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1909

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INVERTEBRATE  
ZOOLOGY  
Crustacea

THE CRUSTACEA OF NORTHUMBERLAND AND  
DURHAM

BY CANON A. M. NORMAN, M.A., D.C.L., LL.D., F.R.S.,  
AND G. STEWARDSON BRADY, M.D., LL.D., D.Sc., F.R.S.

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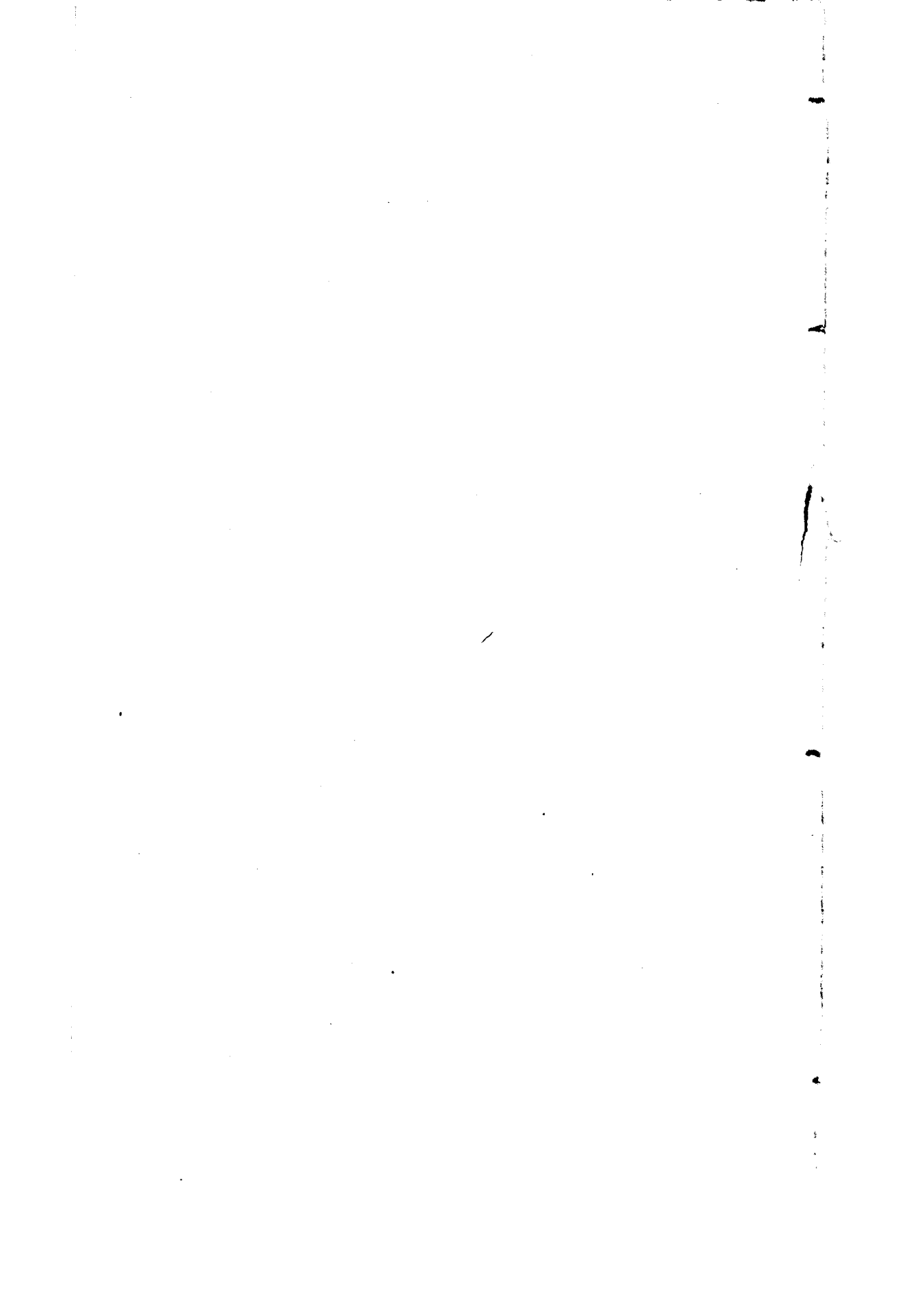
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## THE CRUSTACEA OF NORTHUMBERLAND AND DURHAM

BY CANON A. M. NORMAN, M.A., D.C.L., LL.D., F.R.S.,  
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There were no very early students of the Crustacea in these northern counties, and we are not aware of any publications on the subject prior to 1832. The following notes supply a record of all observations and papers up to the year 1862-4, at which time a stimulus was given to the study of this and other branches of Marine Zoology by grants from the British Association. These, with local contributions, enabled dredging to be carried out by means of a steam-tug in the deeper waters which lie off the coast. The earlier papers referred to are as follows :—

Johnston (George), "Illustrations of British Zoology," Loudon's Mag. Nat. Hist., vol. v., 1832, p. 520; vol. vi., 1833, p. 40; vol. vii., 1834, p. 253; vol. viii., 1835, pp. 202, 494, 565, and 668; vol. ix., 1835, p. 80. These papers contained notices of the occurrence of various species of Isopoda, Amphipoda, and parasitic Crustacea, accompanied by illustrations.

Johnston (George), Zoological Journal, vol. iii., 1827, p. 176.  
*Gammarus maculatus* and *G. dubius*.

Johnston (George), Proc. Berwickshire Naturalists' Club, vol. i., 1834, "Catalogue of the Cirrhipeda found on the coast of Berwickshire"—6 species.

Embleton (Robert), Proc. Berwickshire Nat. Club, vol. i., 1834, "List of Malacostracan Podophthalma found on the coast of Berwickshire and North Durham." Twenty-eight species are recorded, including description and figure of his new species *Galathea nexa*.

