, seen from left side,	..
32.	.. .. above,	..



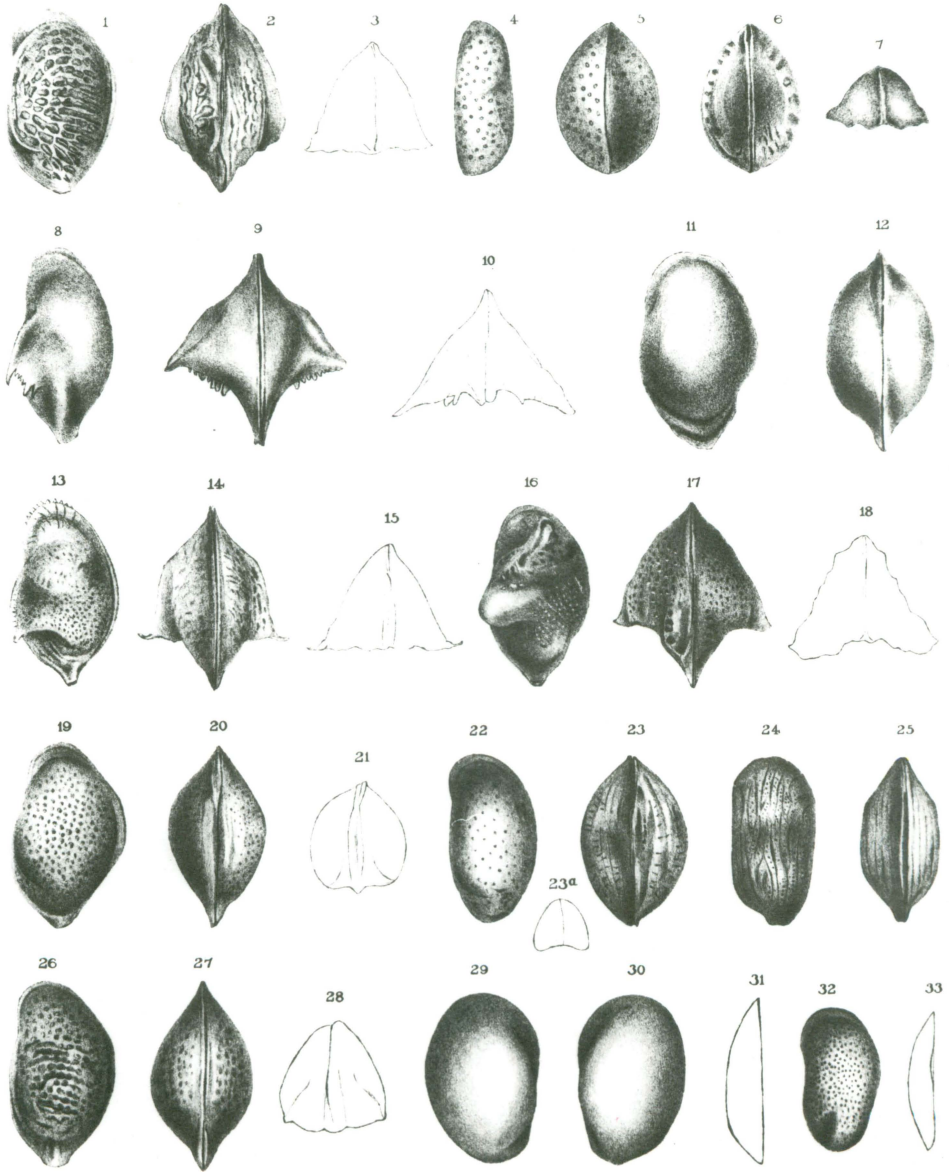
EXPLANATION OF PLATE XX.

P L A T E X X.

Figure.

1.	Cytheropteron pyramidale, male, seen from left side,	50
2.	" " " " above,	" "
3.	" " " " behind,	" "
4.	" humile, seen from left side,	× 80
5.	" " " " above,	" "
6.	" " " " below,	" "
7.	" " " " behind,	" "
8.	" alatum, .. left side.	× 50
9.	" " " " above,	" "
10.	" " " " behind,	" "
11.	Bythocythere dromedaria, seen from left side,	× 50
12.	" " " " above,	" "
13.	Cytheropteron hamatum, seen from left side,	× 60
14.	" " " " above,	" "
15.	" " " " behind,	" "
16.	" crassipinnatum, seen from left side,	× 80
17.	" " " " above,	" "
18.	" " " " behind,	" "
19.	" inflatum, .. left side,	× 50
20.	" " " " above,	" "
21.	" " " " behind,	" "
22.	" depressum, .. left side,	× 80
23.	" " " " below,	" "
23a.	" " " " end view,	× 50
24.	Cytherura exserta, seen from left side,	100
25.	" " " " above,	" "
26.	Cytheropteron subcircinatum, seen from left side,	× 80
27.	" " " " above,	" "
28.	" " " " behind,	" "
29.	" leve, right valve from outside,	× 50
30.	" " left	" "
31.	" " " " from above,	" "
32.	Cythere mamillata, left valve from outside,	× 80
33.	" " " " from above,	" "

