

THE UNIVERSITY OF NEWCASTLE UPON TYNE



Instituut voor Zeewetenschappelijk onderzoek  
Laboratory for Marine Scientific Research  
Prinses Elisabethlaan 69  
8401 Bredene - Belgium - Tel. 059/80 27

The Marine Fauna of the Cullercoats District

4

- a. ARTHROPODA 2b : INSECTA ; PTERYGOTA  
by H. O. Bull
- b. ARTHROPODA 3a : CRUSTACEA ; BRANCHIOPODA  
by J. Bossanyi
- c. ARTHROPODA 3b : CRUSTACEA ; OSTRACODA  
by J. Bossanyi

Report of the Dove Marine Laboratory

Third Series No. 16

July, 1967

Price 7/6



THE UNIVERSITY OF NEWCASTLE UPON TYNE



The Marine Fauna of the Cullercoats District

4

- a.       ARTHROPODA 2b : INSECTA ; PTERYGOTA  
          by H. O. Bull
  
- b.       ARTHROPODA 3a : CRUSTACEA ; BRANCHIOPODA  
          by J. Bossanyi
  
- c.       ARTHROPODA 3b : CRUSTACEA ; OSTRACODA  
          by J. Bossanyi

Report of the Dove Marine Laboratory

Third Series No. 16

July, 1967





The Marine Fauna of the Cullercoats District

4a

ARTHROPODA 2b

INSECTA ; PTERYGOTA

by

H. O. Bull

Univ. Newcastle upon Tyne

Rep.Dove Mar.Lab.

3rd Ser. 16 ; pp. 5 to 29

1967



Sub-Class PTERYGOTA Lang

Order HEMIPTERA (L.) Geoffroy

Sub-Order HETEROPTERA Latreille

SALDIDAE Costa

**Chiloxanthus pilosus** (FALLÉN)

Lindberg 1935,p.117: Southwood and Leston 1959,p.324,pl.57,fig.6.

"Common, Durham Coast" (Butler 1923); "occurs sparingly in east coast saltmarshes from Durham to Kent . . . ." (Southwood and Leston 1959).

**Salda littoralis** (L.)

Lindberg 1935,p.117,fig.11: Southwood and Leston 1959,pp.325-6,pl.57,fig.2.

"Northumberland" (Butler 1923); "not so rare as . . . (next) . . . but with same general distribution in our counties" (Harrison 1963).

**Saldula scotica** (CURTIS)

Lindberg 1935,p.117: Southwood and Leston 1959,pp.329-30,fig.140.

"Northumberland" (Butler 1923); "scattered over boggy land, especially near the coast, Alnmouth, Ross Links, Warkworth, and Greatham Marshes" (Harrison 1963).

**Gerris thoracicus** SCHUMMEL \*

Lindberg 1935,p.120: Macan 1965,p.27,figs.17G,21J.

In Seaton Sluice saltmarsh pools, May-Oct. 1956-1958, 1-30‰ salinity, particularly common Aug.-Oct. and during Sep. H.S.T. Presence of nymphal stages indicates it will breed in brackish water (Sutcliffe 1959, 1961).

GERRIDAE Dohrn

**Gerris rufoscutellatus** LATREILLE

Lindberg 1935,p.120: Macan 1965,p.25,fig.17L.

A single specimen (female) on 4 Sep. 1958 in water of 8‰ salinity, Seaton Sluice saltmarsh (Sutcliffe 1959, 1961, 1962).

\* (Record by Nicol 1933 of *Gerris argenteus* is possibly of this species).

NOTONECTIDAE Leach

**Notonecta viridis** DELCOURT = **halophila** EDWARDS

Lindberg 1935,p.111: Macan 1965,p.36,fig.27.

Entered laboratory roof tank\*\* (varying salinities 0-34‰) regularly during summer 1933-1959 (H.O.B.).

CORIXIDAE Leach

**Corixa punctata** (ILLIGER)

Lindberg 1935,p.114: Macan 1965,p.43,figs.30P.,34C: Southwood and Leston 1959,pp.380-2,pl.60,fig.2.

In Seaton Sluice saltmarsh, 1-10‰ salinity, 1 only from May-Sep.; 2 male, 1 female, in water of 5‰ salinity, 4 Sep. 1958 (Sutcliffe 1959, 1961).

**Hesperocorixa sahlbergi** (FIEBER)

Lindberg 1935,p.114, as *Sigara s.*: Macan 1965,p.46,figs.35A,36D: Southwood and Leston 1959,pp.383-4,pl.61,fig.7.

In Seaton Sluice saltmarsh 1-10‰ salinity from May-Sep. 1956-1958. Several specimens in water of 5‰ salinity during Sep. 1958, but more during or after the Sep. H.S.T. (Sutcliffe 1959, 1961).

**Sigara dorsalis** (LEACH)\*

Macan 1965,p.51,figs.30D,35B,38C,39A,40D: Southwood and Leston 1959, pp.388-9,pl.61,figs.5,6,10;pl.62,fig.17.

In Seaton Sluice saltmarsh, 1-10‰ salinity, May-Sep.; 4 females taken in water of 5‰ salinity, 4 Sep. 1958 (Sutcliffe 1959, 1961). Regularly colonised roof tank\*\* (varying amounts of salinity) at laboratory during summer months 1933-59 (H.O.B.).

Order COLEOPTERA L.

SCARITIDAE Bonelli

**Dyschirius arenosus** STEPHENS

Fowler 1888,p.21,pl.4,figs.7,7a (as *D.thoracicus*): Jeannel 1941,pp.268-9,fig.105b.

"Not uncommon near Whitley. In the burrows of *Bledius arenarius*" (Bold 1871). "Sandy places on the coast. Newcastle-on-Tyne" (Fowler 1888).

\* (It is possible that *Corixa striata* recorded from Seaton Sluice by Nicol 1933 is this species).

\*\* No longer extant.

BROSCIDAE Hope (Jeannel)

**Broscus cephalotes** (L.)

Fowler 1887, p.27, fig.5 : Jeannel 1941, pp.289-90, fig.111.

"Very common on the sea-coast . . . beneath stones and seaweed . . . and in deep burrows in firm sand . . ." (Hardy & Bold 1852).

Larvae (Oct.-May) and adults under stones in wrack strings, Whitburn, 1955-57 (Egglisshaw 1958, 1965).

**Cillenus lateralis** (SAMOUELLE)

Fowler 1887, p.100, pl.16, fig.2 : Jeannel 1941, p.451, figs.174e, 175.

"In abundance, near Cambois, in May—Mr. John Scott. Under stones, between tide-marks, near Budle, in Jun.—J.H." (Hardy & Bold 1852).

TRECHIDAE Bonelli

**Bembidion pallidipenne** (ILLIGER)

Fowler 1887, p.117, pl.18, fig.9 : Jeannel 1941, p.526, figs.198a, d, e (as *Principidium p.*).

"In May (1859) lurking beneath algae, and debris, on the sea shore, between Blyth and Seaton Sluice" (Bold 1861). "Blyth sands, sparingly" (Bold 1871).

**Bembidion ustulatum** L.

Jeannel 1941, p.509, figs.192f, g (as *Peryphus u.*).

1, in wrack string, Whitburn, 1 Jun. 1956 (Egglisshaw 1958, 1965).

**Bembidion clarki** DAWSON = **Bembidion assimile** GYLLENHAL var. *clarki*

Jeannel 1941, p.466, fig.181c (as *Trepanes c.*).

"Not uncommon on the Durham coast, amongst shingle on the beach . . . also on the coast of Berwickshire" (Bold 1872).

**Bembidion aeneum** GERMAR

Fowler 1887, p.105, pl.16, fig.9 : Fowler & Donisthorpe 1913, p.10 : Jeannel 1941, p.473, fig.183d (as *Philochthus a.*).

"Very rare on the sea coast . . ." (Bold 1871).

**Tachys scutellaris** STEPHENS

Fowler 1887, p.98, pl.16, fig.1 : Jeannel 1941, p.431, figs.170a-f.

"Single sp. on the margins of the pools on the sands near South Shields" (Bold 1871).



**Aëpopsis robinii** (LABOULBÈNE)

Fowler 1887, p.125, pl.19, fig.9 : Jeannel 1941, pp.304-5, figs.118a-c.

"Very local, and confined to the sea coast" (Bold 1871).

**Aëpus marinus** (STRÖM)

Fowler 1887, p.124, pl.19, figs.8,8a,8b : Jeannel 1941, p.306, figs.119a-e.

"Beneath stones, between tide-marks near Budle, and North Sunderland—J.H. Jun." (Hardy & Bold 1852). "Very local, and confined to the sea coast. Both species (e.g. *marinus* and *robinii*) occur in company" (Bold 1871). Farne Is. 10 Sep. 1911 under stones (Bagnall 1916). Northumberland specimens exhibited by S. Campbell 4 Mar. 1927 (Vasculum 13 p.111, 1927).

**Pogonus chalceus** (MARSHAM)

Fowler 1887, p.131, pl.20, fig.10 : Jeannel 1941, p.558, fig.208c.