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- Baird (W.), Hist. Berwickshire Nat. Club, vol. ii., p. 145 (1845?), "Arrangement of the British Entomostraca." In this paper are a few records from Berwick Bay.
- Baird (W.), Hist. Berwickshire Nat. Club, vol. ii. (1845?), *Caligus Strömii* described.
- Hardy (James), Hist. Berwickshire Nat. Club, vol. iv., p. 212 (1845?), *Pagurus Prideauxii* Leach. "Found in deep water off Burmouth, lodged in a curious domicile formed of a sponge (*Halichondria suberea* Johnston)." It seems probable that the species found was *Pagurus cuanensis*.
- Hancock (Albany), Trans. Tyneside Nat. Field Club, vol. i., 1850, and also Ann. and Mag. Nat. Hist., ser. 2, vol. iv., 1849, p. 305; pls. viii., ix., "Notice of the occurrence on the British coast of a Burrowing Barnacle belonging to a new order of the class Cirripedia." The species was named *Alcippe lampas*.
- Hancock (Albany), Trans. Tyneside Nat. Field Club, vol. iv., 1858, p. 17, and also Ann. and Mag. Nat. Hist., ser. 3, vol. ii., p. 443, describes the markings on the sand caused by the crawling of the two Amphipoda *Sulcator arenarius* and *Kröyera arenaria*; which Crustacea are described by Spence Bate in the Tyneside Transactions immediately before the paper by Hancock at p. 15, and figured pl. ii., figs. 1 and 2.
- Norman (A. M.), Trans. Tyneside Nat. Field Club, vol. iv., 1860, p. 326, pl. xvii., "On an undescribed Crustacean of the genus Mysis."
- Norman (A. M.), Trans. Tyneside Nat. Field Club, vol. v., 1860, p. 143, pl. iii., "On species of Ostracoda found in Northumberland and Durham, new to Great Britain."
- Hancock (Albany) and Norman (A. M.), Trans. Linn. Soc., vol. xxiv., 1863, p. 49, pls. xv., xvi., "On Splancnotrophus, an undescribed genus of Crustacea, parasitic in Nudi-branchiate Mollusca." One of the two species, *Splancnotrophus brevipes*, had been taken on the Northumberland coast.

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From this date, when the dredgings, aided by grants from the British Association, were commenced, the Crustacea of the north-east coast began to receive more attention.

The north-east coast of England is not favourable, at any rate in the littoral zone, to the development of the smaller marine animals; the swell which throughout so great a portion of the year beats on the rocky shores leaves little peace for the animals which should live there; while the almost total absence of sheltered bays or even nooks deprives the smaller Crustacea of suitable dwelling places. In years gone by Alder and Hancock made the rocks at Cullercoats famous by the number of interesting Nudibranchiate Mollusca which they discovered there. It is to be feared that they would not have been so successful had they worked there at the present time; the immense increase of population which has taken place north of the entrance to the Tyne, the sewage poured into the water, the vast amount of dredged mud carried out from the Tyne and deposited off shore have greatly changed the condition not only of the shore but of the neighbouring sea from which the Nudibranchs used to make their way landwards at the time of spawning. The North Sea, however, in its deeper parts is excellent dredging ground, whence additions to our fauna have been continually turning up, and where excellent work remains to be done by those who come after us.

We give a comparative table of the Crustacea which have been found on the north-east coast, with those from such other parts of the coasts of Great Britain as have been efficiently worked to a greater or less degree.

The authorities who are responsible for the several columns are as follows :—

1. Northumberland and Durham as in the Catalogue which follows.
2. "Notes on the Crustacea of the Channel Islands," Canon A. M. Norman, *Ann. and Mag. Nat. Hist.*, ser. 7, vol. xx., 1907, p. 356.

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3. "The Crustacea of Devon and Cornwall," Canon A. M. Norman and Thomas Scott, LL.D., 1906.
4. "Fourth and Final Report on the Marine Zoology, Botany, and Geology of the North Sea," Report Brit. Assoc., 1890, p. 457. In this report the higher Crustacea are reported on by Mr. A. O. Walker; the Ostracoda by Prof. G. S. Brady, Mr. A. Scott, and Dr. Chaster; the Copepoda by Mr. I. C. Thompson; and the Cirripedia by Mr. Marratt.
5. "Fauna, Flora, and Geology of the Clyde Area, 1901." The Crustacea are reported on by Thomas Scott, F.L.S., p. 328.
6. "A Catalogue of the Land, Freshwater, and Marine Crustacea found in the Basin of the River Forth and its Estuary," by Thomas Scott, LL.D., F.L.S., Proc. Roy. Physical Soc. of Edinburgh, vol. xvi., 1906, p. 97 and p. 267.
7. "Last Report of Dredging among the Shetland Isles." Crustacea by Rev. A. M. Norman, Brit. Assoc. Report (for 1868), 1869, p. 247. The marine species are filled in from this old report, as it is the only one of the fauna of the northern extremity of our Islands; a few additional species have since been discovered, but are not here included. The inland species, however, which have been observed by Dr. T. Scott and R. Duthie have been incorporated. The account of these will be found in *Reports of the Fishery Board for Scotland*, xiii., p. 174; xiv., p. 229; xv., p. 327; and xvi., p. 253.

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*Crustacea of Northumberland and Durham compared with those of some other parts of the country and seas:—*

	Northumberland and Durham.	Channel Islands, 1907.	Devon and Cornwall, 1906.	Irish Sea, 1896.	Firth of Clyde, 1901.	Firth of Forth, 1906.	Shetland Marine 1868, Inland 1905.
Brachyura ... ..	22	39	41	27	29	19	18
Anomura ... ..	15	11	16	12	16	15	17
Macrura ... ..	22	26	32	22	27	18	20
Schizopoda ... ..	14	18	29	16	25	26	11
Stomatopoda ... ..	—	1	2	—	—	—	—
Sympoda ... ..	26	9	13	17	31	21	12
Isopoda ... ..	58	52	68	23	62	44	23
Amphipoda ... ..	130	136	144	130	168	145	113
Branchiopoda—							
1. Phyllocarida ...	1	—	1	1	1	—	1
2. Phyllopoda ...	—	—	1	—	—	—	—
3. Cladocera ...	48	—	34	2	51	54	37
4. Branchiura ...	—	—	—	—	1	1	—
Ostracoda ... ..	121	64	107	58	142	132	99
Copepoda ... ..	163	31	293	195	290	306	70
Cirripedia ... ..	17	—	27	10	12	13	6
	637	387	808	513	855	794	427

The character of the fauna of the coasts of Northumberland and Durham is distinctly boreal, and much more northern than that of the same latitude on our western shores. As long ago as 1868 one of us wrote, "The distribution of animal life around our coasts appears for the most parts to have followed the direction south, west, north, and east. It would seem that comparatively few (if any) southern species have made their way far north through the Straits of Dover, which may probably be accounted for by the fact that that channel has, geologically speaking, been only a short time open. As a rule southern species are to be seen at a higher latitude on the western than they are on the eastern coasts. There are, however, some apparent, but only apparent exceptions. These consist of animals known on the north-east coast of Scotland, which we should not have expected to meet with there. On examining into the probable cause of their migration to this district, I am led to believe that they have



