

The Marine Fauna of the Cullercoats District

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ARTHROPODA 3b  
CRUSTACEA ; OSTRACODA

by

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Univ. Newcastle upon Tyne

Rep.Dove Mar.Lab.

3rd Ser. 16 ; pp. 41 to 68

1967

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Sub-Class OSTRACODA Latreille

Order MYODOCOPA G. O. Sars

CYPRIDINIDAE Brady & Norman

**Philomedes globosus** (LILLJEBORG)

Skogsberg 1920, p. 381, figs. 66-69 : Sars 1928, pp. 12-14, pls. 5-7.

"Rather common" in dredge from muddy bottom 40-50 miles off Tynemouth Aug. 1861 (Norman 1862b, as *Cypridina brenda*): Moderately common, dredge, muddy sand, 35 fms., 14 miles off Seaham (Brady & Robertson 1876, as *Bradycinetus brenda*): One, dredge, 50 fms., 25 miles E. Alnmouth (Brady 1903, as *Philomedes brenda*).

One female in bottom sledge net haul on mud in 14 fms., Cambois Bay NE Sow Buoy, Jul. 1952 (J.B.).

**Philomedes interpuncta** (BAIRD)

Brady 1868, p. 463, pl. 33, figs. 10-13, pl. 41, fig. 3 : Brady & Norman 1896, p. 656, pl. 56, figs. 6-10, pl. 57.

"Off Northumberland, 1862\* : . . . . A.M.N." (Brady & Norman 1896): Rare, "deep water", off Northumberland Coast (Brady 1868b): Rare, dredge, muddy sand, 33 fms., 7 miles off Marsden; sand and gravel, 40-45 fms., 30 miles off Sunderland; gravelly sand, 20 fms., 4 miles off Hawthorn, Jul. 1874 (Brady & Robertson 1876).

ASTEROPIDAE Brady & Norman

**Asterope norvegica** G. O. SARS

Skogsberg 1920, p. 527, figs. 103, 104 : Sars 1928, p. 17, pls. 9, 10, fig. 1. (as *A. mariae*)

One, dredge, 39 fms., 33 miles E.S.E. Alnmouth Aug. 1901 (Brady 1903, as *A. mariae*).

One female in bottom sledge net haul, 14 fms., on mud, NE of Sow Buoy in Cambois Bay Apr. 1952 (J.B.).

**Asterope teres** (NORMAN)

Müller 1894, p. 220, pl. 4, figs. 13, 30, 43; pl. 5, figs. 6, 15, 24, 25; pl. 8, fig. 5 (as *Cylindroleberis teres*).

Rare, dredge, muddy sand, 35 fms., 14 miles off Seaham Jul. 1874 (Brady & Robertson 1876).

\* This record cannot be found in the dredging reports.

## Order CLADOCOPA G. O. Sars

### POLYCOPIDAE G. O. SARS

#### **Polycope orbicularis** G. O. SARS

Sars 1928, p. 31, pl. 14, fig. 1.

Rare, dredge, muddy sand, 35 fms., 14 miles off Seaham; and in gravelly sand, 20 fms., 4 miles off Hawthorn (Brady & Robertson 1876).

Females present, sometimes common, in bottom sledge net hauls on mud, 14 fms., NE Sow Buoy Cambois Bay, summer 1950 and 1952 (J.B.).

## Order PODOCOPA G. O. Sars

### CYPRIDAE Baird

#### **Candona candida** (O. F. MÜLLER)

Sars 1928, p. 72, pls. 32, 33.

Hylton Dene in freshwater pool but with other crustacea normally inhabiting salt water (Brady 1864a as *C. lucens*): Fairly common, together with the var. *tumida*, in Waren Burn above H.W.; present in tidal muds of R. Aln at Alnmouth and R. Wansbeck about  $\frac{1}{2}$  mile from mouth; common in tidal muds of R. Coquet and Sleekburn, Blyth (Brady & Robertson 1870): Seaton burn above sluice (Brady & Robertson 1872): Abundant in R. Coquet near Warkworth Hermitage (Brady 1910 as *C. angulata*).

#### **Candona lactea** BAIRD

Brady 1910, p. 204, pl. 24, figs. 1-4: Brady 1870, p. 382, pl. 24, figs. 55-58.

Present in tidal muds, Budle Bay, R. Aln, R. Coquet, and R. Wansbeck (Brady & Robertson 1870); "... Seaton Carew marshes ..." (Norman & Brady 1909).

#### **Candona detecta** (O. F. MÜLLER)\*

Brady 1870, p. 384, pl. 24, figs. 35-38; pl. 37, fig. 2.

In tidal muds of R. Aln, R. Coquet and Sleekburn, Blyth (Brady & Robertson 1870).

#### **Candona parallela** G. W. MÜLLER

Sars 1928, p. 82, pl. 39, fig. 1. (as *C. albicans*)

In tidal muds of R. Coquet, R. Aln and in the Waren burn (Brady &

\* Müller 1912 appears to accept this species (as *Candona detecta* (Müller?) Croneberg) but Sars 1928 thinks it is probably the young of *Candona caudata* Kaufmann.

Robertson 1870 as *C. albicans*): Seaton Carew marshes (Brady & Norman 1889 as *C. pubescens*).

**Cyclocypris laevis** (O. F. MÜLLER)

Müller 1900,p.41,pl.10,figs.14-22 : Sars 1928,p.93,pl.43,fig.2.

Fairly common in Waren burn; present in tidal muds of R.Aln and Sleekburn, Blyth, common in tidal marks of R.Coquet (Brady & Robertson 1870).

**Cyclocypris ovum** (JURINE)

Müller 1900,p.42,pl.10,figs.1-13 : Sars 1928,p.92,pl.43,fig.1.

Fairly common in Waren burn; present in tidal muds of R.Aln and Sleekburn, Blyth (Brady & Robertson 1870).

**Cypria ophthalmica** (JURINE)

Sars 1928,p.97,pl.45,fig.1.

Fairly common in Waren burn; present in tidal muds of R.Aln and R.Wansbeck (Brady & Robertson 1870 as *C. compressa*).

**Ilyocypris gibba** (RAMDOHR)

Sars 1928,p.108,pl.50,fig.1 : Klie 1938,p.90-91,figs.321,322.

Hylton Dene, fresh water but associated with other crustacea normally found in salt water (Brady 1864a); present in tidal muds of R.Aln, fairly common in R.Coquet below Warkworth Hermitage and common in Sleekburn, R.Blyth (Brady & Robertson 1870); Seaton burn above and below sluice (Brady & Robertson 1872).

**Eucypris pigra** (FISCHER)

Sars 1928,p.132,pl.61,fig.2 : Klie 1938,pp.112-3,figs.388,389.

Present in tidal muds in R.Coquet and fairly common in bed of Waren burn (Brady & Robertson 1870 as *Cypris tumefacta*).

**Herpetocypris reptans** (BAIRD)

Sars 1928,p.128,pl.59.

Present in tidal muds of R.Wansbeck and common in Sleekburn, R.Blyth (Brady & Robertson 1870); Seaton Burn above sluice (Brady & Robertson 1872) (as *Cypris reptans*).

**Heterocypris incongruens** (RAMDOHR)

Sars 1928,p.125,pl.57 : Müller 1900,p.77,pl.13,figs.15,16,21,22.

Present in tidal mud of Sleekburn, R.Blyth (Brady & Robertson

1870); Seaton Delaval (Brady & Norman 1889); (as *Cypris incongruens*): "... Seaton Carew ..." (Norman & Brady 1909 as *Cyprinotus incongruens*).

Adult females and young abundant in brackish pool on Staple Is., Farnes 16 Jun. 1951 (J.B.); also in brackish pools on Inner Farne Jul. 1952 (coll. H.O.B. id J.P.H.) and Sep. 1954 (J.B.).

**Heterocypris salina\*** (BRADY)

Sars 1928, p.122, pl.56, fig.1.