"Found sparingly on the banks of the river Wansbeck, between North Seaton and Cambois, in Sep. (1859)" (Bold 1861, 1871).

HARPALIDAE Le Conte

**Dicheirotrichus gustavii** CROTCH

Fowler 1887, p.55, pl.9, fig.13 (as *D.pubescens* (Payk.)): Jeannel 1942, pp.702-3, figs.243a-e.

"Under stones and rejectamenta below the castle at Tynemouth, and on the borders of Jarrow Slake—G. Wailes Esq. Marshes of the Wear, above Southwick, in Jun.—J.H." (Hardy & Bold 1848 as *Op-honus pubescens*).

**Dicheirotrichus obsoletus** (DE JEAN)

Fowler 1887, p.55, pl.9, fig.12 : Jeannel 1942, p.704, figs.243f,g.

"Beneath a dead crab, near Cullercoats, in May" (Bold 1862): "Very rare. On the sea coast, near Cullercoats" (Bold 1871) (both entries as *Amara o.*).

PTEROSTICHIDAE Jeannel

**Amara convexiuscula** (MARSHAM)

Fowler 1887, p.71, pl.12, fig.7 : Jeannel 1942, p.948, fig.312f (as *Cyrtonotus c.*).

"Near South Shields in Aug. Also taken by Mr. Perkins" (Bold 1861); "Near South Shields in some plenty" (Bold 1864b); "Not uncommon about the ballast heaps near South Shields (Bold 1871).

In wrack strings, Bamburgh, 3 Sep. 1957 (Egglishaw 1958, 1965).



HALIPLIDAE Brullé

**Halipus lineatocollis** (MARSHAM)

Fowler 1887,p.156 : Balfour-Browne 1940,p.128 : Guignot, 1947,pp.43-4.

"Occasionally found in water of less than 10‰ salinity" Seaton Sluice saltmarsh (Sutcliffe 1961).

DYTISCIDAE Lacordaire

**Hygrotus parallelogrammus** (AHRENS)

Fowler 1887,p.169,pl.25,fig.3 : Balfour-Browne 1940,pp.213-6 : Guignot 1947,pp.72-3.

"Brackish ditches. Hartlepool and the Northumberland district" (Fowler 1887).

**Agabus nebulosus** (FORSTER)

Balfour-Browne 1950,pp.107-115 : Guignot 1947,pp.185-6.

A single specimen, Seaton Sluice saltmarsh, in water of 31‰ salinity, 29 Jul. 1959 (Sutcliffe 1961).

**Agabus bipustulatus** (L.)

Balfour-Browne 1950, pp.127-135 : Guignot 1947,pp.179-80.

Seaton Sluice saltmarsh, in water of 1‰—15‰; adults common throughout summer, in water of less than 10‰ salinity (Sutcliffe 1959, 1961).

**Ilybius fuliginosus** (FABRICIUS)

Fowler 1887,p.198 : Balfour-Browne 1950,pp.163-7 : Guignot 1947,pp.203-4,fig.83.

Single specimen, Seaton Sluice saltmarsh in water of 1‰ salinity 4 Jul. 1958 (Sutcliffe 1959, 1961).

**Colymbetes fuscus** (L.)

Balfour-Browne 1950,pp.246-50 : Guignot 1947,pp.217-8.

Common, saltmarsh pools, Seaton Sluice, 1930 (H.O.B.). Many found in pools with salinities up to 23‰, saltmarsh, Seaton Sluice, 1956-58; larvae found during winter months surviving in water of at least 20‰ salinity (Sutcliffe 1959, 1961).

**Ochthebius impressicollis** CASTLENAU

Fowler 1887,p.246,pl.35,fig.6 (as *O.bicolon*) : Balfour-Browne 1958,pp.168-171.

"Hartlepool. Greatham Marshes. Brackish water" (Balfour-

Browne card cat.).

**Ochthebius marinus** PAYKULL

Fowler 1887,p.245,pl.35,fig.3 : Balfour-Browne 1958,pp.163-4.

"Marsden. Whitburn. Greatham. J.G." (Balfour-Browne card cat. *mss* (2)).

**Ochthebius subinteger** var. *lejolisi* MULSANT & REY

Fowler 1891,p.35 : Balfour-Browne 1958,pp.157-9.

"Berwick (J. Owen), 1952" (Balfour-Browne 1958): "A number taken at Coldingham Cove 11 Jul, 1952 J. Owen (Balfour-Browne ex coll. card. index).

HYDROPHILIDAE Redtenbacher

**Cercyon littoralis** (GYLLENHAL)

Fowler 1887,p.255 : Fowler & Donisthorpe 1913,pl.3,fig.8,pl.36.

"Common along the sea-coast; beneath seaweed . . ." (Hardy & Bold 1851; Bold 1871).

Common throughout the year, in wrack strings and banks, Whitburn and near St. Mary's Is., 1955-57; larvae Jul.-Oct. (Egglisshaw 1958, 1965).

**Cercyon depressus** STEPHENS

Fowler 1887,p.255-6.

"Very rare. I have only seen 2 or 3 local specimens"\* (Bold 1871).

**Enochrus maritimus** THOMSON

Balfour-Browne 1958,pp.24-7.

"Scarborough" (Fowler 1887). "Recorded from all the coastal counties on the east side from Durham to Kent . . ." (Balfour-Browne 1958). "Greatham (G.B.W. (1) J.G.)" (Balfour-Browne card cat. *mss* (2)).

PTILIDAE Heer

**Ptenidium punctatum** (GYLLENHAL)

Fowler 1889,pp.137-8,pl.80,fig.5.

"Amongst algae on the coast" (Bold 1871): "Northumberland and Durham district" (Fowler 1889).

\* This record doubted by Fowler (q.v.).

**Omalium rugulipenne** RYE

Fowler 1888, pp. 412-3, pl. 69, fig. 4 : Tottenham 1954, p. 23.

"Abundant at Hartlepool" (Fowler 1888).

**Omalium laeviusculum** GYLLENHAL

Fowler 1888, p. 413 : Tottenham 1954, p. 23.

"Common beneath seaweed, along the coast. Budle Bay, Beadnell, Newton-by-the-Sea, Hartley, Tynemouth, South Shields, Marsden, Sunderland. Feb.-Sep." (Hardy & Bold 1851). "Plentiful on the sea coast" (Bold 1871). "Northumberland and Durham coast, common" (Fowler 1888).

**Omalium riparium** THOMSON

Fowler 1888, pp. 413-4 : Tottenham 1954, p. 23.

"Living between algae, on the sea coast. . . taken freely from Hartley to Tynemouth; and from South Shields to Sunderland; in especial abundance in the small indentations between Marsden and Whitburn" (Bold 1863): "Plentiful on the sea coast" (Bold 1871).

Under wrack, rare, Inner Farne Is. (Wooff 1958).

**Micralymma marinum** (STRÖM)Fowler 1888, pp. 407-8 (as *M. brevipenne* Gyllenhal) : Tottenham 1954, p. 28, fig. 51.

"Under stones between tide-marks, between Budle and the Heather House, and more sparingly in the fissures of a shaly sandstone, near Monkhouse, in Jul.—J.H." (Hardy & Bold 1851): "Northumberland district, sparingly on the sea-coast in the fissures of shaly sandstone, crevices of limestone, beneath stones, etc. often below high-water mark (Bold 1871, Fowler 1888).

**Carpelimus elongatulus** (ERICHSON)Fowler 1888, p. 388 (as *Trogophloeus e.*) : Tottenham 1954, p. 43.

"Northumberland district, amongst algae on the sea-coast, rare" (Bold 1871, Fowler 1888).

**Carpelimus halophilus** (KIESENWETTER)Fowler 1888, p. 389 (as *Trogophloeus h.*) : Tottenham 1954, p. 43.

"One specimen . . . on Whitley sands (1864)" (Bold 1865b).

**Oxytelus (Anotylus) maritimus** (THOMSON)

Fowler 1888,p.381 : Tottenham 1954,p.46.

"Amongst algae on the sea-coast. Abundant" (Bold 1871): "Hartlepool; Northumberland district, abundant (Bold)" (Fowler 1888).

**Bledius (Cotysops) arenoides** TOTTENHAM

Fowler 1888,p.367,pl.66,fig. 3 (as *B.arenarius* Paykull) : Tottenham 1954, p.55.

"Whitley sands in plenty" (Bold 1871): "Northumberland coast . ." (Fowler 1888) (both as *B. arenarius*).

**Cafius xantholoma** (GRAVENHORST)

Fowler 1888,pp.282-3,pl.60,fig.8.

"Beneath seaweed on the coast, very abundant. Feb.-Oct." (Hardy & Bold 1851, as *Philonthus x.*).

Very common in sand under stones (<100 per stone) in wrack beds, at Whitburn and near St. Mary's Is. 1955-57; larvae all year (Egglishaw 1958, 1965).

var. *variolosus* Sharp. "Berwick-upon-Tweed" (Fowler 1888).