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made their way thither round the western and northern, and down the eastern coasts to their present habitat, and not up the eastern coast, as at first might have been supposed. For example *Cerithium perversum*, *Phasianella pulla*, *Fissurella græca*, *Tellina balaustina*, *Callianassa subterranea*, *Palmipes placenta*, *Amphiura brachiata*, &c., have been found in the Moray Firth, but are wholly absent on the east coast of England. Moreover many species have been recorded on the Norwegian coast though never found on the eastern shores of England, and therefore may be presumed to have migrated thither up the western side of Great Britain and round the north of Scotland; as examples of such species may be cited *Pleurotoma striolata*, *attenuata* and *septangularis*, *Cerethiopsis tubercularis*, *Cerithium reticulatum* and *perversum*, *Rissoa violacea*, *Pholas dactylus*, *Solen vagina*, *Psammobia costulata*, *Gastrana fragilis*, *Isocardia cor*, *Cardium aculeatum*, *Lepton squamosum*, *Xantho rivulosus*, *Portunus arcuatus*, *Gebia deltura*, &c. On the other hand, while northern forms do not extend southward on the east coast beyond Yorkshire and the Dogger Bank, on the western coast they in many instances have a range southwards to the Nymph Bank off Cork, and even to the Mediterranean Sea.”\*

Forty years have elapsed since the above was written, and a continued study during that time of the distribution of animal life in the North Atlantic has fully confirmed the views expressed by the writer in the foregoing extract. If rewritten now a few names therein quoted as Norwegian would be struck out as erroneously recorded; but the writer would on the other hand be able to add a large number of other species as illustrative of his views. Moreover he has during these years been able to establish a remarkable fact. It is that during the last months of the year, as also during the first months, that is apparently from November to March, enormous quantities of free swimming animals are often brought down from the north along the coasts of Scotland

\* Norman (A. M.) "Last Report of Dredging among the Shetland Isles," Rep. Brit. Assoc. (for 1868), 1869, p. 248.

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and England; on many occasions as far as north Yorkshire. The species thus occurring are not known (or very rarely?) at other times of the year, and the conclusion the writer arrived at was that at the period of the year mentioned there was a strong southerly current sweeping along our east coast. The Arctic forms which peculiarly distinguish this southerly migration are *Clione limacina* Phipps, *Thysanoessa longicaudata* Kröyer, *Nematoscelis borealis* Norman, and *Euthemisto compressa* Goës.

These conclusions, arrived at on purely zoological grounds, have received remarkable confirmation during the last two or three years from the physical researches of the *International Council for the Exploration of the Sea*. By numerous and extended observations and experiments it has been clearly established that water which enters the North Sea through the Straits of Dover is very soon deflected from its northerly course, and flows eastwards to the continental portion of the area; and that on the other hand strong currents come from the north, along the western side of the channel; and not only so, but that the exact course of these southern-flowing waters, and also the amount of their salinity, varies at different seasons of the year.

The following Crustacea of the orders Brachyura, Anomura, and Macrura, so well known in the south of our islands, are wholly absent from the north-east coast of England:—

- \* *Ebalia tumefacta* Montagu.
- Thia polita* Leach.
- Polybius Henslowi* Leach.
- \* *Portunus arcuatus* Leach.
- Bathynectes longipes* Risso.
- Xantho floridus* Montagu.
- \* *hydrophilus* Herbst.
- Couchii* Bell.
- Pilumnus hirtellus* Pennant.
- Nautilograpsus minutus* Linné.

\* The species in this list to which an \* is prefixed have been recorded from the coast of Norway.

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- \* *Pinnotheres veterum* Pennant.  
*Mamaia squinado* Herbst.  
*Pisa tetraodon* Pennant.  
    *biaculeata* Montagu.  
*Macropodia ægyptia* H. M. Edwards.  
*Dromia vulgaris* H. M. Edwards.  
*Pagurus sculptimanus* Lucas.  
*Diogenes pugilator* Roux.  
*Faxea nocturna* Chiereghin.  
*Axius styrinchus* Leach.  
*Arctus ursus* Dana.  
*Palinurus vulgaris* Latreille.  
*Penæus caramote* Risso.  
*Crangon sculptus* Bell.  
*Alpheus ruber* H. M. Edwards.  
    *macrocheles* Hailstone.  
*Hippolyte Prideauxiana* Leach.  
*Typton spongicola* O. G. Costa.

On the other hand the only species belonging to these higher Crustacea which live on the north-east coast but are unknown in the south of England are:—

- Lithodes maia* Leach.  
*Pagurus pubescens* Kröyer.  
*Anapagurus chiroacanthus* Lilljeborg.  
? *Spirontocaris securifrons* Norman.  
    *Gaimardi* H. M. Edwards.†  
*Pandalus borealis* Kröyer.

We are much indebted to Professor A. Meek for records of Amphipoda and other Crustacea, and to Mr. R. S. Bagnall for the result of his researches among the terrestrial Isopoda; and also to Mr. R. A. Todd, who has added two important species to the local fauna, *Calocaris macandreeæ* and *Pandalus borealis*.

\* The species in this list to which an \* is prefixed have been recorded from the coast of Norway.

† This species has not yet been found on the coasts of Northumberland and Durham, but may be expected to occur there, as Dr. Thomas Scott has recorded it from the Firth of Forth.

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The following initials are employed to indicate different collectors in the following report :—

A. Mk=A. Meek.  
A. M. N=A. M. Norman.  
G. H=George Hodge.  
G. S. B=G. S. Brady.  
R. H=Richard Howse.

The letters N. and D. after species imply that they have been found on the ("N") Northumberland and ("D") Durham coasts.

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CRUSTACEA

SUB-CLASS I.—DECAPODA Latreille

ORDER I.—BRACHYURA Lamarck

SECTION I.—OXYSTOMATA H. Milne-Edwards

FAM. 1.—LEUCOSIADÆ

EBALIA TUBEROSA (Pennant)=*E. Pennantii* Leach=*E. insignis*  
Lucas.

Not uncommon in deep water off the coast. N.D.

EBALIA CRANCHII Leach=*E. discrepans* Costa=*E. Deshayesii*  
Lucas=*E. chiragra* P. Fischer.

More common than the last off the north-east coast. N.D.

FAM. 2.—CORYSTIDÆ

CORYSTES CASSIVELAUNUS (Pennant).

The masked crab was repeatedly found by the late Mr. R. Howse cast up upon the strand in the neighbourhood of South Shields; common on the beach at Seaton Carew (G. S. B.); occasionally in great numbers in the bays of Northumberland (A. Mk.). N.D.