In brackish pool, above H.W., salt marsh below Warkworth, 1865 (Brady 1870 as *Cypris salina*).

**Cypridopsis aculeata** (COSTA)

Sars 1928, p.141, pl.65, fig.3.

In autumn in Cowpen Marshes, near Stockton-on-Tees (Norman 1861); Hylton Dene in fresh water but associated with crustacea normally found in salt water; also in sub-brackish pools slightly above tidal influence (Brady 1864a); (as *Cypris aculeata*): Warkworth (Brady 1868b); Seaton Delaval (Brady & Norman 1889); Seaton Carew and Newbiggin (Norman & Brady 1909).

**Cypridopsis obesa** BRADY & ROBERTSON

Sars 1928, p.137, pl.64, fig.2.

Present in tidal muds of R.Aln and Sleekburn, R.Blyth (Brady & Robertson 1870).

**Potamocypris fulva** BRADY

Müller 1900, p.86, pl.18, figs.6-9, 13, 14.

One or two specimens in bed of Waren burn, and in tidal muds of R.Aln, R.Coquet, R.Wansbeck and Sleekburn, R.Blyth (Brady 1870a; Brady & Robertson 1870; Brady & Norman 1889).

**Argilloecia cylindrica** G. O. SARS

Sars 1928, p.54, pl.24.

"Off Seaham and Marsden, Durham Coast" (Brady & Norman 1889).

\* Probably also on record as *Cyprinotus* or *Cypris prasina* Fischer (e.g. Brady & Robertson 1872, Brady & Norman 1889, Norman & Brady 1909).

**Argilloecia propinqua** BRADY

Brady 1904,p.5,pl.2,figs.1-8.

One female specimen in 1901 dredge material from 59 fms., 29 miles E Alnmouth (Brady 1903 as *A.affinis*; Brady 1904 as *A.propinqua*).

**Erythrocypris mytiloides** (NORMAN)

Sars 1928,p.50,pls.21,22.

Dredged, 40 fms., 5-6 miles off Marsden and off Holy Is. Jul. 1864 (Norman 1865 as *Cythere avena*): Fairly frequent, dredge, 15-30 fms., off Seaham, 1869 (Brady 1870); Present in deep water, Northumberland coast (Brady 1868b); Present in R.Aln on mud above Alnmouth (Brady & Robertson 1870); Between tide-marks on muddy rocks N of Whitley Bay (Brady & Robertson 1872); Moderately common, dredge, 20 fms., gravel, 4 miles off Hawthorn and 5 miles off Castle Eden, rare 20 fms., 5 miles off Hartlepool Jul. 1874 (Brady & Robertson 1876) (all as *Pontocypris mytiloides*).

**Pontocypris trigonella** G. O. SARS

Sars 1928,p.48,pl.20.

Present in bed of Sleekburn, R.Blyth (Brady & Robertson 1870); "Apparently scarce on this coast, Budle Bay" (Norman & Brady 1909).

**Pontocypris acupunctata** BRADY

Brady 1868,p.386,pl.25,figs.53-56.

Budle Bay, Northumberland, and off Marsden in 10 fms; "A very rare species" (Brady & Norman 1889).

CYTHERIDAE Baird

**Limnocythere inopinata** (BAIRD)

Sars 1928,p.151,pl.69,fig.2.

Fairly common in bed of Waren burn, and in tidal muds of R.Aln, R.Coquet and R.Wansbeck; present in tidal mud Sleekburn, R.Blyth (Brady & Robertson 1870); Seaton burn above and below sluice (Brady & Robertson 1872).

**Cyprideis littoralis** (BRADY)

Sars 1928,p.155,pls.71,72,fig.1.

In immense profusion in brackish water at Hartlepool (Norman) and in extraordinary numbers in estuarine pools at Warkworth (Brady

1864b as *Cyprideis torosa* Jones): Often in very great abundance, almost always in brackish water or in pools subject to overflow of ordinary spring tides, Jarrow Slake, Seaton Sluice, mouths of R. Wansbeck and R. Coquet (Brady 1869 as *Cytheridea littoralis*): Also Hartlepool (A. M. Norman), Warkworth, Alnmouth and Cambois (Brady 1868b); present in R. Wansbeck and common in Sleekburn R. Blyth (Brady & Robertson 1870) (as *Cytheridea torosa*): Seaton burn above and below sluice (Brady & Robertson 1872 as *var. teres*).

**Cytheridea papillosa** BOSQUET

Sars 1928, p. 159, pls. 73, 74, fig. 1.

British N.E. coast, 20-46 fms., ". . . one of the commonest of living species in the deep water off the Northumberland Durham coasts . . ." (Brady 1866): Dredged, in 40-80 fms., 10-15 miles off Seaham Jul. 1864 (Norman 1865 as *Cythere debilis* Jones): The prevailing species, dredged, 15-30 fms., off Seaham 1869 (Brady 1870); Moderately common, dredge, gravelly sand, 40-45 fms., 30 miles, off Sunderland and 20 fms., 4 miles off Hawthorn; prevailing species in muddy sand, 33 fms., 7 miles off Marsden, Seaham and Hartlepool (Brady & Robertson 1876; Brady & Norman 1889); dredged, 39 fms., 16-17 miles offshore on Souter Bank and 30 fms., 5-6 miles, off Souter Point (Brady 1903); "In deep water, somewhat local, but common when found" (Norman & Brady 1909).

**Cytheridea punctillata** BRADY

Sars 1928, p. 160, pl. 74, fig. 2.

On muddy rocks, L.W., Seaton Carew (Brady & Robertson 1872).

**Cytheridea angustata** (BAIRD)

Klie 1938, p. 162, figs. 537-9.

One, valves empty, in tidal pool at Sunderland (Brady 1868b as *C. elongata*); on muddy rocks, L.W., Seaton Carew (Brady & Robertson 1872 as *C. cornea*).

**Krithe bartonensis** (JONES)

Sars 1928, p. 165, pl. 76.

Scarce in 15-30 fms., off Seaham 1869 (Brady 1870 as *Ilyobates bartonensis*); rare, muddy sand, 33 fms., 8 miles, off Marsden, moderately common, 35 fms., muddy sand, 14 miles, off Seaham (Brady & Robertson 1876); dredge, 59 fms., 29 miles, E. Alnmouth 1901 (Brady 1903).



**Cythere lutea** MÜLLER

Sars 1928,p.167,pl.77.

Common in rock pools and on sea shore at Berwick (Baird 1835, 1838, 1845, and 1850); Northumberland coast between tide-marks 1864 (Norman 1867); (as *C.reniformis* Baird): Abundant in tide pools on coasts of Northumberland and Durham (Brady 1870); the prevailing species at Boulmer and Sunderland (Brady 1870); present in bed of R. Wansbeck, L.W. (Brady & Robertson 1870): On muddy sand covered rocks, between tide-marks North of Whitley Bay (Brady & Robertson 1872): Rare in 20 fms., 4 miles, off Hawthorn (Brady & Robertson 1876): In Amble salt-water pond, 21 Nov. 1930 (Meek 1934). "Abundant between tide-marks" (Brady & Norman 1909).

**Cythere acuta** BAIRD

Baird 1850,p.173,pl.21,fig.5.

"Rather common", dredge, Coquet and Berwick Bay 1862 (Norman 1862).

**Cythere gibbosa** BRADY & ROBERTSON

Brady & Norman 1889,p.136,pl.14,figs.30,31.

Scarce in muddy sand on rocks between tide-marks, Boulmer 1869 (Brady 1870): Fairly common, in muddy sand, L.W., Budle Bay, and in tidal muds of R.Aln, R.Wansbeck and Sleekburn, R.Blyth (Brady & Robertson 1870): Seaton burn above and below sluice (Brady & Robertson 1872): "In the Tweed above Berwick; R.Lyne near Newbiggin; and marshes at Seaton Carew (A.M.N.)" (Norman & Brady 1909).