**Cafius fucicola** (CURTIS)

Fowler 1888,p.282,pl.60,fig.7.

"Beneath seaweed at Marsden—J.H. May" (Hardy & Bold 1851, as *Philonthus f.*). "On the sea-coast, in decaying seaweed; . . . Northumberland district, Marsden, rare . . ." (Fowler 1888).

**Phytosus spinifer** CURTIS

Fowler 1888,pp.169-70,pl.50,fig.10.

"Under decaying seaweed, or in the sand which it covers. Hartley. —T.J.B. Monkhouse, near Beadnell, South Shields, and Marsden; also under stones below high water mark, near the Heather houses—J.H. Apr.-Aug." (Hardy & Bold 1851): "Rather plentifully, near Hartley. Under tufts of *Cakile maritima* growing on the sand, in the vicinity of heaps of algae" (Bold 1864b).

**Phytosus balticus** KRAATZ

Fowler 1888,p.170,pl.50,fig.11 : Fowler & Donisthorpe 1913,p.53.

"On the sea coast, but less common than its congener. Most of my specimens were taken beneath tufts of sea-rocket" (Bold 1871): ". . .



Hartlepool; Northumberland district . . . (Bold)" (Fowler 1888).

**Phytosus nigriventris** CHEVROLAT

Fowler 1888,p.170 : Fowler & Donisthorpe 1913,p.53.

"Under tufts of . . . *Cakile maritima* . . . growing in the sand, in the vicinity of heaps of algae . . . near Hartley" (Bold 1864b).

**Heterota plumbea** (WATERHOUSE)

Fowler 1888,pp.64-5,pl.42,fig.7 (as *Alianta p.*).

"Two specimens, from the sea-coast, near Hartley" (Bold 1864a as *Homalota p.*)\*.

**Myrmecopora uvida** (ERICHSON)

Fowler 1888,p.146,pl.48,fig.12.

"One specimen taken at Marsden, under decaying seaweed, in company with *T. foveola* and *Homalota algae*—J.H. Mar." (Hardy & Bold 1848, as *Tachyusa u.*)\*\*.

**Myremecopora sulcata** KIESENWETTER

Fowler 1888,p.146.

"Rare. Sea-coast near Hartley, in Oct." (Bold 1871, as *Tachyusa s.*).

**Atheta (Halobrecta) flavipes** THOMSON

Fowler 1888,pp.83-4,pl.44,fig.3 (as *Homalota halobrecta* Sharp).

Not rare, amongst algae, on the sea-coast" (Bold 1864a, as *Homalota maritima* Waterhouse).

**Atheta (Halobrecta) puncticeps** (THOMSON)

Fowler 1888,p.84 (as *Homalota algae* Hardy).

"Under seaweed at Marsden—J. H.—Hartley—T.J.B. Mar. and Apr." (Hardy & Bold 1848, as *Homalota alga* n.sp.): "Not rare, amongst algae, on the sea-coast" (Bold 1864a as *Homalota p.*).

**Atheta (Thinobaena) vestita** GRAVENHORST

Fowler 1888,pp.79-80,pl.42,fig.11 (as *Homalota v.*).

"Exceedingly abundant amongst decaying algae on the sea shore" (Bold 1871, as *Homalota v.*).

\* Fowler 1888 questions this record.

\*\* (as for preceding)

**Atheta (Dimetropa) setigera** (SHARP)

Fowler 1888, pp. 127-8 (as *Homalota* s.).

"Very rare. Whitley sands. Aug." (Bold 1871, as *Homalota* s.).

**Aleochara grisea** KRAATZ

Fowler 1888, pp. 21-2.

"Amongst algae, on the coast, but rarely" (Bold 1867, 1871).  
"... Hartlepool; ... Northumberland district, rare (Bold) ..." (Fowler 1888).

Present throughout the year, usually in small numbers, in wrack strings and on sand, Whitburn, 1955-57 (Egglisshaw 1958, 1965).

**Aleochara algarum** FAUVEL

Fowler 1888, p. 22, pl. 37, fig. 9.

"Very abundant on our sea-coasts ..." (Bold 1863, as *A. kirbyi*):  
"... Northumberland district ..." (Fowler 1888).

2 in wrack string at Whitburn 8 Jul., 2 more on 28 Jul. 1957; 10 in wrack bank near St. Mary's Is. 24 Jun. 1957 (Egglisshaw 1958, 1965).

**Aleochara obsurella** GRAVENHORST

Fowler 1888, p. 22, pl. 37, fig. 10.

"Under seaweed, common on the sea-coast" (Hardy & Bold 1848):  
"Hartlepool; Northumberland district ..." (Fowler 1888).

In wrack string, usually in small numbers, Apr.-Nov. 1955-57 (Egglisshaw 1958, 1965).

HISTERIDAE Paykull

**Pachylopus maritimus** (STEPHENS)

Fowler 1889, p. 212, pl. 86, fig. 6 (as *Saprinus* m.).

"Sea-coast at South Shields—J.H. Cullercoats and Marsden—  
T.J.B. 'Stockton-on-Tees'—Rev. G. T. Rudd. Near Cambois—Mr.  
John Scott. Apr. and May" (Hardy & Bold 1852, as *Hister* m.).

CANTHARIDAE Thomson

**Cantharis darwiniana** (SHARP)

Fowler 1890, p. 139, pl. 111, fig. 12 (as *Telephorus* d.).

Forth at Aberlady (Fowler 1890).



HETERO CERIDAE MacLeay

**Heteroceris sericans** KIESENWETTER

Fowler 1889, p. 387, pl. 98, fig. 13.

"... Banks of brackish ditches... Northumberland district, very rare, Cambois (John Scott)" (Fowler 1889).

COCCINELLIDAE Leach

**Coccinella undecimpunctata** L.

Fowler 1889, p. 164.

"Extremely abundant, on sandy sea banks, where the stones may frequently be seen quite red with congregated myriads of these insects. Mar.-Nov." (Hardy & Bold 1852).

SCARABEIDAE Latreille

**Aegialia arenaria** (FABRICIUS)

Fowler 1890, p. 39, pl. 102, fig. 3 : Paulian 1941, p. 153, figs. 47, 284.

"Sea shore, South Shields, abundant"—G. Wailes, Esq. Plentifully on the sea-coast (near Bamburgh) P. J. Selby, Esq. Links, near Hartlepool, North Sunderland, Cambois, Tynemouth, South Shields, etc. Apr.-Jul." (Hardy & Bold 1852, as *A. globosa*).

CHRYSOMELIDAE Latreille

**Macrolepa mutica** (FABRICIUS) var. *curtisi* (LACORDAIRE)

Fowler 1890, pp. 278-9, pl. 127, fig. 9 (as *Haemonia curtisi* Lac.).

"On... and *Zostera marina*, in brackish water near the coast;... Hartlepool, abundant..." (Fowler 1890).

**Psylliodes marcida** (ILLIGER)

Fowler 1890, p. 392, pl. 141, fig. 8.

"Sea-coast. In abundance on *Cakile maritima*" (Bold 1849).  
"On the sea-rocket (*Cakile maritima*); sea-coast, not uncommon. Aug.-Sep." (Hardy & Bold 1852) (both records as *Macrocnema m.*):  
"... Holy Island; Northumberland and Durham district, abundant..." (Fowler 1890).

Order TRICHOPTERA Kirby

LIMNEPHILIDAE Kolenati

**Limnephilus affinis** CURTIS

Moseley 1939, p. 65, figs. 91-93, pl. 2, fig. 12.

Larvae abundant in salt pans at Seaton Sluice; first found there in

1930, and seen regularly since; Greatham Marshes, Aug. 1966 (H.O.B.). Larvae found in water of 1-33‰ salinity, salt pans, Seaton Sluice, Aug.-May; some found surviving in water of 34‰ salinity, 12 May 1959 (Sutcliffe 1960, 1961).

## Order DIPTERA L.

### Sub-Order NEMATOCERA (Latreille) Brauer

#### CULICIDAE Stephens

##### ***Aedes detritus*** HALIDAY

Marshall 1938, pp. 170-176, pls. 7 & 18, and numerous figs. : Mattingly 1950, p. 107.

Larvae in pools with the lower salinities, saltmarsh, Seaton Sluice, May 1933 (Nicol 1933): Adults and larvae in water of 1-30‰ salinity, all year round, saltmarsh, Seaton Sluice (Sutcliffe 1959, 1961).

##### ***Aedes cinereus*** MEIGEN

Marshall 1938, pp. 145-150, numerous figs. : Mattingly 1950, p. 104, figs. 172a, 175a.

3 adult females amongst large numbers of *A. detritus*, Seaton Sluice saltmarsh, H.W.S.T., 17 Sep. 1956 (Sutcliffe 1959, 1961).

#### CHIRONOMIDAE Haliday

##### ***Procladius choreus*** MEIGEN

Edwards 1929, p. 301 : Coe 1950, p. 133, fig. 183a : Wingate 1906, p. 55 (as *Tanyptus ch.*).

Larvae in brackish pools, Seaton Sluice (Nicol 1933): "Common Aug. Hesleden (W.)" (Fordham 1945).