ATELECYCLUS SEPTEMDENTATUS (Mont.)=*Atelecyclus heterodon*  
Leach.

Occasionally found off our coasts in the coralline zone. N.D.

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SECTION II.—CYCLOMETOPA

FAM. 1.—POLYBIIDÆ

PORTUMNUS LATIPES (Pennant)=*Portumnus variegatus* Leach.

Two specimens dead on the sands at Whitley (J. Hancock);  
thrown up in large numbers on the sands between Hartle-  
pool and Black Hall Rocks, Sept., 1861 (A. M. N.). N.D.

FAM. 2.—PORTUNIDÆ Dana

PORTUNUS PUBER (Linné).

Neighbourhood of Embleton, Northumberland (R. Embleton).  
Cullercoats, presented by Mr. Henderson, fisherman (New-  
castle Museum). Farne Islands, Newbiggin, Whitley, and  
not uncommon near the Longstone (A. Mk.). N.

PORTUNUS CORRUGATUS (Pennant).

"It has been found by Dr. Johnston in Berwick Bay, but is  
rare" (Bell, Brit. Crust., p. 96). N.

PORTUNUS DEPURATOR (Linné)=*P. plicatus* Risso.

"Occasionally brought from deep water in Embleton Bay,  
adhering to the nets of the fishermen" (R. Embleton).  
Sunderland, from trawlers (G. S. B.). N.D.

PORTUNUS MARMOREUS Leach.

Occasionally met with in the same manner as the preceding  
(R. Embleton). As Mr. Embleton does not include *P. holsatus*  
in his list, it is not unlikely that that species may have been  
mistaken for the present one. N.

PORTUNUS HOLSATUS (Fabricius)=*P. dubius* Rathke.

Frequent in 2-8 fathoms, and occasionally in rock-pools,  
Ryhope and Seaton Carew (G. S. B.) D.

PORTUNUS PUSILLUS Leach.

Common in the coralline zone. N.D.

FAM. 3.—CARCINIDÆ

CARCINUS MÆNAS (Pennant).

Everywhere on the coast. N.D.

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FAM. 4.—CANCRIDÆ

CANCER PAGURUS Linné=*C. fimbriatus* Olivi.  
Common. N.D.

PERIMELA DENTICULATA (Montagu).

A specimen, taken at Whitburn March 1845 by Rev. G. C. Abbs, was in Mr. John Hancock's collection. D.

SECTION III.—CATAMETOPA

FAM. PINNOTHERIDÆ

PINNOTHERES PISUM (Linné).

The Pea-crab occurs on our coast chiefly in mussels, but has also been found in *Lævicardium norvegicum*. "By no means uncommon in the mussels obtained at Holy Island and also at Eyemouth" (R. Embleton). Whitburn, 1847, found by Rev. G. C. Abbs and in the collection of the late Mr. John Hancock. In mussels from the mouth of the Tees (G. H.). Druridge Bay (A. Mk.). N.D.

SECTION IV.—OXYRHYNCHA

FAM. I.—MACROPODIIDÆ

INACHUS DORSETTENSIS (Pennant)=*Cancer scorpio* Fabricius.

Not common, yet frequently met with in deeper water off the coast. N.D.

INACHUS DORYNCHUS Leach.

This species seems to be more common than the last in the coralline zone, and has also occurred between tidemarks. N.D.

MACROPODIA ROSTRATA (Linné)=*Stenorhynchus phalangium* Bell.

Frequent in deep water. N.D.

MACROPODIA LONGIROSTRIS (Fabricius) = *Stenorhynchus tenuirostris* Bell.

Much rarer than the last, Embleton Bay (R. Embleton); 25-30 fathoms off Seaham (G. H.); off Cullercoats and from Beadnell (A. Mk.). N.D.

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FAM. 2.—HYADÆ

HYAS ARANEUS (Linné).

Common in the laminarian and shallower water of the coralline zone. N.D.

HYAS COARCTATUS Leach.

Frequent in deep water. N.D.

EURYNOME ASPERA (Pennant).

This is *Eurynome scutellata* Risso, *Eurynome boletifera* Costa, and *Eurynome tenuicornis* Malm.

Rather scarce, dredged off Holy Island in 1864 (A. M. N.). Off Seaham (G. H.). Not uncommon in deep water off the Durham coast (G. S. B.). N.D.

ORDER II.—ANOMURA

FAM. 1.—LITHODIDÆ

LITHODES MAIA (Linné).

The Northern Stone Crab is captured in the trawls, and also brought in occasionally by the long line fishermen, who draw it up together with many other naturalist's "spolia opima" attached to their hooks. N.D.

FAM. 2.—PAGURIDÆ

PAGURUS BERNHARDUS (Linné).

Very common. N.D.

PAGURUS PUBESCENS Kröyer=*Pagurus Thompsoni* Bell.

Common in deeper water. N.D.

PAGURUS CUANENSIS W. Thompson.

Rather rare off Northumberland in 1863 and 1864; 7-25 fathoms off Seaham Harbour (A. M. N.); off Ryhope 13-15 fathoms (G. S. B. and G. H.); off South Shields (R. H). N.D.

ANAPAGURUS LÆVIS (W. Thompson).

Off Berwick and other parts of Northumberland coast; and not uncommon in 25 fathoms about six miles off Seaham Harbour (A. M. N.) N.D.

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ANAPAGURUS HYNDMANNI (W. Thompson).

Off Berwick and other parts of the Northumberland coast (A. M. N.); 8-10 miles off Seaham Harbour (G. H.); 10-15 miles off Ryhope (G. S. B. and G. H.) N.D.

ANAPAGURUS CHIROACANTHUS (Lilljeborg).

1855. *Pagurus chiroacanthus*, Lilljeborg, Hafs-Crustaceer vid Kullaberg i Skane. Ofvers. Kong. Vet.-Akad. Förh., Arg. 12, No. 3, 1855, p. 118.

1861. *Pagurus ferrugineus*, Norman, Contributions to British Carcinology. Ann. and Mag. Nat. Hist., ser. 3, vol. viii (p. 1 separate copy), October, pl. xiii., figs. 1-3.

1896. *Anapagurus chiroacanthus*, Bouvier, Les Pagurinéés des Mers d'Europe. La Feuille des Jeunes Naturalistes, 3me série, 26me année, p. 8, figs. 40, 41.

Off Holy Island and Dunstanburgh, 1864 (A. M. N.) N.