**Cythere semipunctata** BRADY

Brady 1868,p.411,pl.29,figs.33-37.

Dredged in 15-30 fms., off Seaham 1869 (Brady 1870); In muddy sand, L.W., Budle Bay (Brady & Robertson 1870); In Seaton Burn, below sluice; dredge, muddy sand, 45 fms., off Seaton Carew (Brady & Robertson 1872); Rare, dredge, gravel, 20 fms., 4 miles, off Hawthorn (Brady & Robertson 1876).

**Leptocythere pellucida** (BAIRD)=**Cythere confusa** BRADY & NORMAN

Sars 1928,p.172,pl.79,fig.1.

Dredged in 1862, Coquet and Berwick Bay, "rather common" (Norman 1962b); in saline pools adjacent to R.Wear (Hylton Dene) and in less saline pools further from the river (Brady 1864a); dredged off Northumberland and Durham coasts 1862 and 1864 (Norman 1865); prevail-

ing in muddy sand or rocks between tide-marks at Boulmer and fairly frequent in dredge, 15-30 fms., off Seaham 1869 (Brady 1870); "Northumberland and Durham coasts, 25-46 fms.," (Brady 1868b); common in tidal muds of R.Wansbeck and Sleekburn, R.Blyth, fairly common in tidal mud in Budle Bay, and present in R.Aln (Brady & Robertson 1870); Seaton burn below sluice, in muddy sand or rocks north of Whitley, on muddy rocks at, and in muddy sand 4 fms., off Seaton Carew (Brady & Robertson 1872); rare, dredge, muddy sand, 35 fms., 14 miles, off Seaham and gravel 20 fms., 4 miles off Hawthorn (Brady & Robertson 1876); (All as *Cythere pellucida*): In many tidal or brackish situations on Northumberland coast (Brady & Norman 1889); dredged in 25-46 fms., (Norman & Brady 1909) (as *Cythere confusa* Brady & Norman).

One female in bottom sledge net haul on mud, 14 fms., NE Sow Buoy Cambois Bay, summer 1950 (J.B.).

#### **Leptocythere castanea** G. O. SARS

Sars 1928, p.174, pl.80, fig.1.

Pretty plentiful in most salt marshes—found at Hylton Dene, Jarrow Slake, mouths of Seaton burn, R.Wansbeck, R.Aln, and R. Tweed: In pools subject to overflow of ordinary spring tides (Brady 1869, 1868b as *Cythere castanea* G. O. Sars): Prevailing, common in muddy sand on rocks between tide-marks at Boulmer, scarce in similar situations at Sunderland, fairly frequent in 15-30 fms., off Seaham (Brady 1870); common in tidal muds Budle Bay, R. Wansbeck and Sleekburn, R.Blyth. Fairly common in R.Aln, present in Waren burn estuary of R.Coquet (Brady & Robertson 1870); Seaton burn above and below sluice, in mud on rocks between tide marks north of Whitley and in 4 fms., off Seaton Carew (Brady & Robertson 1872); (as *Cythere castanea* G. O. Sars and *porcellanea* Brady): "Berwick" (Klie 1929b as *Leptocythere castanea* G. O. Sars).

#### **Leptocythere crispata** (BRADY)

Sars 1928, p.176, pl.80, fig.3.

"Off Marsden, 10 fms., (G.S.B.)" (Norman & Brady 1909 as *Cythere crispata*).

#### **Leptocythere tenera** (BRADY)

Sars 1928, p.175, pl.80, fig.2. (as *Kyphocythere* L.)

Scarce at Boulmer, fairly frequent at Sunderland in muddy sand or rocks between tide marks and 15-30 fms., off Seaham (Brady 1870); present in tidal muds of R.Aln and R.Wansbeck (Brady & Robertson

1870); Seaton burn below sluice and between tide marks north of Whitley (Brady & Robertson 1872); moderately common off Marsden, Sunderland, Seaham, Hawthorn and Hartlepool, prevailing off Castle Eden (Brady & Robertson 1876); between tide marks at Cullercoats and Whitley (Brady & Norman 1889) (All as *Cythere tenera*).

**Palmenella limicola** (NORMAN)

Sars 1928,p.181,pl.83.

Rare, dredge, 40 fms., 10-15 miles, off Seaham, 1864 (Norman 1865) (as *Cythereis limicola*) "Rather common", dredge, Coquet and Berwick Bay 1862 (Norman 1862b); fairly frequent 15-30 fms., off Seaham 1869 (Brady 1870); moderately common off Marsden, Sunderland and Seaham, rare off Hartlepool (Brady & Robertson 1876); dredged 29 miles E Alnmouth, on Souter Bank, and 5-6 miles off Souter Point (Brady 1903); "Confined to the coralline zone, but not rare at such a depth off the coast" (Norman & Brady 1909); (All as *Cythere limicola*).

**Xenocythere cuneiformis** (BRADY)

Sars 1928,p.179,pl.82.

Dredged, 45 fms., Northumberland coast (Brady 1870); present in tidal muds of R.Wansbeck and Sleekburn, R.Blyth (Brady & Robertson 1870); Seaton burn below sluice and between tide-marks north of Whitley (Brady & Robertson 1872); "Seaton Delaval (A.M.N.)" (Norman & Brady 1909 as *Cythere cuneiformis*).

**Eucythere argus** (G. O. SARS)

Sars 1928,p.162,pl.75,fig.1. : Klie 1938,p.178,figs.591-4.

Fairly frequent, dredge, 15-30 fms., off Seaham (Brady 1870); present in Sleekburn, R.Blyth (Brady & Robertson 1870); Rare, muddy sand, 35 fms., 14 miles, off Seaham and in gravel, 20 fms., 5 miles, off Castle Eden, and moderately common in muddy sand, 33 fms., 7 miles, off Marsden, gravelly sand 40-45 fms., 30 miles off Sunderland, gravel, 20 fms., 4 miles, off Hawthorn and muddy sand, 20 fms., 5 miles, off Hartlepool (Brady & Robertson 1876).

**Eucythere declivis** (NORMAN)

Sars 1928,p.163,pl.75,fig.2 : Klie 1938,p.179,figs.595-8.

Dredged, off Holy Island and Seaham (Norman 1867 as *Cythere declivis*); Fairly frequent, 15-30 fms., off Seaham 1869 (Brady 1870); dredged, moderately common, muddy sand, 33 fms., 7 miles, off Mars-

den, sand and gravel, 40-45 fms., 30 miles, off Sunderland, 20 fms., 4 miles off Hawthorn, muddy sand 20 fms., 5 miles, off Hartlepool and 35 fms., 14 miles, off Seaham (Brady & Robertson 1876); (as *E.declivis* and *E.anglica* Brady): 29 miles E. Alnmouth and on Souter Bank (Brady 1903 as *E.declivis*).

**Cythereis angulata** G. O. SARS

Sars 1928,p.187,pl.86,fig.2 (as *Hemicythere a.*).

Present in mud, L.W., Sleekburn, R.Blyth (Brady & Robertson 1870); Seaton Burn, below sluice (Brady & Robertson 1872); "On the Northumberland and Yorkshire coasts . . ." (Brady & Norman 1889); "Found off the coast in deep water, but rare" (Norman & Brady 1909) (all as *Cythere angulata*).

**Cythereis villosa** G. O. SARS

Sars 1928,p.182,pl.84 (as *Hemicythere v.*).

Fairly frequent in muddy sand on rocks between tide-marks at Boulmer, scarce at Sunderland (Brady 1870); dredged, 45 fms., off Holy Island (Brady 1870); present in tidal muds of Budle Bay and R.Aln, fairly common in Sleekburn, R.Blyth (Brady & Robertson 1870); Seaton burn below sluice, on rocks between tide-marks and north of Whitley, at Seaton Carew; dredged, 4 fms., off Seaton Carew (Brady & Robertson 1872); (as *Cythere villosa*): On muddy rocks near L.W.M. at Seaton Carew (Brady & Robertson 1872); "Among small weeds between tide-marks in estuaries, and more rarely dredged" (Norman & Brady 1909).