##### ***Cricotopus vitripennis*** (MEIGEN)

Edwards 1929, pp. 325-6 : Goetghebuer 1932, p. 43 : Coe 1950, p. 148.

"Imagines everywhere (on Farne Islands), Apr.-Sep.; larvae in clear rock pools, less salt than sea-water, Apr.-Sep. (Wooff 1958) (incl. var. *halophilus* Kieffer). "Larvae of typical coastal form in shallow rock pools, Seaton Sluice, H.W.S.T. (Sutcliffe 1959, 1961); Isolated groups of larvae of var. *halophilus* in saltmarsh pools Seaton Sluice, May-Oct., 1-30‰ salinity, especially in patches of *Chaetomorpha*, on which larvae browsed (Sutcliffe 1959, 1961).

**Hydrobaenus (=Smittia) thalassophilus** (GOETGHEBUER)

Edwards 1929,p.362 : Goetghebuer 1932,p.124 : Coe 1950,p.165.

"Common on coasts between tide-marks" (Fordham 1945): "Not very common, rock pools, Farne Is., May and Jun.; Aug. and Sep." (Wooff 1958).

**Clunio marinus** HALIDAY

Edwards 1929,p.370 : Goetghebuer 1932,p.142,figs.253-6 : Hennig 1935, p.100,figs.4,10,11 : Coe 1950,p.172 : Wingate 1906,p.47,pl.2,fig.12.

"Jun. (1905), Beadnell, males common in rock pools (W). Roker, Cresswell, Bamburgh (B.)" (Fordham 1945): Adults and larvae in rock pools, Farne Islands, Jun.-Aug. (Wooff 1958): Larvae common in rock pools (H.O.B.).

**Chironomus aprilius** MEIGEN

Edwards 1929,p.384 : Coe 1950,p.181.

Larvae in pools with the lower salinities, saltmarsh, Seaton Sluice, May 1933 (Nicol 1933). Imagines reared from larvae taken in Seaton Sluice saltmarsh, 1-30‰ salinity throughout the year (Sutcliffe 1959, 1961).

**Chironomus riparius** MEIGEN

Edwards 1929,p.384 : Coe 1950,p.181.

Imagines reared from larvae taken in Seaton Sluice saltmarsh, 1-10‰ salinity, from May-Sep. (Sutcliffe 1959, 1961).

CERATOPOGONIDAE Malloch

**Culicoides maritimus** KIEFFER

Edwards, Oldroyd, and Smart 1939,p.38,fig.10.

Larvae in brackish water pools, Seaton Sluice (Nicol 1933): Imagines reared from larvae taken in Seaton Sluice saltmarsh, 1-10‰ salinity, from May-Sep. (Sutcliffe 1959, 1961).

MYCETOPHILIDAE Macquart

**Sciara quinquelineata** MACQUART

Edwards 1925,p.539 : Séguy 1940, p.245 (as *Scatopsciara vitripennis* (Meigen)).

Fairly common, May and Jun. and Sep.-Oct., in wrack string and flake, Whitburn; more rarely at St. Mary's Is., 1955-58 (Egglisshaw 1965).



Sub-Order BRACHYCERA Brauer

STRATIOMYIDAE Latreille (Kertész)

**Nemotelus uliginosus** (L.)

Séguy 1926, p.33, figs.68, 102, 108, 109.

"The commonest of the genus, especially in saltmarshes. Greattham, by sweeping (H.)" (Fordham 1945).

THEREVIDAE Westwood

**Thereva annulata** FABRICIUS

Séguy 1926, p.266, fig.64 : Wingate 1906, p.108.

"Common on sand dunes. Aug. Hart Sands (W.)" (Fordham 1945)

ASILIDAE Leach

**Philonicus albiceps** (MEIGEN)

Séguy 1927, p.123, figs.11, 28, 234, 261-3 : Wingate 1906, p.106.

"Common on the sandhills below Hart Station. . . males much commoner than females" (Wingate 1906): "On coastal sand dunes . . . Aug. Hesleden . . . (W.)" (Fordham 1945).

**Dysmachus trigonus** (MEIGEN)

Séguy 1927, pp.144-5, figs.300, 301, 321, 322 : Wingate 1906, p.105.

"Widespread on sandy areas on coast. . . Jul., Aug., Hart (W.)" (Fordham 1945).

EMPIDIDAE Latreille

**Chersodromia hirta** WALKER

Collin 1961, pp.62-4, figs.27, 28.

Common, in wrack string and on sand down to 6 yds. below H.T.L., Jun.-Sep. Whitburn 1955-58 (Egglisshaw 1965).

**Chersodromia arenaria** HALIDAY

Collin 1961, p.66-7, fig.31 : Wingate 1906, p.124.

"A species with few records. Aug. Hesleden . . . (W.)" (Fordham 1945). Common, in wrack string and on sand down to 6 yds. below H.T.L., Jun.-Sep. Whitburn 1955-58 (Egglisshaw 1965).

**Chersodromia incana** WALKER

Collin 1961, pp.69-70, fig.33.

Fairly common, in wrack string and dry sand, Bamburgh, Sep. 1957 (Egglisshaw 1965).

DOLICHOPODIDAE Gerstaecker

**Hydrophorus oceanus** (MACQUART)

Parent 1938, pp. 285-6, figs. 415, 6 : Wingate 1906, p. 156 (as *H. bisetosus*).

"Apparently common especially on coast. Jun.-Aug. Hesleden . . . (W.)" (Fordham 1945).

**Hydrophorus praecox** (LEHMANN)

Parent 1938, pp. 286-9, figs. 417, 8 : Wingate 1906, p. 156.

"Not uncommon on coast . . . Aug. Hesleden (W.)" (Fordham 1945).

**Syntormon pallipes** (FABRICIUS)

Parent 1938, pp. 460-1, figs. 667-8 : Wingate 1906, p. 152.

"Common. Jun.-Aug. Hesleden . . . (W.)" (Fordham 1945).

SYRPHIDAE Leach

**Lathyrrophthalmus** (= **Eristalis**) **aeneus** (SCOPOLI)

Coe 1953, p. 70 : Wingate 1906, p. 198.

Not uncommon on the coast. Aug. Hesleden (W.) (Fordham 1945).  
Larvae in pool in S.E. fissure, Inner Farne, where decomposed seaweed present, salinity of water 12.96‰ (Wooff 1958).

DRYOMYZIDAE Becker

**Helcomyza ustulata** CURTIS

(Imago) Séguy 1934, p. 89, figs. 127 & 130 : Wingate 1906, p. 316 (as *Actora aestrum* Meigen) : (Larva and puparium) Egglisshaw 1960a, pp. 39-40, figs. 1-4.

"Widespread on the seashore. Jul. Hesleden shore (W.)" (Fordham 1945). In wrack strings, Inner Farne (Wooff 1958): larvae in fairly dry wrack beds and a wrack-string on mid-shore, Whitburn Jul.-Oct. 1956-58; adults on the sand near same place Jun. and Sep.; adults, no larvae, wrack-string, Bamburgh, Sep. 1957 (Egglisshaw 1960a).

TRYPETIDAE Loew

**Paroxyna plantaginis** (HALIDAY)

Séguy 1934, p. 144, pl. 12, fig. 139.

"Rare, deforming inflorescence of *Aster trifolium*. Greatham, galls (H.). Most northerly record" (Fordham 1945).

**Paroxyna parvula** (LOEW)

Séguy 1934, p. 144.

"Not common, bred from *Artemisia maritima*. Jul. Hesleden (W.).

Most northerly record" (Fordham 1945).

#### CHAMAEMYIIDAE Hendel

##### **Chamaemyia flavipalpis** (HALIDAY)

(Séguy 1934, p. 358 (as *C. maritima* (Zetterstedt)): Coe 1942, pp. 175-6, fig. 1 : Wingate 1906, p. 375 (as *Ochthiphila f.*).

"Widespread. Aug. Hesleden (W.)" (Fordham 1945).

#### COELOPIDAE Hendel

##### **Oedoparea buccata** (FALLÉN)

(Imago) Séguy 1934, pp. 309, 310, fig. 427 : (Egg, larva, puparium) Egglisshaw 1960b, pp. 118-120, figs. 15-23.

Common in wrack strings from Oct.-Jan. only (a few into Apr., rarely to May) Whitburn 1955-58; larvae common Oct.-Mar., same situation and locality (Egglisshaw 1960a, b).

##### **Orygma luctuosa** MEIGEN

(Imago) Séguy 1934, pp. 310, 311, figs. 429, 431-3 : Wingate 1906, p. 308 : (Egg, larva, puparium) Egglisshaw 1960b, pp. 114-118, figs. 4-14.

"2 males, Hesleden shore, Aug. 1900" (Wingate 1906): "Widely distributed. Aug." (Fordham 1945): Fairly common, Apr.-May (occasionally Jun.) and in Sep. (odd ones to Jan.) in wrack strings and small wrack banks, Whitburn and St. Mary's, 1955-58; eggs in Apr. and Sep.; larvae in May, Sep., Oct. (occasionally Nov. and Dec.) (Egglisshaw 1960a, b).