FAM. 3.—PORCELLANIDÆ

PORCELLANA PLATYCHELES (Pennant).

Common under stones between tidemarks. D.N.

PORCELLANA LONGICORNIS (Linné).

1857. *Porcellana priocheles*, Kinahan, Natural Hist. Review, vol. iv., Proc. of Societies, p. 84.

Common in similar situations to the last, and among the roots of *Laminarie*, and also dredged in 20-30 fathoms. N.D.

FAM. 4.—GALATHEIDÆ

GALATHEA STRIGOSA (Linné).

Seven inches long off Cullercoats (J. Hancock); common at Embleton (R. Embleton); Bamburgh (G. S. B.); Seaham (G. H. and A. M. N.) N.D.

GALATHEA SQUAMIFERA Leach.

Four and three-quarter inches long, Cullercoats (John Hancock); Berwick and Embleton (R. E.); South Northumberland (A. M. N.); Whitburn (G. S. B.); Seaham (G. H.) N.D.



*GALATHEA NEXA* R. Embleton.

Of this species, originally described by Mr. R. Embleton, three specimens were taken by him at Berwick and one in Embleton Bay. Whitburn, and in cods' stomachs at Hartlepool (A. M. N.); Seaham (G. H.); Skate Roads (A. Mk.)

N.D.

*GALATHEA INTERMEDIA* Lilljeborg.

1851. *Galathea intermedia*, Lilljeborg, Norges Crustaceer.

Ofers. K. Vet.-Akad., Förhand., p. 21.

1857. *Galathea Andrewsii*, Kinahan, Nat. Hist. Review, vol. iv., Proc. Soc., p. 157, as *G. nexa*, and p. 228, pl. xvi., figs. 8 a-d. as *G. Andrewsii*.

1861. *Galathea Andrewsii*, Kinahan, Britannic Species of Crangon and Galathea. Trans. R. Irish Acad., vol. xxiv., p. 95, pl. xi., figs. *ra, 1a, 9a*, and pl. xii.

1869. *Galathea intermedia*, Norman, Last Report Dredging Shetland Isles, Brit. Assoc. Rep. for 1868, p. 264.

1882. *Galathea Giardii*, Th. Barrois, Cat. Crust. Podophth. et Echinodermes à Concarneau, p. 22, fig. 2.

1888. *Galathea Parroceli*, Gourret, Revis. Crust. Podophth. Marseille. Annales Mus. Marseille. Zool., p. 110, pl. vi., figs. 11-24.

1888. *Galathea intermedia*, J. Bonnier, Les Galatheidæ des Cotes de France. Bull. Sci. de France et Belgique, vol. xix., p. 44, pl. x., figs. 1, 2, pl. xi., figs. 1-14.

The paper last referred to gives full synonymy and descriptions of the European Galatheidæ.

Cullercoats (J. Alder); off Berwick and other parts of the coast of Northumberland, 1862-4 (A. M. N.); Whitburn (G. S. B); Seaham (G. H.).

N.D.

*GALATHEA DISPERSA* Bate.

1858. *Galathea dispersa*, Bate, Jour. Linn. Soc. Zool., vol. iii., p. 3.

1862. *Galathea dispersa*, Kinahan, Brit. spec. Crangon and Galathea. Trans. R. Irish Acad., vol. xxiv., p. 99, pl. xiii.

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1863. *Galathea nexa*, Heller, Die Crustaceen des südlichen Europa, p. 191, pl. vi., fig. 4 (not fig. 3).

1888. *Galathea dispersa*, J. Bonnier, Galatheidæ des cotes de France. Bull. Sci. de France et Belgique, vol. xix., p. 68, pl. xiii., figs. 1-3.

Off different parts of Northumberland, 1862-4 (A. M. N.); Cullercoats (J. Alder); Seaham (G. H.). N.D.

MUNIDA BAMFFIA (Pennant) = *Munida rugosa* Fabricius = *Munida Rondeletii* Bell.

The date of Pennant's specific name is 1777, and that of Fabricius 1787.

Very large, eight inches long, Northumberland (J. Hancock); Cullercoats (J. Alder); Embleton, not uncommon (R. E.); frequent in deep water (A. M. N.); St. Mary's Island (A. Mk.). N.D.

ORDER III.—MACRURA

FAM. 1.—CALLIANASSIDÆ

UPOGEBIA STELLATA (Montagu) = *Gebia deltura* Leach.

Two specimens are in the Newcastle Museum from the Northumberland coast (J. Alder); Whitburn (Mr. Abbs *vide* J. Hancock). N.D.

FAM. 2.—CALOCARIDÆ

CALOCARIS MACANDREÆ Bell.

Dredged by Mr. R. A. Todd (International Fisheries Investigation), July 26, 1907, on mud in 57 fathoms E.N.E. of the Coquet Lighthouse. N.

FAM. 3.—ASTACIDÆ

ASTACUS PALLIPES Lereboullet.

In the rivulets to the south of Berwick Bay (R. Embleton); the Pont near Ponteland, and near Bedlington (John Hancock); tributaries of the Tyne, specimens in Newcastle Museum from Whittle Dene near Ovingham (E. L. Gill). N.

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FAM. 4.—HOMARIDÆ

HOMARUS GAMMARUS (Linné).

Common. N.D.

NEPHROPS NORVEGICUS (Linné).

Taken abundantly by the trawlers off the coast. N.D.

FAM. 5.—CRANGONIDÆ

CRANGON TRISPINOSUS Hailstone.

A single specimen taken in the harbour at Holy Island in 3 fathoms, 1862 (A. M. N.); Whitburn sands, July, 1862 (G. S. B.). N.

CRANGON FASCIATUS Risso.

A single specimen dredged in shallow water within the Farne Islands in 1864 (A. M. N.)—but as the difference between this species and *C. neglectus* (G. O. Sars) was not recognised in 1864, the latter may have been mistaken for the former. N.

CRANGON NEGLECTUS G. O. Sars.

Young specimens dredged in sandy bays of Northumberland (A. Mk.). N.

CRANGON BISPINOSUS (Hailstone).

Stomachs of haddock; 40–50 miles E. by N. from Tyne-mouth, 40 fathoms; off Berwick and off Durham coast, 1864 (A. M. N.). N.D.

CRANGON VULGARIS (Linné).

In all sandy bays. N.D.

CRANGON ALLMANI Kinahan.

1857. *Crangon Allmani*, Kinahan, Nat. Hist. Review, vol. iv., Proc. Societies, p. 80, and woodcuts.