**Cythereis concinna** (JONES)

Sars 1928,p.189,pl.87,fig.1 (as *Hemicythere c.*).

Rare, dredge, muddy sand, 33 fms., 7 miles, off Marsden and in 20 fms., 5 miles, off Hartlepool; moderately common 35 fms., 14 miles, off Seaham (Brady & Robertson 1876): In 59 fms., 29 miles, E. Alnmouth and in 33 fms., 16-17 miles offshore on Souter Bank (Brady 1903) (as *Cythere concinna*).

**Cythereis albomaculata** (BAIRD)

Sars 1928,p.169,pl.78,fig.1 (as *Cythere a.*).

In Berwick Bay 1835, not very common (Baird 1838, 1842-9, 1850): "Prevailing" in muddy sand on rocks between tide-marks at Boulmer and Sunderland (Brady 1868, 1870): Present in estuarine muds, Budle

Bay, R. Wansbeck, fairly common in Sleekburn, R. Blyth (Brady & Robertson 1870): Seaton burn below sluice, on rocks between tide-marks north of Whitley, and at Seaton Carew (Brady & Robertson 1872): In Amble salt-water pond on 28 May, 1931 (Meek 1934) (all as *Cythere albomaculata*).

**Cythereis tuberculata** G. O. SARS

Sars 1928, p. 192, pl. 88.

"Prevailing" dredge, muddy sand, 35 fms., 14 miles, off Seaham (Brady 1870); "Northumberland and Durham coasts, 20-46 fms.," (Brady 1868b); rare, dredge, gravel and sand, 40-45 fms., 30 miles, off Sunderland, in 20 fms., 4 miles, off Hawthorn and 5 miles off Castle Eden, moderately common in muddy sand, 35 fms., 14 miles, off Seaham and 33 fms., 7 miles, off Marsden, prevailing in 20 fms., 5 miles, off Hartlepool (Brady & Robertson 1876); dredged, 39 fms., 33 miles ESE Alnmouth, 30 fms., 5-6 miles, off Souter Point, and in 39 fms., on Souter Bank 16-17 miles offshore (Brady 1903); (All as *Cythere tuberculata*).

Females present in bottom sledge net hauls in 5 fms., on sand in Blyth Bay and in 14 fms., in mud NE Sow Buoy Cambois Bay, summer 1950; also common at latter locality in same net Apr. and Jul. 1952 (J.B.).

**Cythereis dunelmensis** NORMAN

Sars 1928, p. 195, pl. 89.

Type specimen (one only) dredged in 40 fms., 10-15 miles, off Seaham 1864 (Norman 1865): Rare in muddy sand, 20 fms., 5 miles off Hartlepool, moderately common 33 fms., 7 miles, off Marsden and 35 fms., 14 miles, off Seaham (Brady & Robertson 1876); dredged, 59 fms., 29 miles, E. Alnmouth and in 30 fms., 5-6 miles off Souter Point 1901 (Brady 1903); (as *Cythere dunelmensis*).

**Cythereis jonesi** (BAIRD)

Sars 1928, p. 196, pl. 91.

Fairly frequent, dredge, 15-30 fms., off Seaham (Brady 1870); dredge, rare, 40-45 fms., 30 miles, off Sunderland and 20 fms., 4 miles, off Hawthorn, moderately common in muddy sand, 35 fms., 14 miles, off Seaham and 20 fms., 5 miles, off Hartlepool, common in 33 fms., 7 miles, off Marsden (Brady & Robertson 1876); "in abundance", dredge, 29 miles E. Alnmouth, 33 miles, ESE Alnmouth, on Souter Bank 16-17 miles offshore, 5-6 miles off Souter Point and 2½ miles off Souter Point

(Brady 1903); (All as *Cythere jonesii*).

Common in bottom sledge net hauls in 14 fms., on mud NE Sow Buoy in Cambois Bay, Apr. and Jul. 1952; females (J.B.).

**Cythereis finmarchica** G. O. SARS

Sars 1928, p. 185, pl. 85, fig. 3 (as *Hemicythere f.*).

Dredged, 46 fms., Northumberland coast (Brady 1868); moderately common in gravel 20 fms., 4 miles, off Hawthorn and 5 miles off Castle Eden (Brady & Robertson 1876); (as *Cythere finmarchica*).

**Cythereis quadridentata** (BAIRD)

Sars 1928, p. 186, pl. 86, fig. 1 (as *Hemicythere q.*).

Rare, dredge, 1862, "Coquet and Berwick Bay" (Norman 1862b); dredged, 1862 and 1864 off Northumberland and Durham coasts (Norman 1865); fairly frequent, dredge, 15-30 fms., off Seaham 1869 (Brady 1870); rare in gravel 40-45 fms., 30 miles, off Sunderland, in muddy sand, 35 fms., 14 miles, off Seaham, gravel 20 fms., 4 miles, off Hawthorn, and moderately common in muddy sand, 33 fms., 7 miles, off Marsden and in 20 fms., 5 miles, off Hartlepool (Brady & Robertson 1876); dredged, 39 fms., 33 miles, ESE Alnmouth and in 30 fms., 5-6 miles, off Souter Point (Brady 1903); (as *Cythere quadridentata*).

**Cythereis emaciata** (BRADY)

Brady 1868, p. 414, pl. 31, figs. 31-37; Elofson 1940, pp. 498-9, figs. 6-8.

Scarce, dredge, 15-30 fms., off Seaham (Brady 1870); "Northumberland and Durham coasts, 35 fms." (Brady 1868); single specimen, dredged, 30 fms., 5-6 miles, off Souter Point 1901 (Brady 1903); (as *Cythere emaciata*).

**Cythereis navicula** (NORMAN)

Brady & Norman 1889, p. 143, pl. 16, figs. 15, 16.

Budle Bay (Brady & Norman 1889).

**Cytherideis subulata** BRADY

Brady 1868, p. 454, pl. 25, figs. 43-46; Brady & Robertson 1872, p. 58, pl. 1, figs. 12, 13; pl. 2, figs. 11-13.

Common in muddy sand on rocks between tide-marks at Boulmer, scarce in 15-30 fms., off Seaham 1869 (Brady 1870); Present in estuarine muds of Budle Bay, R. Aln and R. Wansbeck; common in mud Sleekburn R. Blyth (Brady & Robertson 1870); Seaton burn below sluice, on rocks

between tide-marks north of Whitley, and at Seaton Carew; also dredged 4 fms., off Seaton Carew (Brady & Robertson 1872).

**Cytherura gibba** (O. F. MÜLLER)

Sars 1928, p.200, pl.93.

Scarce on rocks between tide-marks at Sunderland and Boulmer; dredged in 15-30 fms., off Seaham 1869 (Brady 1870); present in estuarine mud in Budle Bay, common in R.Aln, R.Wansbeck and Sleekburn, R.Blyth (Brady & Robertson 1870); Seaton burn above and below sluice, on rocks between tide-marks north of Whitley and in 4 fms., off Seaton Carew (Brady & Robertson 1872); rare, dredge, muddy sand, 35 fms., 14 miles, off Seaham, moderately common in gravel in 20 fms., 4 miles, off Hawthorn and 5 miles off Castle Eden (Brady & Robertson 1876); "Berwick-on-Tweed and Seaton Sluice, fine and abundant (A.M. N.); near the mouth of several Northumberland rivers (G.S.B.)" (Norman & Brady 1909) (Records include some as *Cythere gibba* and *robertsoni*).

**Cytherura nigrescens** (BAIRD)

Sars 1928, p.202, pl.94, fig.1.