##### **Coelopa pilipes** HALIDAY

(Imago) Séguy 1934, p. 313, figs. 424-6, 434 : Egglisshaw 1960b, p. 110 : Wingate 1906, p. 309 : (Larva and puparium) Egglisshaw 1960b, pp. 112-4.

"Uncommon. Aug. Craster, Howick (W.). Most northerly records. Hesleden shore (W.)" (Fordham 1945). Abundant in wrack strings, banks, and beds and under stones, clefts and crannies in clay etc. at foot of cliffs, Whitburn, and St. Mary's Is. 1955-58; more common Oct.-Mar. but present throughout year; larvae in large numbers in wrack banks Dec.-Mar. (Egglisshaw 1960a, b).

##### **Coelopa frigida** (FABRICIUS)

(Imago) Séguy 1934, p. 313, fig. 436 : Egglisshaw 1960b, p. 110 : Mayhew 1939 : Wingate 1906, p. 309 (as *Fucomyia f.*): (Larva and puparium) Egglisshaw 1960b, pp. 111-4.

"Uncommon but widespread. Aug. Craster (W.)" (Fordham 1945).



In wrack strings and beds, Inner Farne. Imagines most abundant Mar.-Apr. and again in Sep. (Wooff 1958). Abundant in wrack strings, banks, and beds, and under stones, clefts and crannies in clay etc. at foot of cliffs, Whitburn and St. Mary's Is. 1955-58; more common Oct.-Mar. than other months but always present; larvae in large numbers in wrack banks Sep.-Mar. (Egglisshaw 1960a, b).\*

EPHYDRIDAE Loew

**Ephydra riparia** FALLÉN

Karl 1930, p.71, figs.65,66 : Séguy 1934, p.435, figs.564-7,9.

May-Oct. 1-30‰ salinity. Imagines on the surface of saltmarsh pools, Seaton Sluice, most months. Larvae apparently dependent on patches of *Chaetomorpha*, suddenly becoming common in Sep. in 1956, 57, 58. Pupae in Sep. 1956 (Sutcliffe 1959, 1961). Imagines, larvae, and pupae abundant in saltmarsh pools, Alnmouth and Greatham Marsh, Aug. 1966 (H.O.B.).

SPHAEROCERIDAE Macquart

**Leptocera (Thoracochaeta) brachystoma** (STENHAMMAR)

Richards 1930, p.277 : Séguy 1934, p.464, fig.600.

In wrack strings and beds, Inner Farne (Wooff 1958): Adults, in wrack beds and strings Jan.-Mar. 1956, Whitburn (Egglisshaw 1961, 1965).

**Leptocera (Thoracochaeta) zosteræ** (HALIDAY)

(Imago) Richards 1930, p.277 : Séguy 1934, p.471, fig.598 : (Egg, larva, puparium) Egglisshaw 1961, pp.124-8, figs.1-9.

In wrack strings and beds, Inner Farne (Wooff 1958). Larvae in fairly dry wrack at H.W., adults in central shore, Whitburn, 1956-58 (Egglisshaw 1960a, 1961); the commonest fly at Whitburn at all times throughout the year during 1956-58 in wrack in all states of decomposition (Egglisshaw 1961).

CORDYLURIDAE Verrall

**Scopeuma (= Scatophaga) stercorarium** (L.)

Séguy 1934, pp.699,700, figs.836,837,888,898-903 : Colyer & Hammond 1951, p.252, pl.67, fig.1 : Wingate 1906, p.305 (as *Scatophaga s.*).

One or two often found between Mar. and Aug., fairly common in

\*Including *C.eximia* Stenhammar and *C.parvula* Haliday (vide Mayhew 1939 and Egglisshaw 1960b).

Sep., Oct. and Nov. in wrack string at Whitburn; several hundreds in 4 sq. ft. of wrack bank 17 and 20 Sep. 1956 (Egglisshaw 1965).

#### MUSCIDAE Latreille

##### **Fucellia fucorum** (FALLÉN)

Séguy 1923,p.178 : Wingate 1906,p.289.

"Common on sea coast. . . Apr.-Aug. Hesleden, abundant on the shore about highwater mark (W.)" (Fordham 1945). In wrack strings, Inner Farne (Wooff 1958).

##### **Fucellia maritima** (HALIDAY)

(Imago) Séguy 1923,p.178,figs.312-4 : Wingate 1906,p.289 : Colyer and Hammond 1951,p.307,pl.82,fig.6 : (Egg, larva, puparium) Egglisshaw 1960c, pp.225-231,figs.1-10.

"Less common than (*fucorum*). June-Aug. Hesleden shore (W.)" (Fordham 1945): In wrack strings, Inner Farne (Wooff 1958). Regularly bred in wrack beds, Whitburn 1956-58 (Egglisshaw 1960a) larvae in fairly dry wrack, H.W., adults in central shore Mar.-Oct. Casual, during summer, St. Mary's; large numbers Bamburgh Sep. 1957; have been found in a large area from Seaham Harbour to Hartlepool (Egglisshaw 1960c).

### Order HYMENOPTERA L.

#### Sub-Order APOCRITA Gerstaecker

#### CYNIPIDAE Westwood

##### **Nedinoptera subaptera** (WALKER)

Dalla-Torre & Kieffer 1910,p.224 : Cameron 1890p.231,pl.11,fig.1 (as *Kleditoma* s.).

Adults all the year round in wrack strings and banks at Whitburn 1955-58, usually few, but sometimes many e.g. 155 collected in 15 mins. on 1 Jul. 1957. Parasitic mainly on *Thoracochaeta zosterae*, but occasionally on *Orygma luctuosa*. Degree of parasitism < 10%; only one parasite per puparium (Egglisshaw 1965).

#### DIAPRIIDAE Dalla-Torre

##### **Platymischus dilatatus** WESTWOOD

Kieffer 1916,p.35,fig.11.

Adults in wrack beds, Whitburn, Jul.-Oct. 1955-58, usually 1 or 2,

but sometimes many e.g. 63 females, 3 males collected in 15 min. on 8 Jul. 1957. Parasitic on *Orygma luctuosa*; out of 300-400 puparia of *Orygma* (q.v.) collected over 3 years 8 were parasitized to the extent of 19.5 parasites per puparium (Egglshaw 1965).

## PTERYGOTA

### REFERENCES

- BAGNALL, R. S., 1916. Report on the field meetings for 1911. Trans.nat.Hist.Soc. Soc.Northumb.n.s. 4 (2); pp.344-65.
- BALFOUR-BROWNE, F., 1940. British water-beetles. London: Ray Soc. 1; pp. xix,373. 8°. (Ray Soc.Publ.127 for 1939).
- BALFOUR-BROWNE, F., 1950. Ibid, 2; pp.xx,394. (Ray Soc.Publ.134 for 1948).
- BALFOUR-BROWNE, F., 1958. Ibid. 3; pp.liii,210. (Ray Soc.Publ.141 for 1955).
- BOLD, T. J., 1849. A century of unrecorded local Coleoptera, with a description of a new Colymbetes. Trans.Tyneside Nat.Fld. Club 1 (4); pp.277-285. 1849.
- BOLD, T. J., 1861. List of coleopterous insects added to our fauna during 1859 and 1860. Ibid. 5 (1); pp.52-57.
- BOLD, T. J., 1862. Coleopterous insects added to the fauna of Northumberland and Durham in 1861. Ibid. 5 (3); pp.221-3.
- BOLD, T. J., 1863. Coleopterous insects added to the fauna of Northumberland and Durham in 1862. Ibid. 6 (1); pp.60-3.
- BOLD, T. J., 1864a. Coleopterous insects added to the fauna of Northumberland and Durham in 1863. Ibid. 6(2); pp.225-31.
- BOLD, T. J., 1864b. New localities for rare Coleoptera. Ibid. 6(2); pp.255-6.
- BOLD, T. J., 1867. List of coleopterous insects added to the fauna of Northumberland and Durham during the years 1865-6. Nat.Hist.Trans.Northumb. 1(3); pp.318-24.
- BOLD, T. J., 1871. A catalogue of the insects of Northumberland and Durham (Revision of Coleoptera). Ibid. 4(1); pp.1-117.
- BOLD, T. J., 1872. Insects of Northumberland and Durham (Notes on Coleoptera). Ibid. 4(2); pp.371-9.
- BUTLER, E. A., 1923. A biology of the British Hemiptera - Heteroptera. London: H. F. & G. Witherby. pp.viii, 682. 8°
- CAMERON, P., 1890. A monograph of the British phytophagous Hymenoptera vol. 3. pp.274
- COE, R. L., 1950. Chironomidae. Handbk Ident.Br.Insects. 9(2); pp.121-206.
- COE, R. L., 1953. Syrphidae. Ibid., 10(1); pp.98.
- COLLIN, J. E., 1961. British Flies, Empididae. Camb.Univ.Press, pp.viii, 782. 8°.
- COLYER, C. N. & HAMMOND, C. D., 1951. Flies of the British Isles. London & N.Y. F. Warne & Co.Ltd. 383pp. 8°.
- CROWSON, R. A., 1956. Coleoptera. Introduction and keys to families. Handbk Ident.Br.Insects. 4(1); pp. 59.
- DALLA TORRE, K. W. VON & KIEFFER, J. J., 1910. Cynipidae. Tierreich Lief. 24; pp.xxxv, 891.