1861. *Steiracrangon Allmani*, Kinahan, Brit. Species Crangon and Galathea. Trans. Roy. Irish Acad., vol. xxiv., p. 65, pl. iii.

Off Berwick in 26–46 fathoms, and off other parts of Northumberland and Durham, 1862–1864 (A. M. N.) N.D.

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PONTOPHILUS SPINOSUS Leach.

Frequently taken in 1862-64 off the Northumberland coast, and also 20 miles E. by S. from Tynemouth in 35 fathoms (A. M. N.) N.D.

FAM. 6.—ALPHEIDÆ

ATHANAS NITESCENS (Montagu).

Cullercoats (J. Alder.) N.

FAM. 7.—HIPPOLYTIDÆ

SPIRONTOCARIS SECURIFRONS (Norman).

1862. *Hippolyte securifrons*, Norman, Trans. Tyneside Nat. Field Club, vol. v., p. 267, pl. xii., figs. 1-7.

Off the coasts of Northumberland and Durham, frequent, 1862-64 (A. M. N.) N.D.

SPIRONTOCARIS PUSIOLA (Krøyer).

1843. *Hippolyte pusiola*, Krøyer, Monog. fremstilling af Slægten Hippolyte's Nordiske Arter, p. 319, pl. iii., figs. 69-73.

1857. *Hippolyte pusiola*, Kinahan, Nat. Hist. Review, vol. iv., Proc. Societies, p. 159, pl. ix., fig. 2 a-c, pl. x., figs. 9, 10.

Cullercoats and off Northumberland, 1862-63 (A. M. N.); off Ryhope and Seaham (G. H.) N.D.

HIPPOLYTE VARIANS Leach.

Cullercoats, Seaham, and Hartlepool; off Durham and Northumberland coasts, 1862-64 (A. M. N.); Newbiggin and Whitburn (G. S. B.); off Ryhope (G. H.) N.D.

FAM. 8.—PANDALIDÆ

PANDALUS BOREALIS Krøyer.

1835. *Pandalus borealis*, Krøyer, Naturhist. Tidssk., vol. ii., p. 255, and 1845, Anden Rækkes, vol. i., p. 461—Voyages en Scandinavie, &c., pl. vi., fig. 2 a-o.

1851. *Pandalus borealis*, Brandt (F.), Middendorff Sibiriske Reise, vol. ii., p. 122.

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1879. *Pandalus borealis*, Smith (S. I.), "Stalk-Eyed Crustacea Atlantic Coast of North America," Trans. Connect. Acad., vol. i., p. 86.
1899. *Pandalus borealis*, Sars (G. O.), "Account Post-embryonic Development of *Pandalus borealis*," Rep. Norweg. Fishery and Marine Investigations, vol. i., pls. i-x.

Mr. R. A. Todd has added this very fine Macruran to our fauna. About twenty specimens were taken by the "Huxley" on a muddy bottom in 57 fathoms E.N.E. of the Coquet Light, July 26, 1907, in company with *Ukko Turtoni*, *Calocaris macandrea*, *Spirontocaris securifrons*, &c.

*Pandalus borealis* has a wide circumpolar distribution. It is found in the Arctic seas from Greenland in the west to the Kara Sea and Murmar coast in the east. It is met with on the Norwegian coast, and as far south as the Kattegat; on the north-east coast of America as far south as Massachusetts Bay; and in the Pacific off the Island of Unalaska and in the Sea of Okhotsk. N.

PANDALUS MONTAGUI Leach=*P. annulicornis* Leach.

Common.

N.D.

PANDALINA BREVIROSTRIS (Rathke).

1843. *Pandalus brevirostris*, Rathke, Beiträge zur Fauna Norwegens, p. 17.
1850. *Pandalus Jeffreysii*, Bate, Notes Fauna of Swansea, Appendix, pl. iv., fig. 2, and 1859, Nat. Hist. Review, vol. vi., Proc. Soc., p. 100, fig. 1.
1853. *Hippolyte Thompsoni*, Bell, Brit. Stalk-eyed Crustacea, p. 290.
1861. *Pandalus Thompsoni*, Norman, Contrib. British Carcinology. Ann. and Mag. Nat. Hist., ser. 3, vol. viii., p. 7 (separate copy), pl. xiv., figs. 3-9.
- ? 1862. *Pandalus Rathkei*, Heller, Untersuchungen Litoral-fauna Adriatischen Meeres. Sitzungsber. K. Akad. Wissensch., vol. xvi., p. 441, pl. iii., fig. 31.

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? 1863. *Pandalus brevirostris*, Heller, Crustaceen des südlichen Europa, p. 247, pl. viii., fig. 9.

? 1883. *Pandalus brevirostris*, A. Milne-Edwards, Recueil de figures de Crustacés nouveaux ou peu connus.

1899. *Pandalina brevirostris*, Calman, On the British Pandalidæ. Ann. and Mag. Nat. Hist., ser. 7, vol. iii., p. 37, pl. i-iv., fig. 4.

We do not feel sure that the species figured by Heller and A. Milne-Edwards is the same as that of Rathke; the spines on the underside of the rostrum are represented as of much larger size than those which characterize the latter species.

In dredgings off Northumberland and Durham, 1862-64 (A. M. N.); Seaham, 22 fathoms (G. S. B.); Ryhope, 10-15 fathoms (G. H.) N.D.

FAM. 9.—PALÆMONIDÆ

PALÆMON SERRATUS (Pennant).

A specimen in the British Museum from Berwick presented by Dr. Johnston (see List Specimens of British Animals in Brit. Mus. Crustacea. 1856, p. 42). N.

PALÆMON SQUILLA Leach.

In pools in the bay on the north side of Holy Island, &c. (R. E.); Cullercoats (John Hancock); Whitburn (G. S. B.); Beadnell (A. Mk.) N.D.

PALÆMONETES VARIANS (Leach).

Port Clarence and Hartlepool (A. M. N.); Hylton Dene (G. S. B.) D.

ORDER IV.—SCHIZOPODA

The following works may be consulted with respect to the Mysidea.

1. Sars (G. O.). Carcinologiske Bidrag til Norges Fauna.
  1. Monographi over Mysider, pts. i. and ii., Det Kongl. Norsk. Videnskabs. i Trondhjem, 1870-2, and pt. iii., Universitets-Program. Christiania, 1879.