Berwick Bay, not uncommon (Baird 1838, 1845, 1850); dredged, Northumberland coast in 1864 (Norman 1865); (as *Cythere nigrescens*): Common on rocks between tide-marks at Boulmer, fairly frequent in similar situations at Sunderland, scarce in 15-30 fms., off Seaham (Brady 1870): In rock pools at Sunderland and in shell sand at Berwick (Brady 1868): Common in estuarine mud Budle Bay, fairly common in Sleekburn, R.Blyth, present in estuaries of R.Aln and R. Wansbeck (Brady & Robertson 1870): Seaton burn below sluice, on rocks between tide marks north of Whitley, at and in 4 fms., off Seaton Carew (Brady & Robertson 1872): Present in Amble salt-water pond on 28 May 1931 (Meek 1934).

**Cytherura similis** G. O. SARS

Sars 1928, p.203, pl.94, fig.2.

Scarce on inter-tidal rocks at Boulmer and in 15-30 fms., off Seaham 1869 (Brady 1870): On rocks between tide-marks at and in 4 fms., off Seaton Carew (Brady & Robertson 1872): "Seaton Delaval, . . . tide-marks" (Brady & Norman 1889).

**Cytherura sella** G. O. SARS

Sars 1928,p.204,pl.95,fig.1.

Common on rocks between tide-marks at Boulmer, scarce in 15-30 fms., off Seaham 1869 (Brady 1870); common in estuarine mud, Budle Bay and Sleekburn, R.Blyth, present in R.Wansbeck (Brady & Robertson 1870); on inter-tidal rocks north of Whitley and in 4 fms., off Seaton Carew (Brady & Robertson 1872); (as *C.cuneata* and *C.flavescens*).

**Cytherura acuticostata** G. O. SARS

Sars 1928,p.210,pl.98,fig.1.

Fairly frequent in 15-30 fms., off Seaham 1869 (Brady 1870): Present, deep water, off Holy Island (Brady 1868b): Present in mud of Sleekburn, R.Blyth (Brady & Robertson 1870): Moderately common, dredge, gravel, 20 fms., 4 miles, off Hawthorn and 5 miles, off Castle Eden (Brady & Robertson 1876): "Tide-marks, but not common . . ." (Norman & Brady 1909).

**Cytherura undata** G. O. SARS

Sars 1928,p.213,pl.99,fig.1.

Scarce on rocks between tide-marks at Boulmer 1869 (Brady 1870): Present in estuarine mud of R.Wansbeck and Sleekburn, R.Blyth (Brady & Robertson 1870): On rocks between tide-marks north of Whitley and at Seaton Carew (Brady & Robertson 1872).

**Cytherura striata** G. O. SARS

Sars 1928,p.208,pl.97,fig.1.

Fairly frequent on inter-tidal rocks at Boulmer and in 4 fms., off Seaham, scarce on rocks on shore at Sunderland (Brady 1870): "Northumberland coast 46 fms." (Brady 1868b): Present in estuarine muds of Budle Bay and R.Wansbeck, fairly common in Sleekburn, R.Blyth (Brady & Robertson 1870): Seaton burn below sluice, on inter-tidal rocks at and dredged 4 fms., off Seaton Carew (Brady & Robertson 1872): Rare, gravely sand, 40-45 fms., 30 miles, off Sunderland and in muddy sand, 20 fms., 5 miles, off Hartlepool, moderately common in coarse gravel, 20 fms., 5 miles, off Castle Eden (Brady & Robertson 1876).

**Cytherura producta** BRADY

Sars 1928,p.209,pl.97,fig.2.

Common in 15-30 fms., off Seaham (Brady 1870): In R.Aln estua-



rine mud (Brady & Robertson 1870): Rare in gravel, 20 fms., 4 miles, off Hawthorn, moderately common 5 miles off Castle Eden (Brady & Robertson 1876).

**Cytherura fulva** BRADY & ROBERTSON

Sars 1928, p.214, pl.99, fig.2.

Rare in gravel, 20 fms., 4 miles, off Hawthorn (Brady & Robertson 1876): "dredged . . . in . . . 20 and 30 fms., off the Durham coast; . . . between tide-marks at Boulmer and . . . Seaton Sluice" (Brady & Norman 1889).

**Cytherura cornuta** BRADY\*

Brady & Norman 1889, p.192, pl.18, figs.21,22.

One specimen in deep water at Berwick (Brady 1868 as *C.affinis* G. O. Sars): Between tide-marks at Boulmer (Brady & Norman 1889).

**Cytherura angulata** BRADY

Brady 1868, p.440, pl.32, figs.22-25 : Klie 1934, pp.12-13, fig.1.

Scarce on rocks between tide-marks at Boulmer, fairly frequent in dredge, 15-30 fms., off Seaham (Brady 1870): In tidal mud R. Wansbeck, fairly common in Sleekburn, R. Blyth (Brady & Robertson 1870): Seaton burn below sluice, or inter-tidal rocks north of Whitley and in 4 fms., off Seaton Carew (Brady & Robertson 1872): Rare in gravel, 20 fms., 5 miles, off Castle Eden, moderately common 4 miles off Hawthorn (Brady & Robertson 1876): Seaton Delaval between tide-marks (Norman & Brady 1909).

**Cytherura concentrica** BRADY, CROSSKEY & ROBERTSON

Brady & Norman 1889, p.201, pl.17, figs.28,29; pl.19, figs.3,4.

Seaton Delaval, and Hartlepool (Brady & Norman 1889).

**Cytheropteron clathratum** (G. O. SARS)

Sars 1928, p.215, pl.100, fig.1 (as *Cytherura c.*).

Scarce in 15-30 fms., off Seaham 1869 (Brady 1870): Seaton burn below sluice and on rocks between tide-marks north of Whitley (Brady & Robertson 1872); rare in gravel, 20 fms., 4 miles, off Hawthorn (Brady & Robertson 1876); ". . . coasts of Durham, Northumberland . . ." (Brady & Norman 1889); (as *Cytherura clathrata*).

\* These may be *C.intumescens* G. O. Sars 1928.

**Cytheropteron cellulosum** (NORMAN)

Sars 1928,p.216,pl.100,fig.2 (as *Cytherura c.*).

In sand at Berwick-on-Tweed (Norman 1865 as *Cythere cellulosa*): On inter-tidal rocks, scarce at Boulmer, common at Sunderland, fairly frequent 15-30 fms., off Seaham (Brady 1870); fairly common in estuarine mud Budle Bay and Sleekburn, R.Blyth; present in R.Aln and R. Wansbeck (Brady & Robertson 1870); Seaton burn below sluice, on rocks between tide-marks north of Whitley, and at Seaton Carew also in 4 fms., at Seaton Carew (Brady & Robertson 1872); (as *Cytherura cellulosa*).

**Cytheropteron alatum** G. O. SARS

Sars 1928,p.225,pl.104,fig.1.

Very rare, dredge, sand and gravel, 40-45 fms., 30 miles off Sunderland (Brady & Robertson 1876).

**Cytheropteron latissimum** (NORMAN)

Sars 1928,p.223,pl.103.

Common in dredge material 1862, Coquet and Berwick Bay (Norman 1862 as *Cythere obesa* n.sp.): Dredged 1864 off Holy Island and Seaham (Norman 1865 as *Cythere latissima*): Northumberland and Durham coasts, fairly common "in deep water" (Brady 1870): Common in 15-30 fms., off Seaham (Brady 1870): On rocks between tide-marks at and in 4 fms., off Seaton Carew (Brady & Robertson 1872): Common in 40-45 fms., 30 miles, off Sunderland, moderately common in 33 fms., 7 miles, off Marsden, 35 fms., 14 miles, off Seaham, 20 fms., 4 miles, off Hawthorn and 5 miles off Castle Eden and Hartlepool (Brady & Robertson 1876): Abundant in 50 fms., 29 miles, E Alnmouth, in 39 fms., 33 miles ESE Alnmouth, and on Souter Bank 16-17 miles offshore and abundant in 30 fms., 5-6 miles off Souter Point (Brady 1903).