- EDWARDS, F. W., 1925. British fungus-gnats (Diptera, Mycetophilidae), with a revised generic classification of the family. *Trans.R.ent.Soc.Lond.* 1924 (3-4); pp.505-570.
- EDWARDS, F. W., 1929. British non-biting midges (Diptera, Chironomidae). *Trans. R.ent.Soc.Lond.* 77(2); pp.279-430.
- EDWARDS, F. W., OLDROYD, H., & SMART, J., 1939. British blood-sucking flies. London: *Brit.Mus.(Nat.Hist.)*. pp.viii, 156. 8°.
- EGGLISHAW, H. J., 1958. The fauna of wrack beds. Univ.Durham Ph.D. Thesis L457.
- EGGLISHAW, H. J., 1960a. The life-history of *Helcomyza ustulata* Curt.(Dipt.Dryomyzidae). *Entomologist's mon.Mag.* 96; pp.39-42.
- EGGLISHAW, H. J., 1960b. Studies on the family Coelopidae (Diptera). *Trans.R. ent.Soc.Lond.* 112(6); pp.109-140.
- EGGLISHAW, H. J., 1960c. The life-history of *Fucellia maritima* (Haliday) (Diptera, Muscidae). *Entomologist*, Nov. 1960; pp.225-231.
- EGGLISHAW, H. J., 1961. The life-history of *Thoracochaeta zosterae* (Hal.) (Dipt., Sphaeroceridae). *Entomologist's mon.Mag.* 96; pp.124-8.
- EGGLISHAW, H. J., 1965. Observations on the fauna of wrack beds. *Trans. Soc. Br.Ent.* 16(8); pp.189-216.
- FORDHAM, W. J., 1945. A preliminary list of the Diptera of Northumberland and Durham (excluding the Cecidomyidae). *Trans.nat.Hist.Soc.Northumb.* n.s.7(3); pp.197-265.
- FOWLER, W. W., 1887. The Coleoptera of the British Islands. 1. Adephaga Hydrophilidae. London: L. Reeve & Co. pp.xxxii,269; pls. (large paper issue only) 1-36. 8°.
- FOWLER, W. W., 1888. *Ibid.* 2. Staphylinidae. pp.444; pls.37-70.
- FOWLER, W. W., 1889. *Ibid.* 3. Clavicornia (Leptinidae—Heteroceridae). pp. 399; pls.71-98.
- FOWLER, W. W., 1890. *Ibid.* 4. Lamellicornia - Serricornia - Longicornia - Phytophaga. pp.411; pls.99-142.
- FOWLER, W. W., 1891. *Ibid.* 5. Heteromera - Rhynchophora - Abnormal Coleoptera. pp.xxviii,490; pls.143-180.
- FOWLER, W. W. & DONISTHORPE, H. ST. J., 1913. Coleoptera of the British Islands. 6 (Supplement). London: Lovell Reeve & Co. Ltd. pp.xiii,351; pls.1-20. 8°.
- GOETGHEBUER, M., 1932. Diptères (Nématocères): Chironomidae. 4. *Faune Fr.* 23; pp.204.
- GUIGNOT, F., 1947. Coléoptères Hydrocanthaires. *Faune Fr.* 48; pp.286.
- HARDY, J. & BOLD, T. J., 1848. A catalogue of the insects of Northumberland and Durham, drawn up at the request of the Tyneside Naturalists' Field Club. *Trans.Tyneside Nat.Fld. Club.* 1(1); pp.37-94.
- HARDY, J. & BOLD, T. J., 1851. *Ibid.* 2(1); pp.21-97.
- HARDY, J. & BOLD, T. J., 1852. *Ibid.* 2(2); pp.164-287.
- HARRISON, H. W. H., 1963. *Vasculum* 48(2); p.16.
- HENNIG, W., 1935. Thalassobionte und thalassophile Diptera Nematocera. In Grimpe, G. and Wagler, E. *Tierwelt N.-u.Ostsee XIe<sup>3</sup>*; pp.85-102.
- JEANNEL, R., 1941. Coléoptères carabiques I. *Faune Fr.* 39; pp.571.
- JEANNEL, R., 1942. *Ibid.* II. *Faune Fr.* 40; pp.573-1173.
- KARL, O., 1930. Thalassobionte und thalassophile Diptera Brachycera In Grimpe, G. and Wagler, E. *Tierwelt N.-u.Ostsee XIe<sup>3</sup>*; pp.33-84.

- KIEFFER, J. J., 1916. Diapriidae. Tierreich Lief.44; pp.xxx,627.
- LINDBERG, H., 1935. Halophile und halobionte Hemiptera. In Grimpe, G. & Wagler, E. Tierwelt N.-u.Ostsee XIe<sup>4</sup>; pp.103-124.
- MACAN, T. T., 1965. A revised key to the British water bugs (Hemiptera-Heteroptera). Scient.Publs Freshwat.biol.Ass. 16; pp.78.
- MARSHALL, J. F., 1938. The British mosquitoes. London: Brit.Mus.(Nat.Hist.). pp.ix, 341.
- MATTINGLY, P. F., 1950. Culicidae. Handbk Ident.Br.Insects. 9(2); pp.102-120.
- MAYHEW, A. W., 1939. Studies on the structure and life-history of the shore flies of the genus *Coelopa*. Univ. Durham M.Sc. Thesis. H157.
- MOSELEY, M. E., 1939. The British Caddis Flies (Trichoptera). London: G. Routledge & Sons Ltd. pp.xiii,320 8°
- NICOL, E. A. T., 1933. A preliminary note on the fauna of some saltmarshes on the Northumberland coast. Rep.Dove mar.Lab. 3rd ser. 1; pp.51-53.
- PARENT, O., 1938. Diptères (Brachycères) (Dolichopodidae). Faune Fr. 35; pp. 720.
- PAULIAN, R., 1941. Coléoptères Scarabéides. Faune Fr. 38; pp.239.
- RICHARDS, O. W., 1930. The British species of Sphaeroceridae (Borboridae, Diptera). Proc.zool.Soc.Lond. 1930; pp.261-345.
- SÉGUY, E., 1923. Diptères Anthomyides. Faune Fr. 6; pp.ix, 393.
- SÉGUY, E., 1926. Diptères (Brachycères) (Stratiomyiidae, Erinnidae, Coenomyiidae, Rhagionidae, Tabanidae, Codidae, Nemestrinidae, Mydidae, Bombyliidae, Thervidae, Omphralidae). Faune Fr. 13; pp.308.
- SÉGUY, E., 1927. Diptères (Brachycères) (Asilidae). Faune Fr. 17; pp.190.
- SÉGUY, E., 1934. Diptères (Brachycères) (Muscidae Acalypterae et Scatophagidae). Faune Fr. 28; pp.832.
- SÉGUY, E., 1940. Diptères (Nématocères). Faune Fr. 36; pp.367.
- SOUTHWOOD, T. R. E. & LESTON, D. Land and water bugs of the British Isles. London: Warne & Co.Ltd. 1959; pp.xi,436.
- SUTCLIFFE, D. W., 1959. Studies on the biology of some salt-marsh insects. Univ. Durham Ph.D. Thesis L504.
- SUTCLIFFE, D. W., 1960. Observations on the salinity tolerance and habits of a euryhaline caddis larva, *Limnephilus affinis* Curtis (Trichoptera: Limnephilidae). Proc.R.ent.Soc.Lond.A. 35 (10-12); 156-162.
- SUTCLIFFE, D. W., 1961. Salinity fluctuations and the fauna in a salt-marsh. Trans.nat.Hist.Soc.Northumb. n.s. 14(2); pp.39-56.
- SUTCLIFFE, D. W., 1962. *Gerris rufoscutellatus* (Latreille) (Hemiptera-Heteroptera); A new record from Northumberland. Entomologist Feb.1962; pp.62-3.
- THOMPSON, U. (Mrs.), 1951. Studies on the genetics and ecology of *Coelopa frigida* (Fab.). Univ.Durham Ph.D. Thesis L192.
- TOTTENHAM, C. E., 1954. Coleoptera Staphylinidae Section (a) Piestinae to Euasthetinae. Handbk Ident.Br.Insects 4(8a); pp.79.
- WINGATE, W. J., 1906. A preliminary list of the Durham Diptera, with analytical tables. Trans.nat.Hist.Soc.Northumb. n.s.2; pp.vi,416+ 8 pp. add. & corr.
- WOOFF, W. R., 1958. An ecological survey of the insects of the Farne Islands. Univ.Durham Ph.D. Thesis L474.