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2. Sars (G. O.). Nye Bidrag til Kundskaben om Middelhavets Invertebratfauna, I. Middelhavets Mysider (Archiv for Mathem. og Naturvid., 1876).
3. Norman (A. M.). British Schizopoda of the Families Lophogastridæ and Euphausiidæ (Ann. and Mag. Nat. Hist., ser. 6, vol. ix., 1892, p. 454), and British Mysidæ, a family of Crustacea Schizopoda (Ann. and Mag. Nat. Hist., ser. 6, vol. x., pp. 143 and 242).

A description of all British species known up to 1892 is to be found in these last papers.

SECTION I.—EUPHAUSIACEA

FAM. I.—EUPHAUSIIDÆ

THYSANOESSA LONGICAUDATA (Krøyer).

1849. *Thysanopoda longicaudata*, Krøyer, Voyages en Scandinavie etc., Crust., pl. viii., fig. 1 a-f.

1882. *Thysanoessa tenera*, G. O. Sars, "Oversigt af Norges Crust. I." (Christ. Vidensk. Forhand.), p. 53 (separate copy), pl. i., figs. 18, 19.

1887. *Thysanoessa longicaudata*, H. J. Hansen, Overs. over det vestlige Grønlands Fauna af malak Havskrebsdyr (Vidensk. Middel. fra den naturf. Foren. i Kjobh.), p. 54 (separate copy).

1892. *Thysanoessa longicaudata*, Norman, Ann. and Mag. Nat. Hist., ser. 6, vol. ix., p. 463, and "The Naturalist," 1892, p. 175.

In "The Naturalist," May, 1892, Mr. Thomas H. Nelson wrote (p. 144) describing what he observed off Redcar, "Feb. 10th, 11th, and 12th, attracted by the number of Kittiwakes (*Rissa tridactyla*) to be seen about a mile out at sea, I procured a boat, and went off to ascertain the cause of this vast assemblage of gulls. Both east and west, as far as the eye could reach, their graceful white forms were visible, many busily engaged dipping into the water, and others flying overhead and then darting down to pick up some object from the surface. I shot two or three examples, and found that their

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mouths were full of small Crustaceans, with which the sea was literally alive; heaps of these were afterwards washed ashore by sea-winds, and afforded a feast for starlings and other frequenters of the tidal line."

Mr. Nelson sent to me a small bottle of the specimens from the shore for identification. The mass was composed of *Euthemisto compressa*; but there were also several examples of *Nematoscelis borealis* Norman, and one of *Thysanoessa longicaudata* Krøyer. Mr. Nelson would seem from his description to have seen the Kittiwakes feeding on these Crustaceans off the Durham coast, but at any rate it is certain that these Crustacea came from the north, down the Northumberland and Durham coasts, before they reached the spot where they were cast up upon the strand in the extreme N.E. of Yorkshire. They may be included therefore as occasional visitants off our coasts (A. M. N.)

N.D.

NEMATOSCELIS BOREALIS (Norman).

1872. *Thysanoessa borealis*, Norman, in Sim (G.), "Stalk-Eyed Crustacea N.E. Coast of Scotland" (Scottish Naturalist), p. 8 (separate copy).

1882. *Nematoscelis megalops*, G. O. Sars, Prelim. Notices of Schizopoda of "Challenger" Exped. (Christ. Vidensk. Forhand.), p. 27 (separate copy).

1885. *Nematoscelis megalops*, G. O. Sars, Report "Challenger" Exped. Schizopoda, p. 127, pl. xxiii., figs. 5-10, pl. xxiv.

1892. *Nematoscelis megalops*, Norman, Ann. and Mag. Nat. Hist., ser. 6, vol. ix., p. 464.

In my notes in the last-named paper I have referred to some slight differences which appear to exist between the British specimens and that figured by Sars, and should those differences be not truly specific my name *N. borealis* can be adopted. For the occurrence of this species on our coast see notes on the preceding species; considering that there were the remains of several specimens of this species in the very small amount of material which I examined, it would seem to have occurred in great profusion off our coast (A. M. N.)

N.D.



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SECTION II.—MYSIDACEA

FAM. 1.—SIRIELLIDÆ

SIRIELLA NORVEGICA G. O. Sars.

Young specimens between tidemarks at Alnmouth (G. S. B.)  
N.

SIRIELLA JALTENSIS Czerniavsky.

This is *S. crassipes* of G. O. Sars. Cullercoats (A. M. N.);  
St. Mary's Island, Craster, and Holy Island (A. Mk.) N.

SIRIELLA ARMATA (H. Milne-Edwards).

This would appear to have been *Mysis Griffithsia* of Bell  
and *Mysis producta* of Gosse.

Young specimens taken at Alnmouth (G. S. B.); Culler-  
coats, St. Mary's Island, Alnmouth Bay, and Holy Island  
(A. Mk.) N.

FAM. 2.—GASTROSACCIDÆ

GASTROSACCUS SPINIFER (Goës).

Off the mouth of the Tees, May, 1866 (Mr. Davison *vide*  
G. S. B.); Cullercoats (A. Mk.) N.D.

FAM. 3.—LEPTOMYSIDÆ

MYSIDOPSIS DIDELPHYS (Norman).

Forty to fifty miles off Tynemouth, 1862 (A. M. N.) N.

LEPTOMYSIS LINGVURA G. O. Sars.

Cullercoats and Seaham (A. M. N.); Whitburn (G. S. B.);  
Cullercoats (A. Mk.) N.D.

FAM. 4.—MYSIDÆ

HEMIMYSIS LAMORNÆ (Couch).

Seaham, July, 1861 (G. H.); Cullercoats and Craster  
(A. Mk.) N.D.

MACROMYSIS FLEXUOSA (Müller).

Common; tidemarks and shallow water. N.D.

MACROMYSIS INERMIS (Rathke).

Cullercoats (A. M. N.); Sunderland (G. S. B.); abundant  
at Cullercoats, St. Mary's Island, and Craster (A. Mk.) N.D.

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SCHISTOMYSIS SPIRITUS Norman.

Black Hall Rocks near Hartlepool, and off Northumberland and Durham, 1862 (A. M. N.); Cambois Bay (A. Mk.) N.D.

SCHISTOMYSIS ORNATA (G. O. Sars).

Seaham and other parts of the coast. N.D.

NEOMYSIS VULGARIS (Thompson).

River Lyne (Northumberland); Hartlepool, Port Clarence (A. M. N.); Hylton Dene (G. S. B.) N.D.

SUB-CLASS II.—EDRIOPHTHALMA

ORDER V.—SYMPODA Stebbing

=CUMACEA Auct.