* The figures of this species are drawn from a fossil specimen.



EXPLANATION OF PLATE XXI.

P L A T E X X I.

Cytheropteron testudo

Figure.

- | | | |
|----|---------------------------------------|------|
| 1. | Shell, seen from left side, | x 80 |
| 2. | above, | .. |

Cytheridea castanea.

- | | | |
|----|---------------------------------------|------|
| 3. | Shell, seen from left side, | x 40 |
| 4. | above, | .. |

Paradoxostoma arcuatum.

- | | | |
|----|---------------------------------------|------|
| 5. | Shell, seen from left side, | x 80 |
| 6. | above, | .. |

Paradoxostoma hodgii.

- | | | |
|----|---------------------------------------|------|
| 7. | Shell, seen from left side, | x 80 |
| 8. | above, | .. |

Paradoxostoma productum.

- | | | |
|-----|---------------------------------------|------|
| 9. | Shell, seen from left side, | x 80 |
| 10. | above, | .. |

Paradoxostoma flexuosum.

- | | | |
|-----|---------------------------------------|------|
| 11. | Shell, seen from left side, | x 80 |
| 12. | above, | .. |

Macharina tenuissima.

- | | | |
|-----|---------------------------------------|------|
| 13. | Shell, seen from left side, | x 40 |
| 14. | above, | .. |

Paradoxostoma hibernicum.

- | | | |
|-----|---|------|
| 15. | Shell of female, seen from left side, | x 60 |
| 16. | above, | .. |
| 17. | .. male, .. left side, | .. |

Paradoxostoma orchadense.

- | | | |
|-----|---------------------------------------|------|
| 18. | Shell, seen from left side, | x 80 |
| 19. | above, | .. |

Cytherois fischeri.

- | | | |
|-----|---|------|
| 20. | Shell of female, seen from left side, | x 80 |
| 21. | above, | .. |
| 22. | .. male, .. left side, | .. |

Krithe reniformis.

- | | | |
|-----|---------------------------------------|------|
| 23. | Shell, seen from left side, | x 80 |
| 24. | above, | .. |

Paradoxostoma fasciatum.