## PTERYGOTA

### INDEX TO GENERA

#### HEMIPTERA

	Page		Page
Chiloxanthus ... ..	7	Notonecta ... ..	8
Corixa ... ..	8	Salda ... ..	7
Gerris ... ..	7	Saldula ... ..	7
Hesperocorixa ... ..	8	Sigara ... ..	8

#### COLEOPTERA

Aegialia ... ..	17	Hister ... ..	16
Aëpopsis ... ..	10	Homalota ... ..	15
Aëpus ... ..	10	Hygrotus ... ..	11
Agabus ... ..	11	Ilybius ... ..	11
Aleochara ... ..	16	Macrocnema ... ..	17
<i>Alianta</i> ... ..	15	Macrolea ... ..	17
Amara ... ..	10	Micralymma ... ..	13
<i>Amara</i> ... ..	10	Myrmecopora ... ..	15
Atheta ... ..	15	Ochthebius ... ..	11
Bembidion ... ..	9	Omalium ... ..	13
Bledius ... ..	14	<i>Ophonus</i> ... ..	10
Broscus ... ..	9	Oxytelus ... ..	14
Cafius ... ..	14	Pachylopus ... ..	16
Cantharis ... ..	16	<i>Peryphus</i> ... ..	9
Carpelimus ... ..	13	<i>Philochthus</i> ... ..	9
Cercyon ... ..	12	<i>Philonthus</i> ... ..	14
Cillenus ... ..	9	Phytosus ... ..	14
Coccinella ... ..	17	Pogonus ... ..	10
Colymbetes ... ..	11	<i>Princidium</i> ... ..	9
<i>Cyrtolotus</i> ... ..	10	Psylliodes ... ..	17
Dicheirotichus ... ..	10	Ptenidium ... ..	12
Dyschirius ... ..	8	<i>Saprinus</i> ... ..	16
Enochrus ... ..	12	Tachys ... ..	9
<i>Haemonia</i> ... ..	17	<i>Tachyusa</i> ... ..	15
Halipus ... ..	11	<i>Telephorus</i> ... ..	16
Heterocerus ... ..	17	<i>Trepanes</i> ... ..	9
Heterota ... ..	15	<i>Trogophloeus</i> ... ..	13

#### TRICHOPTERA

Limnephilus ... ..	17
--------------------	----



## DIPTERA

	Page		Page
<i>Actora</i> ... ..	21	<i>Hydrophorus</i> ... ..	21
<i>Aedes</i> ... ..	18	<i>Lathyrophthalmus</i> ... ..	21
<i>Chamaemyia</i> ... ..	22	<i>Leptocera</i> ... ..	23
<i>Chersodromia</i> ... ..	20	<i>Nemotelus</i> ... ..	20
<i>Chironomus</i> ... ..	19	<i>Ochthiphila</i> ... ..	22
<i>Clunio</i> ... ..	19	<i>Oedoparea</i> ... ..	22
<i>Coelopa</i> ... ..	22	<i>Orygma</i> ... ..	22
<i>Cricotopus</i> ... ..	18	<i>Paroxyna</i> ... ..	21
<i>Culicoides</i> ... ..	19	<i>Philonicus</i> ... ..	20
<i>Dymachus</i> ... ..	20	<i>Procladius</i> ... ..	18
<i>Ephydra</i> ... ..	23	<i>Scatophaga</i> ... ..	23
<i>Eristalis</i> ... ..	21	<i>Scatopsiara</i> ... ..	19
<i>Fucellia</i> ... ..	24	<i>Sciara</i> ... ..	19
<i>Fucomyia</i> ... ..	22	<i>Scopeuma</i> ... ..	23
<i>Helcomyza</i> ... ..	21	<i>Syntormon</i> ... ..	21
<i>Hydrobaenus</i> ... ..	19	<i>Tanypus</i> ... ..	18
		<i>Thereva</i> ... ..	20

## HYMENOPTERA

<i>Nedinoptera</i> ... ..	24	<i>Platymischus</i> ... ..	24
---------------------------	----	----------------------------	----









The Marine Fauna of the Cullercoats District

4b

ARTHROPODA 3a

CRUSTACEA ; BRANCHIOPODA

by

Jo Bossanyi\*

Univ. Newcastle upon Tyne

Rep.Dove Mar.Lab.

3rd Ser. 16 ; pp. 33 to 38

1967

---

\*Department of Extra-Mural Studies, University of Southampton.



Class CRUSTACEA Latreille

Sub-Class BRANCHIOPODA Latreille

Order CLADOCERA Latreille

POLYPHEMIDAE Baird

**Evadne nordmanni** LOVÉN

Lilljeborg 1900, pp. 641-647; pl. 86, figs. 4-17; Rammner 1939, p. 3, figs. 5a, b.

First taken in this area by Norman 1862 (Norman 1863): Since then has been regularly taken down to the present time from surface to bottom in various nets and in large numbers throughout the area between May and Sep., the largest numbers in May to Jul. (Norman 1863, Brady 1864, 1865, 1867, 1900 a and b, 1903, Cheng 1941, Jorgensen 1923, 1924, 1933, Meek 1899, 1900, 1904, 1934, Meek & Storrow 1912, Norman & Brady 1909, Savage 1926, Storrow 1912, 1913): In fair numbers in herring stomachs from numerous stations in the area (Hardy 1924); occasional in plankton in Tees estuary up to 7 miles from the sea (Alexander et al 1935). Sometimes in abundance in tow-nettings off Blyth, summers 1949-53; moderately common in bottom sledge net hauls 14 fms. N.E. Sow Buoy, Cambois Bay, Jul. 1952 (J.B.).

BREEDING.—All stages in Aug. (Jorgensen 1924); mostly females with eggs in bottom sledge net hauls, Cambois Bay Jul. 1952 (J.B.).

**Podon polyphemoides** (LEUCKART)

Lilljeborg 1900, pp. 633-636; pl. 85, figs. 7-11; Rammner 1939, p. 3, figs. 3a, b.

First taken by Brady in 1862, 50 m. E. of Tynemouth; since then, has been commonly taken in the same circumstances as *E. nordmanni* (Brady 1867, Meek 1899, 1904 as *Pleopis p.*; Brady 1864, 1865, as *Evadne p.*; Brady 1900a, b, 1903, Jorgensen 1923, Meek 1923, 1900, Norman & Brady 1909, Storrow 1912): In estuaries of R. Tyne (Meek 1923), Coquet (Meek 1923), Tees (Alexander et al 1935). Sporadically in tow-nettings off Blyth, summers 1949-52: females present in bottom sledge-net hauls, 5 fms. Blyth Bay, summer, 1950 (J.B.).

**Podon intermedius** LILLJEBORG

Lilljeborg 1900, pp. 627-633; pl. 84, figs. 8-16; pl. 85, figs. 1-6; Rammner 1939, p. 3, figs. 2a, b.

First recorded in plankton off N.E. coast of England in 1901 (Brady 1903): Occasionally taken in tow-nets (Norman & Brady 1909): In plankton samples, May-Sep. 1921 off Northumberland coast (Jorgensen 1923):

2 specimens in salt-water pond at Amble on 18 Jul. 1929 also "present" there 21 Nov. 1930 and 28 May 1931 (Meek 1934): Occasional in plankton up to 3 miles from sea in Tees estuary, 1929-33 (Alexander et al 1935).

**Podon leuckartii** G. O. Sars

Lilljeborg 1900, pp. 636-639; pl. 85, fig. 12; pl. 86, figs. 1-3; Rammner 1939, p. 3, figs. 4a, b.

"Moderate to poor" numbers in net catches at several stations in area approx.  $55^{\circ}$  to  $55^{\circ}30'N$  and from coast to  $0^{\circ}$  long. Jul. 8-14, 1922 (Savage 1926): Rarely and in small numbers in plankton indicator samples within 60 mile radius of mouth of Tyne in summer months of 1931-3 (Cheng 1941).

Sporadically found in tow-nettings off Blyth, summer, 1949-52; present in bottom sledge net hauls in 14 fms. N.E. Sow Buoy Cambois Bay summer 1950 and Apr. 1952, and very common in same net hauls in 5 fms. in Blyth Bay summer 1950; mostly females both with and without eggs (J.B.).

DAPHNIIDAE Straus

**Daphnia pulex** (L.)

Lilljeborg 1900, pp. 79-93; pl. 9, fig. 8; pl. 10, figs. 1-9; pl. 11, figs. 1-11; pl. 12, figs. 1-13.

In salt-water pond at Amble\* in 1905 (Brady 1904-7); "not seen again" (Meek 1934).

**Daphnia magna** (STRAUS)

Lilljeborg 1900, pp. 69-77; pl. 8, figs. 1-11; pl. 9, figs. 1-2

Several (some breeding) in pools not exceeding 6‰ salinity, salt-marsh, Seaton Sluice, 1956 (Sutcliffe, 1961).

LYNCEIDAE Baird

**Lynceus quadrangularis** O. F. MÜLLER

Lilljeborg 1900, pp. 448-454; pl. 66, figs. 8-17.