Present, sometimes common, in bottom sledge net hauls on mud in 14 fms., NE Sow Buoy Cambois Bay, summer 1950 and Apr. and Jul. 1952; females (J.B.).

**Cytheropteron nodosum** BRADY

Sars 1928,p.232,pl.106,fig.3.

Fairly frequent off Seaham (Brady 1870); In estuarine mud R. Wansbeck (Brady & Robertson 1870): Rare in sand 30 miles off Sunderland and 5 miles off Castle Eden (Brady & Robertson 1876).

**Hirschmannia viridis** (O. F. MÜLLER)

Sars 1928,p.170,pl.78,fig.2 (as *Cythere v.*).

Common on muddy rocks between tide-marks at Boulmer and also in tidal pools at Sunderland (Brady 1868, 1870); Fairly common in estuarine muds, Budle Bay, Sleekburn, R.Blyth, and R.Wansbeck (Brady & Robertson 1870); Seaton burn below sluice, on inter-tidal rocks north of Whitley and in 4 fms., off Seaton Carew (Brady & Robertson 1872); (as *Cythere viridis*): "Essentially a brackish water species . . ." (Brady & Norman 1909 as *Loxoconcha viridis*).

**Loxoconcha tamarindus** (JONES)

Sars 1928,p.221,pl.102,fig.2.

Dredged off Holy Island, Jul. 1864 (Norman 1865 as *Cythere laevata*): Fairly frequent between tide-marks at Boulmer and Sunderland, and in 15-30 fms., off Seaham (Brady 1870): "Northumberland and Durham coasts in tide pools and in 30-46 fms., (Brady 1868); common in estuarine muds Budle Bay and fairly common in Sleekburn, R.Blyth (Brady & Robertson 1870); Between tide-marks, north of Whitley and in 4 fms., off Seaton Carew (Brady & Robertson 1872): Moderately common in 40-45 fms., 30 miles, off Sunderland and in 20 fms., 4 miles, off Hawthorn, common 5 miles off Castle Eden and rare 5 miles off Hartlepool (Brady & Robertson 1876).

**Loxoconcha granulata** G. O. SARS

Sars 1928,p.219,pl.102,fig.1.

Scarce in 15-30 fms., off Seaham (Brady 1870): Rare in muddy sand, 35 fms., 14 miles, off Seaham and in gravel, 20 fms., 4 miles off Hawthorn (Brady & Robertson 1876).

**Loxoconcha fragilis** G. O. SARS

Sars 1928,p.222,pl.102,fig.3.

In estuarine mud, Budle Bay (Brady & Robertson 1870).

**Loxoconcha pusilla** BRADY & ROBERTSON

Brady & Robertson 1870,p.23,pl.8,fig.13 : Klie 1937,p.47,figs.5-11.

Fairly common in estuarine muds, Budle Bay, R.Wansbeck and Sleekburn, R.Blyth (Brady & Robertson 1870); in muddy sand 4 fms., off Seaton Carew (Brady & Robertson 1872); Seaton Delaval (A.M.N.) (Norman & Brady 1909).

**Loxoconcha elliptica** BRADY

Brady 1868,p.435,pl.27,figs.38,39,45-8;pl.40,fig.3 : Klie 1929a,p.292,figs. 23-5.

First found in pools near mouth of R.Wansbeck in May 1865; and more abundantly at Seaton Sluice in May and Jul. 1867 (Brady 1869); scarce in 15-30 fms., off Seaham (Brady 1870); common in estuarine muds of R.Aln, R.Wansbeck and Sleekburn, R.Blyth, and also present in R.Coquet (Brady & Robertson 1870); Seaton burn above and below sluice and between tide-marks at Seaton Carew (Brady & Robertson 1872).

**Loxoconcha guttata** (NORMAN)

Elofson 1940,pp.500-2,figs.9-13.

Dredged 1864 off Holy Island and in 40 fms., 10-15 miles off Seaham (Norman 1865 as *Cythere guttata* n.sp.); common off Seaham in 15-30 fms., (Brady 1870): Fairly common in 25-46 fms., off Northumberland and Durham coasts (Brady 1868); moderately common 7 miles off Marsden, 30 miles off Sunderland, 14 miles off Seaham and 5 miles off Hartlepool, rare 4 miles off Hawthorn (Brady & Robertson 1876); 29 miles E Alnmouth, 5-6 and 2½ miles off Souter Point (Brady 1903).

Some present in bottom sledge net hauls in Jul. 1952 on mud in 14 fms., NE Sow Buoy Cambois Bay, not common; females (J.B.).

**Loxoconcha impressa** (BAIRD)

Sars 1928,p.218,pl.101 : Elofson 1941,pp.322-4.

"In rock pools, Sunderland" (Brady 1868): Present in estuarine mud R.Aln (Brady & Robertson 1870): "Frequent in rock pools and estuaries, and in moderate depths off the coast" (Norman & Brady 1909).

**Loxoconcha multiflora** (NORMAN)

Brady 1868,p.449,pl.29,figs.38-42 : Elofson 1938,pp.7-8,figs.9-13.

Dredged off Holy Island, Jul. 1864 (Norman 1865 as *Cythere multiflora* Norman): Present in 25-46 fms., off Northumberland and Durham coasts (Brady 1868 as *Cytheropteron multiflorum*): Scarce in 15-30 fms., off Seaham (Brady 1870): Present, estuarine mud, Budle Bay (Brady & Robertson 1870): Rare 30 miles off Sunderland and 14 miles off Seaham (Brady & Robertson 1876).

**Bythocythere turgida** G. O. SARS

Sars 1928,p.233,pl.107.

Single shell in sample taken probably off Holy Island, deep water (Brady

1868b): Rare off Marsden, Seaham and Hartlepool, moderately common off Sunderland and Hawthorn (Brady & Robertson 1876; Brady & Norman 1889): Common, 29 miles E Alnmouth; 5-6 miles off Souter Point; and 16-17 miles offshore on Souter Bank (Brady 1903).

Females quite common in bottom sledge net hauls on mud in 14 fms., NE Sow Buoy in Cambois Bay Jul. 1952 (J.B.).

**Bythocythere constricta** G. O. SARS

Sars 1928,p.235,pl.108,fig.1.

Northumberland coast, "deep water" (Brady 1868b): Fairly frequent, dredge, 15-30 fms., off Seaham, 1869 (Brady 1870): Rare, dredge, coarse gravel, 5 miles off Castle Eden, 20 fms. (Brady & Robertson 1876; Brady & Norman 1889).

**Macrocythere simplex** (NORMAN)

Sars 1928,p.241,pl.110.

Dredged, 15 fms., off Holy Island 1864 (Norman 1865 as *Cythere simplex*): Fairly frequent, 15-30 fms., off Seaham 1869 (Brady 1870); moderately common off Marsden, Seaham and Hartlepool, rare off Sunderland and Hawthorn (Brady & Robertson 1876); "Coasts of Durham and North Yorkshire, common in depths of 20-45 fms." (Brady & Norman 1889); 29 miles E and 33 miles ESE Alnmouth, on Souter Bank, and 5-6 miles off Souter Point—sparing occurrence (Brady 1903); taken in dredging excursions 1901-2 associated with *Cythere jonesi* (Norman & Brady 1909) (all as *Cythere simplex*).

Fairly common in bottom sledge net hauls on mud in 14 fms., NE Sow Buoy in Cambois Bay, Jul. 1952; both females and males, latter somewhat fewer (J.B.).

**Pseudocythere caudata** G. O. SARS

Sars 1928,p.239,pl.109,fig.2.

"The few British specimens yet taken are from . . . Northumberland . . ." (Brady 1868): "Off Holy Island" (Brady 1868): Dredged, shell gravel, 30 fms., 5 miles off Redcliff 1874 (Brady & Robertson 1876).