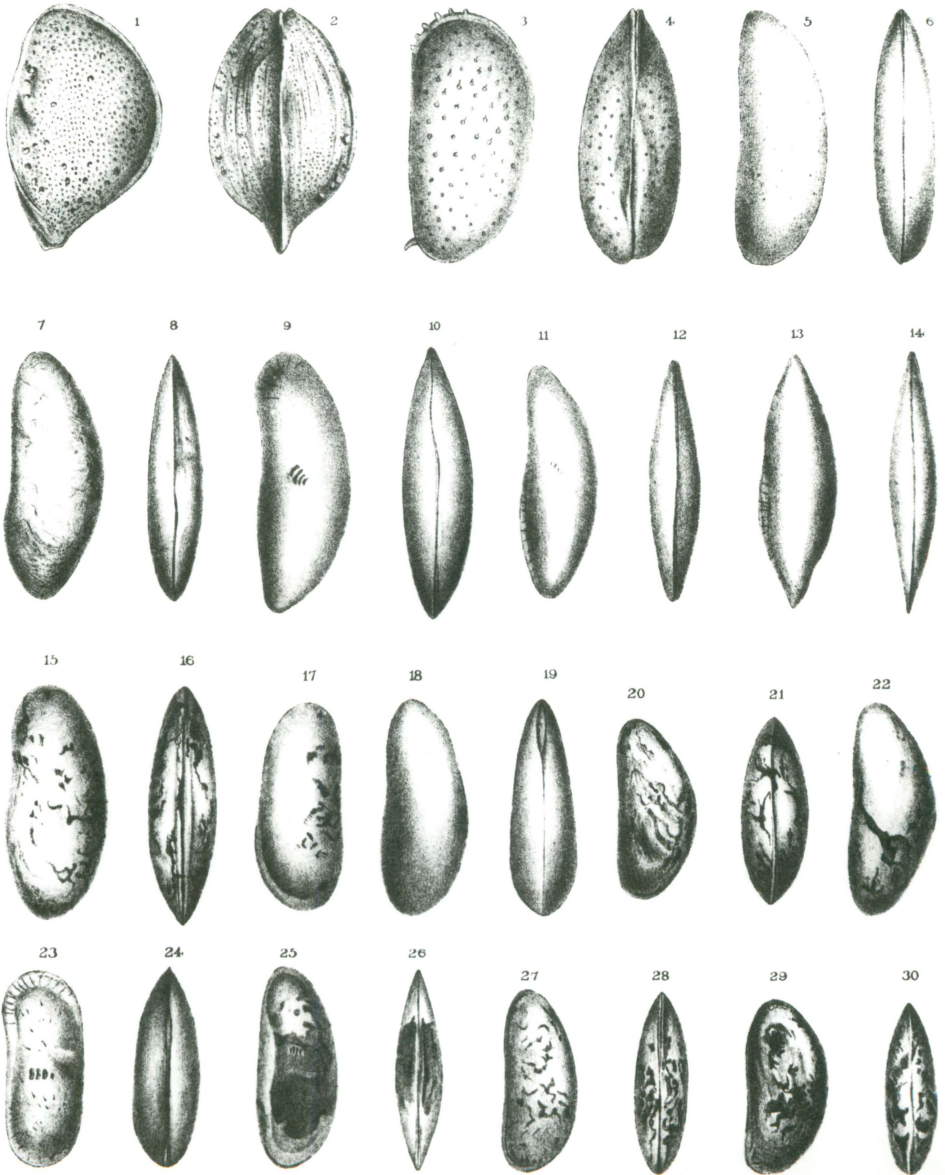
- | | | |
|-----|---------------------------------------|------|
| 25. | Shell, seen from left side, | x 50 |
| 26. | above, | .. |

Paradoxostoma vitreum.

- | | | |
|-----|---------------------------------------|------|
| 27. | Shell, seen from left side, | x 80 |
| 28. | above, | .. |

Paradoxostoma pulchellum.

- | | | |
|-----|---------------------------------------|------|
| 29. | Shell, seen from left side, | x 80 |
| 30. | above, | .. |



EXPLANATION OF PLATE XXII.

PLATE XXII.

Hyocypris gibba (female).

Figure.

1. Antenna.
2. Mandible.
3. First maxilla.
4. Second maxilla.
5. Distal half of second foot.

Cytherura gibba.

6. Antennule.
7. Antenna.
8. Mandible.
9. First maxilla.
10. Copulative organs of male.
11. Terminal portion of same more highly magnified.
12. Portion of shell.

Potamocypris fulva.

13. Antennule.
14. Antenna.
15. Mandible.
16. Second foot.
17. Copulative organ of male, with coil of spermatic filaments.

Pontocypris trigonella.

18. Antennule.
19. Antenna.
20. Mandible.
21. Second maxilla of female.
22. Second maxilla of male.
23. Foot of first pair.
24. Foot of second pair.
25. Caudal ramus.



EXPLANATION OF PLATE XXIII.

PLATE XXIII.

Figure.

- | | | |
|-----|---|-----|
| 1. | Bythocythere insignis,* shell, seen from right side. | --- |
| 2. | " " " " above, | - |
| 3. | Paradoxostoma rostratum.* shell, seen from right side. | -- |
| 4. | " " " " left side, | - |
| 5. | Darwinula stevensoni, female, valve removed so as to show animal. | |
| 6. | Pontocypris trigonella, female. | .. |
| 7. | Loxococoncha impressa, female. | .. |
| 8. | Cytherura gibba,† male, | .. |
| 9. | Bythocythere simplex, female, | .. |
| 10. | Paradoxostoma variabile, male, | .. |

- (a) antennule.
- (b) antenna.
- (c) poison-gland.
- (d) flagellum.
- (e) mandible.
- (f) mandible-palp.
- (g) labrum.
- (h) labium.
- (i) first maxilla.
- (k) second maxilla.
- (l) first foot.
- (m) second foot.
- (n) third foot.
- (o) appendages at base of first pair of feet.
- (p) abdomen.
- (q) caudal rami.
- (r) copulative organ of male.
- (s) convoluted process of same.
- (t) ova.

* After drawings by Prof. G. O. Sars.

† The mandible in fig. 8 is drawn out of position, and too near the front of the animal.