"Cladocera appear to be washed into the (Tees) Estuary from ponds and ditches during floods and are taken in the plankton. Several species appear to be present, one of which is *Alona quadrangularis* O. F. Müller," (Alexander et al 1935).

\*The salinity of this pond varied from 26.9 to 32.9‰; (Meek 1934): It filled at  $\frac{1}{2}$ -tide.



## CLADOCERA

### REFERENCES

- ALEXANDER W. B., SOUTHGATE, B. A., & BASSINDALE, R., 1935. Survey of the river Tees. Part 2. The estuary, Chemical and Biological. Tech.Pap. Wat.Pollut.Res.D.S.I.R., 5; pp.1-171.
- BRADY, G. S., 1864. Report of dredging operations on the coasts of Northumberland and Durham in July and August 1863. Report on the Pelagic Entomostraca (Calanidae and Polyphoemidae). Trans.Tyneside Nat.Fld. Cl., 6, pp.188-9.
- BRADY, G. S., 1865. British Oceanic Entomostraca. Intellectual Obsr, 7; pp.18-27.
- BRADY, G. S., 1867. Reports of deep sea dredging on the coasts of Northumberland and Durham, 1862-4. Report on the pelagic Entomostraca. Nat.Hist. Trans.Northumb., 1; pp.29-40.
- BRADY, G. S., 1900a. The marine micro-fauna as a source of food supply. Rep. N.Sea Fish.Invest.Comm.; pp.64-6.
- BRADY, G. S., 1900b. An afternoon's dredging off Cullercoats. Nat.Hist.Trans. Northumb., 13; pp.442-3.
- 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; pp.87-101.
- BRADY, G. S., 1904-7. On the Crustacean Fauna of a salt-water pond at Amble. Trans.nat.Hist.Soc.Northumb., 1; pp.330-6.
- CHENG, C., 1941. Ecological relations between the Herring and the Plankton off the North-East Coast of England. Hull Bull. mar.Ecol., 1(5); pp.239-254.
- HARDY, A. C., 1924. The Herring in relation to its animate environment. Part 1. The food and feeding habits of the Herring with special reference to the East coast of England. Fishery Invest., Lond., ser. 2, 7(3); pp.1-53.
- HARDY, A. C., 1925. The Herring in relation to its animate environment. Part 11. Report on trials with the Plankton Indicator. Fishery Invest., Lond., ser. 2, 8(7); pp.1-13.
- HARDY, A. C., 1936. The ecological relations between the Herring and the Plankton investigated with the Plankton Indicator. Part 1. The Object, Plan and Methods of the Investigation. J.mar.biol.Ass.U.K., n.s. 21; pp.147-77.
- JORGENSEN, O. M., 1923. Plankton Investigations, 1921-2. Crustacea (1921). Rep.Dove mar.Lab., n.s. 12; pp.112-33.
- JORGENSEN, O. M., 1924. Plankton Investigations. Crustacea (1922-3). Rep. Dove Mar.Lab., n.s. 13; pp.68-102.
- JORGENSEN, O. M., 1933. On the marine Cladocera from the Northumbrian Plankton. J.mar.biol.Ass.U.K., n.s. 19; pp.177-226.
- LILLJEBORG, W., 1900. Cladocera Sueciae. Nova Acta R.Soc.Scient.upsal., ser. 3, 19; pp.1-701.
- LUCAS, C. E., 1936. The Ecological relations between the Herring and the Plankton investigated with the Plankton Indicator. Part II. Zooplankton-herring correlations in the English Fisheries. J.mar.biol.Ass.U.K., n.s., 21; pp. 178-242.
- MEEK, A., 1899. A study in Plankton. Rep.N.Sea Fish.Invest.Comm.; pp.55-8.
- MEEK, A., 1900. The trawling excursions (1900). Rep.N.Sea Fish.Invest.Comm.; pp.6-32.

- MEEK, A., 1904. The trawling experiments. Rep.N.Sea Fish.Invest.Comm.; pp. 7-20.
- MEEK, A., 1923. Plankton Investigations, 1921-2. Estuarine. Rep.Dove mar. Lab., n.s. 12; pp.78-91.
- MEEK, A., 1934. The Fauna of the Amble Pond, Northumberland. James Johnstone Mem.Vol.Lancs.Sea Fish.Lab.; pp.154-63.
- MEEK, A. & STORROW, B., 1912. Biological Investigations. Rep.Dove mar.Lab., n.s. 1; pp.61-70.
- NORMAN, A. M., 1863. Report on the Crustacea (Dredging Expedition 1862). Trans.Tyneside Nat.Fld. Cl., 5; pp.263-280.
- NORMAN, A. M., & BRADY, G. S., 1909. The Crustacea of Northumberland and Durham. Trans.nat.Hist.Soc.Northumb., n.s. 3(2); pp.252-417.
- RAMMNER, W., 1939. Cladocera. Fich.Ident.Zooplankton Sheet 3; 4 pp.
- SAVAGE, R. E., 1926. The Plankton of a Herring ground. Fishery Invest., Lond., ser. 2, 9(1); pp.1-35.
- SAVAGE, R. E., 1931. The relation between the feeding of the Herring off the East coast of England and the Plankton of the surrounding waters. Fishery Invest., Lond., ser. 2, 12(3); pp.1-88.
- STORROW, B., 1912. Material collected by B. Storrow during July and August of 1911, when on board trawlers fishing on the local prawn ground, together with catches of edible fish then made. Rep.Dove mar.Lab., n.s. 1; pp. 68-70.
- STORROW, B., 1913. Biological Investigations, Surface Life. Rep.Dove mar. Lab., n.s. 2; pp.59-69.
- SUTCLIFFE, D. W., 1961. Salinity fluctuations and the fauna in a salt-marsh. Trans.nat.Hist.Soc.Northumb. n.s. 14(2); pp.39-56.







The Marine Fauna of the Cullercoats District

4c

ARTHROPODA 3b  
CRUSTACEA ; OSTRACODA

by

Jo Bossanyi\*

Univ. Newcastle upon Tyne

Rep.Dove Mar.Lab.

3rd Ser. 16 ; pp. 41 to 68

1967

---

\*Department of Extra-Mural Studies, University of Southampton.



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, Mydocopa, 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.
- SKOGBERG, T., 1920. Studies on Marine Ostracods, I. Cypridinids, Halocyprids, Polycopids. *Zoo.Bidr.Upps.*, 1; pp.1-784.

### INDEX TO GENERA

	Page		Page
Argilloecia ... ..	46	<i>Hemicythere</i> ... ..	52,54
Asterope ... ..	43	<i>Herpetocypris</i> ... ..	45
<i>Bradycinetus</i> ... ..	43	<i>Heterocypris</i> ... ..	45
Bythocythere... ..	60	<i>Hirschmannia</i> ... ..	59
Candona ... ..	44	<i>Ilyobates</i> ... ..	48
Cyclocypris ... ..	45	<i>Ilyocypris</i> ... ..	45
<i>Cylindrolebevis</i> ... ..	43	<i>Krithe</i> ... ..	48
Cypria ... ..	45	<i>Kyphocythere</i> ... ..	50
Cyprideis ... ..	47	<i>Leptocythere</i> ... ..	49
<i>Cypridina</i> ... ..	43	<i>Limnocythere</i> ... ..	47
Cypridopsis ... ..	46	<i>Loxoconcha</i> ... ..	59
<i>Cyprinotus</i> ... ..	46	<i>Loxoconcha</i> ... ..	59
<i>Cypris</i> ... ..	45,46	<i>Machaerina</i> ... ..	65
Cythere ... ..	49	<i>Macrocythere</i> ... ..	60
<i>Cythere</i> ... ..	47,63	<i>Palmenella</i> ... ..	51
Cythereis ... ..	52	<i>Paracytherois</i> ... ..	62
<i>Cythereis</i> ... ..	51	<i>Paradoxostoma</i> ... ..	63
Cytherella ... ..	65	<i>Paradoxostoma</i> ... ..	62,63
Cytheridea ... ..	48	<i>Philomedes</i> ... ..	43
<i>Cytheridea</i> ... ..	48	<i>Polycope</i> ... ..	44
Cytherideis ... ..	54	<i>Pontocypris</i> ... ..	47
Cytherois ... ..	63	<i>Pontocypris</i> ... ..	47
Cytheropteron ... ..	57	<i>Potamocypris</i> ... ..	46
<i>Cytheropteron</i> ... ..	60	<i>Pseudocythere</i> ... ..	61
<i>Cytherura</i> ... ..	55	<i>Sclerochilus</i> ... ..	62
<i>Cytherura</i> ... ..	57,58	<i>Sclerochilus</i> ... ..	64
<i>Cythocythere</i> ... ..	61	<i>Xenothere</i> ... ..	51
Erythrocypris ... ..	47	<i>Xestoleberis</i> ... ..	61
Eucypris ... ..	45	<i>Xiphichilus</i> ... ..	64
Eucythere ... ..	51		





---

1967

Printed by W. L. Large & Sons Ltd.  
Newcastle upon Tyne 6

---