**Xestoleberis aurantia** (BAIRD)

Sars 1928,p.243,pl.111,fig.1.

Not uncommon in Berwick Bay (Baird 1838, 1845, 1850); dredged 1864, Northumberland and Durham coasts (Norman 1865); (as *Cythere aurantia*): Fairly frequent between tide-marks at Boulmer (Brady 1870):

"Dunstanburgh (in tide-pools)" (Brady 1868): Present on estuarine muds in Budle Bay, R.Aln, R.Wansbeck and Sleekburn, R.Blyth (Brady & Robertson 1870): On inter-tidal rocks north of Whitley (Brady & Robertson 1872): One, dredged, 59 fms., 29 miles, E Alnmouth (Brady 1903).

**Xestoleberis depressa** G. O. SARS

Sars 1928,p.244,pl.111,fig.2.

Fairly frequent in 15-30 fms., off Seaham (Brady 1870): "Fairly common, Northumberland and Durham coasts, 25-46 fms." (Brady 1868): In 4 fms., off Seaton Carew (Brady & Robertson 1872): Moderately common 4 miles off Hawthorn and common 5 miles off Castle Eden (Brady & Robertson 1876).

**Sclerochilus contortus** (NORMAN)

Sars 1928,p.247,pl.112.

"Among shell sand at Berwick-on-Tweed, Sep. 1857" (Norman 1861, 1862a); dredged 1864 Northumberland and Durham coasts (Norman 1865); (as *Cythere contorta*): Scarce between tide-marks at Boulmer and Sunderland, fairly frequent 15-30 fms., off Seaham (Brady 1870): Common, 30-46 fms., Northumberland and Durham coasts (Brady 1868): Present in estuarine muds of R.Aln and Sleekburn, R.Blyth, fairly common in R.Wansbeck (Brady & Robertson 1870): Between tide-marks north of Whitley and in 4 fms., off Seaton Carew (Brady & Robertson 1872): Rare 7 miles off Marsden, moderately common 30 miles off Sunderland, 14 miles off Seaham, 4 miles off Hawthorn and 5 miles off Castle Eden (Brady & Robertson 1876): On Souter Bank and 5-6 miles off Souter Point (Brady 1903).

**Paracytherois arcuata** (BRADY)

Sars 1928,p.249,pl.113,fig.1.

Rare, in dredge, gravel, 20 fms., 4 miles, off Hawthorn (Brady & Robertson 1876 as *Paradoxostoma arcuatum*).

**Paracytherois flexuosa** (BRADY)

Sars 1928,p.250,pl.113,fig.2.

Scarce off Seaham (Brady 1870); present in estuarine mud of R.Aln and Sleekburn, R.Blyth (Brady & Robertson 1870); dredged, 4 fms., off Seaton Carew (Brady & Robertson 1872); rare, 30 miles off Sunderland and 5 miles off Castle Eden, moderately common 4 miles off Hawthorn (Brady & Robertson 1876) (all as *Paradoxostoma flexuosum* Brady).

**Cytherois fischeri** G. O. SARS

Sars 1928,p.252,pl.114.

Fairly frequent between tide-marks at Boulmer (Brady 1870); common in estuarine muds, Budle Bay and in Sleekburn, R.Blyth; fairly common in R.Wansbeck; present in R.Aln (Brady & Robertson 1870); Seaton burn below sluice and in 4 fms., off Seaton Carew (Brady & Robertson 1872); rare 7 miles off Marsden and moderately common 14 miles off Seaham (Brady & Robertson 1876); (All as *Paradoxostoma fischeri*).

**Paradoxostoma variabile** (BAIRD)

Sars 1928,p.256,pl.116.

Common on coast of Berwickshire (Baird 1838, 1850); dredged in 1864 Northumberland coast (Norman 1865); (as *Cythere variabilis* Baird): Fairly frequent intertidally at Boulmer, common at Sunderland and scarce in 15-30 fms., off Seaham (Brady 1870): "Plentifully in rock pools on Northumberland and Durham coasts" (Brady 1868): Present in estuarine muds, Budle Bay and R.Aln, fairly common in R.Wansbeck and common in Sleekburn, R.Blyth (Brady & Robertson 1870): Seaton burn below sluice, between tide-marks north of Whitley and 4 fms., off Seaton Carew (Brady & Robertson 1872): Rare 30 miles off Sunderland and 4 miles off Hawthorn (Brady & Robertson 1876): One, 5-6 miles off Souter Point (Brady 1903): Present in Amble salt-water pond on 21 Nov. 1930 (Meek 1934): "Abundant between tide-marks and in shallow water" (Norman & Brady 1909).

**Paradoxostoma ensiforme** BRADY

Sars 1928,p.258,pl.117,fig.1.

Scarce between tide-marks at Sunderland and in 15-30 fms., off Seaham (Brady 1870): Present in mud, Sleekburn, R.Blyth (Brady & Robertson 1870): Seaton burn below sluice, on intertidal rocks north of Whitley, at and off Seaton Carew (Brady & Robertson 1872): Moderately common 5 miles off Castle Eden (Brady & Robertson 1876).

**Paradoxostoma bradyi** G. O. SARS

Sars 1928,p.260,pl.118,fig.1 : Elofson 1938,p.20,fig.32.

On muddy rocks between tide-marks north of Whitley (Brady & Robertson 1872); Seaton Delaval (A.M.N.) (Norman & Brady 1909); (as *Paradoxostoma obliquum*).

**Paradoxostoma hibernicum** BRADY

Sars 1928,p.261,pl.118,fig.2.

Fairly frequent between tide-marks at Boulmer, scarce in 15-30 fms., off Seaham (Brady 1870): Fairly common in mud, Budle Bay (Brady & Robertson 1870): Seaton burn below sluice (Brady & Robertson 1872).

**Paradoxostoma pulchellum** G. O. SARS

Sars 1928,p.262,pl.118,fig.3 : Elofson 1938,p.20,fig.33.

Both sexes fairly frequent between tide-marks at Boulmer (Brady 1870): Fairly common in R.Wansbeck (Brady & Robertson 1870): At Seaton Carew (Brady & Robertson 1872): "Hartlepool, tide-marks" (Brady & Norman 1889).

**Paradoxostoma abbreviatum** G. O. SARS

Sars 1928,p.263,pl.119,fig.1.

Fairly frequent between tide-marks at Boulmer and common at Sunderland (Brady 1870): Fairly common in mud, Budle Bay, present in R.Aln, R.Wansbeck and Sleekburn, R.Blyth (Brady & Robertson 1870): At and off Seaton Carew (Brady & Robertson 1872): Rare 4 miles off Hawthorn (Brady & Robertson 1876).

**Paradoxostoma normani** BRADY

Sars 1928,p.264,pl.119,fig.2.

Present in estuarine mud Budle Bay (Brady & Robertson 1870): Moderately common 20 fms., 4 miles, off Hawthorn and rare 5 miles off Castle Eden (Brady & Robertson 1876): "Seaton Sluice and . . . ; off Durham coast 10-20 fms." (Brady & Norman 1889): At Seaton Carew (Brady & Robertson 1872; as *Sclerochilus contortus* var. *abbreviatus*).

**Paradoxostoma hodgii** BRADY

Brady 1868,p.371,pl.12,figs.12,13 : Brady & Norman, 1889,p.235,pl.21, figs.7,8.

Scarce off Seaham (Brady 1870).

**Machaerina tenuissima** (NORMAN)

Brady 1868,p.369,pl.12,figs.6-9;pl.14,figs.5-10 as *Xiphichilus tenuissimus* (Norman). Brady & Norman 1889,p.238,pl.21,figs.13,14.

In dredge, 15-30 fms., 8 miles offshore between Sunderland and Seaham harbour "not very scarce" (Brady 1870); rare, dredge, muddy



sand, 35 fms., 14 miles off Seaham (Brady & Robertson 1876); on Souter Bank in 39 fms., and 5-6 miles off Souter Point in 30 fms., (Brady 1903); (All as *Xiphichilus tenuissimus* (Norman)).

### Order PLATYCOPA G. O. Sars

#### CYTHERELLIDAE G. O. Sars

##### **Cytherella abyssorum** G. O. Sars

Sars 1928, p.41, pls.18,19.

Rare in muddy sand, 35 fms., 14 miles off Seaham (Brady & Robertson 1876).

##### **Cytherella serrulata** BRADY & NORMAN

Brady & Norman 1896, p.713, pl.66, figs.3-6,9-16; pl.67, figs.15,16.

One, dredged, 39 fms., 33 miles ESE Alnmouth (Brady 1903).

### OSTRACODA

#### REFERENCES

- BAIRD, W., 1835. List of Entomostraca found in Berwickshire. Hist.Berwicksh. Nat.Club, 1(3); pp.95-100.
- BAIRD, W., 1838. The Natural History of the British Entomostraca (3). Mag. Zool.Bot., 2(8); pp.132-144.
- BAIRD, W., 1845. Arrangement of the British Entomostraca, with a list of species particularly noticing those which have as yet been discovered within the bounds of the Club. Hist.Berwicksh.Nat.Club, 2(13); pp.145-58.
- BAIRD, W., 1850. The Natural History of the British Entomostraca. Ray Society, London; pp.viii; 364. 8°.
- BRADY, G. S., 1864a. On the zoology of Hylton Dene. Trans.Tyneside Nat.Fld. Club, 6(2); pp.95-9.
- BRADY, G. S., 1864b. On species of Ostracoda new to Britain. Trans.Tyneside Nat.Fld. Club, 6(2); pp.104-10. (Also in: Ann.Mag.nat.Hist., 13(3); pp.59-64.)
- BRADY, G. S., 1866. On new or imperfectly known species of Marine Ostracoda. Trans.zool.Soc.Lond., 5(5); pp.359-93.
- BRADY, G. S., 1868. A monograph of the recent British Ostracoda. Trans.Linn. Soc.Lond., 26(2); pp.353-496.
- BRADY, G. S., 1869. On the Crustacean fauna of the Salt-marshes of Northumberland and Durham. Nat.Hist.Trans.Northumb., 3(1); pp.120-36.
- BRADY, G. S., 1870. Notes on Entomostraca taken chiefly in the Northumberland and Durham districts (1869). Nat.Hist.Trans.Northumb., 3(2); pp.361-373.

- BRADY, G. S., 1871. A review of the Cypridinidae of the European Seas, with description of a new species. Proc.zool.Soc.Lond.1871; pp.289-296.
- BRADY, G. S., 1903. Report on dredging and other marine research off the North-East coast of England in 1901. Nat.Hist.Trans.Northumb., **14**(1); pp.87-101.
- BRADY, G. S., 1904. Notes on Entomostraca found at the roots of Laminariae. Trans.nat.Hist.Soc.Northumb., n.s., **1**(1); pp.3-9.
- BRADY, G. S., 1907. On the Crustacean fauna of a Salt-water pond at Amble. Trans.nat.Hist.Soc.Northumb., n.s., **1**(3); pp.330-6.
- BRADY, G. S., 1910. A revision of the British species of Ostracod Crustacea belonging to the Sub-families Candoninae and Herpetocyprinae. Proc.zool.Soc.Lond.1910; pp.194-220.
- BRADY, G. S. & NORMAN, A. M., 1889. A Monograph of the marine and fresh-water Ostracoda of the North Atlantic and of North-Western Europe, I. Section 1, Podocopa. Scient.Trans.R.Dubl.Soc., ser.2, **4**(2); pp.63-270.
- BRADY, G. S., & NORMAN, A. M., 1896. A Monograph of the marine and fresh-water Ostracoda of the North Atlantic and of North-Western Europe, II. Sections 2, 3, 4, Myodocopa, Cladocopa, Platycopa. Scient.Trans.R. Dubl.Soc., Ser.2, **5**(12); pp.621-784.
- BRADY, G. S. & ROBERTSON, D., 1870. The Ostracoda and Foraminifera of Tidal Rivers. Part I. Ann.Mag.nat.Hist., Ser. 4, **6**(31); pp.1-33.
- BRADY, G. S., & ROBERTSON, D., 1872. Contributions to the study of the Entomostraca. No. 6. On the distribution of the British Ostracoda. Ann. Mag.nat.Hist., Ser. 4, **9**(49); pp.48-70.
- BRADY, G. S., & ROBERTSON, D., 1876. Report on dredging off the coast of Durham and North Yorkshire in 1874. Rep.Br.Ass.Advmt Sci. (45th meeting at Bristol, 1875); pp.185-99.
- ELOFSON, O., 1938. Neue und wenig bekannte Cytheriden von der schwedischen West Küste. Ark.Zool., **30A**(21); pp.1-22.
- ELOFSON, O., 1940. Notes on the Ostracod fauna of Plymouth. J.mar.biol.Ass. U.K., **24**(2); pp.495-504.
- ELOFSON, O., 1941. Zur Kenntnis der Marinen Ostracoden Schwedens, mit besonderer Berücksichtigung des Skageraks. Zool.Bidr.Upps., **19**; pp.215-534.
- KLIE, W., 1929b. Ostracoda. Tierwelt N.-u Ostsee, **16Xb**; pp.1-56.
- KLIE, W., 1934. Zur Kenntnis der in der Kieler Bucht vorkommenden Ostracoden der Gattung Cytherura. Zool.Anz., **108**(1-2); pp.12-16.
- KLIE, W., 1937. Zur Kenntnis der Ostracoden-Arten *Eucypris reptans* (Kaufmann) und *Loxococoncha pusilla* Brady & Robertson. Zool.Anz., **118**(1-2); pp.44-51.
- KLIE, W., 1938. Ostracoda, Muschelkrebse. Tierwelt Dtl., **34**(3); pp.1-230.
- MEEK, A., 1934. The fauna of the Amble Pond, Northumberland. James Johnstone Memorial Volume, pp.154-63. University Press, Liverpool. 8°.
- MÜLLER, G. W., 1894. Die Ostracoden des Golfes von Neapel. Fauna Flora Golf. Neapel, **21**; pp.1-404.
- MÜLLER, G. W., 1900. Deutschlands Süßwasser Ostracoden. Zoologica, Stuttg., **12**(30); pp.1-112.
- MÜLLER, G. W., 1912. Ostracoda. Tierreich, **31**; pp.1-434.
- NORMAN, A. M., 1861. On species of Ostracoda found in Northumberland and Durham new to Great Britain. Trans.Tyneside Nat.Fld. Club, **5**(2); pp.143-51.

- NORMAN, A. M., 1862a. On species of Ostracoda new to Great Britain. *Ann.Man. nat.Hist.*, Ser. 3, 9(1); pp.43-52.
- NORMAN, A. M., 1862b. Report on the Crustacea. (Dredging Expedition, 1862). *Trans.Tyneside Nat.Fld. Club*, 5(4); pp.263-80.
- NORMAN, A. M., 1865. Report on the Crustacea. (Dredging Expedition, 1862-4). *Nat.Hist.Trans.Northumb.*, 1(1); pp.12-29.
- NORMAN, A. M. & BRADY, G. S., 1909. The Crustacea of Northumberland and Durham. *Trans.nat.Hist.Soc.Northumb.*, 3(2); pp.252-417.
- SARS, G. O., 1928. Ostracoda. An Account of the Crustacea of Norway, Bergen; 9; pp.1-277.
- SKOGSBERG, T., 1920. Studies on Marine Ostracods, I. Cypridinids, Halocyprids, Polycopids. *Zoo.Bidr.Upps.*, 1; pp.1-784.

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