The chief works with relation to the British Sympoda are :—

1. Sars (G. O.). Nye Bidrag til Kundskaben om Middelhavets Invertebratfauna, II. Cumacea (Archiv. f. Matemat. og Naturvid. vol. iv.), 1879.
2. Sars (G. O.). Account Crustacea of Norway, vol. iii., Cumacea, 1900.

The name Cuma of Humphreys, 1795, being in use for a genus of Mollusca, the Rev. T. R. R. Stebbing has discarded it among the Crustacea, substituting for it *Bodotria* Goodsir, and for the Order Cumacea the more appropriate name Sympoda.

FAM. I.—BODOTRIIDÆ

BODOTRIA ARENOSA Goodsir.

1843. *Bodotria arenosa*, H. Goodsir, Edinb. New Philos. Journ., vol. xxxiv., p. 9 (separate copy), pl. iii, figs. 8-13, pl. ii, fig. 17. ♂
1853. *Bodotria arenosa*, Bell, Brit. Stalk-Eyed Crust., p. 332. ♀
1866. *Cuma pusilla*, G. O. Sars, Beretning om en i Sommeren, 1865, foretagen Zoologisk Reise, p. 26.
1899. *Cuma scorpivoides*, G. O. Sars, Crustacea Norway, vol. iii., Cumacea, p. 10, pls. i., ii., iii.

Thirty miles off Sunderland in 45 fathoms (G. S. B.) D.

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BODOTRIA SCORPIOIDES (Montagu).

1808. *Cancer (Astacus) scorpioides*, Montagu, Trans. Linn. Soc., vol. ix., p. 70, pl. vi., fig. 5.  
 1843. *Cuma Edwardsii*, H. Goodsir, Edinb. New Philos. Journ., vol. xxxiv., p. 5 (separate copy), pl. ii., figs. 1-13, 18, pl. iv., fig. 11.  
 1853. *Cuma Edwardsii*, Bell, Brit. Stalk-Eyed Crust., p. 326, and woodcuts under *Cuma Audouinii*, p. 328 (not those under *C. Edwardsii*, which are *C. Audouinii*).  
 1869. *Cuma scorpioides*, Norman, Last Report Dredging Shetland. Brit. Assoc. Report for 1868, p. 273.  
 1879. *Cuma Edwardsii*, G. O. Sars, Nye Bidrag til Kundskaben von Middelhavets Invertebratfauna, II. Middelhavets Cumaceer, p. 10, pls. i., ii., iii.  
 1899. *Cuma Edwardsii*, G. O. Sars, Crustacea Norway, vol. iii., Cumacea, p. 12, pl. iii.

Off Seaham (G. H., 1861); off Sunderland and off Tyne-mouth in 25 fathoms (G. S. B.); Holy Island and Cullercoats (A. Mk.) N.D.

BODOTRIA PULCHELLA (G. O. Sars).

1879. *Cuma pulchella*, G. O. Sars, Nye Bidrag til Kundskaben von Middelhavets Invertebratfauna, II. Middelhavets Cumaceer, p. 24, pl. vi. ♂, and pl. lx. ♀.

A single specimen taken by G. S. B. off Sunderland. D.

IPHINOË TRISPINOSA (H. Goodsir).

1843. *Cuma trispinosa*, H. Goodsir, Edinb. New Philos. Journ., vol. xxxiv., p. 8 (separate copy), pl. iii., figs. 1-7.  
 1853. *Cuma trispinosa*, Bell, Brit. Stalk-Eyed Crust., p. 329.  
 1856. *Halia trispinosa*, Bate, The British Diastylidæ, Ann. and Mag. Nat. Hist., ser. 2, vol. xvii., p. 458, pls. xiv. and xv., fig. v.  
 1856. *Iphinoë trispinosa*, Bate, Ann. and Mag. Nat. Hist., ser. 2, vol. xviii., p. 187.  
 1856. *Venilia gracilis*, Bate, as above, vol. xvii., p. 460, pl. xv., fig. vii. ♂.

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1856. *Cyrianassa gracilis*, Bate, as above, vol. xviii,  
p. 187 ♂.
1869. *Iphinoë gracilis*, Norman, Last Report Dredging  
Shetland. Brit. Assoc. Report for 1868, p. 272 ♂.
1899. *Iphinoë trispinosa*, G. O. Sars, Crust. Norway,  
Cumacea, p. 14, pls. v. and vi.  
Off Seaton Carew in 14 fathoms (G. S. B.); Cullercoats  
(A. Mk.) N.D.

FAM. 2.—VAUNTHOMPSONIIDÆ

VAUNTHOMPSONIA CRISTATA Bate.

1858. *Vaunthompsonia cristata*, Bate, Nat. Hist. Review,  
vol. v., p. 203.
1879. *Vaunthompsonia cristata*, G. O. Sars, Middelhavets  
Cumaceer, p. 65, pls. xxiii.—xxvi.  
Fifty to sixty miles E. by N. from Tynemouth, 1862  
(A. M. N.) N.

FAM. 3.—LAMPROPIDÆ

HEMILAMPROPS ROSEA (Norman).

1862. *Vaunthompsonia rosea*, Norman, Tyneside Nat. Field  
Club, vol. v., p. 271, pl. xiii., figs. 1-3. ♀
1862. *Cyrianassa elegans* id. *ibid.*, p. 275, pl. xiv., figs. 1-6 ♂.
1899. *Hemilamprops rosea*, G. O. Sars, Crust. Norway,  
iii. Cumacea, p. 22, pl. xii., xiii., xiv.  
Fifty to sixty miles E. of Tynemouth, and 100 miles E. by  
N. from Tynemouth in 25-30 fathoms (A. M. N.); twenty-  
nine miles off Alnmouth in 59 fathoms, and thirty miles off  
Sunderland in 45 fathoms (G. S. B.) N.D.

FAM. 4.—LEUCONIDÆ

LEUCON NASICUS Kröyer.

1841. *Cuma nasica*, Kröyer, Naturhist. Tidsskrift, vol. iii.,  
p. 524, pl. vi., figs. 31-33, and *Leucon nasicus*, Voyage  
en Scandinavie, &c., pl. iii., fig. 2.
1897. *Leuconopsis ensifer*, Walker (A. O.), "New Species  
of Edriophthalma from the Irish Sea," Linn. Soc.  
Journ., Zool., vol. xxvi., p. 227, pl. xvii., fig. 1-1h. ♂

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1900. *Leucon nasicus*, G. O. Sars, Crust. Norway 1  
Cumacea, p. 30, pls. xxi., xxii.

Twenty-nine miles off Alnmouth in 59 fathoms, and thirty miles off Sunderland in 45 fathoms (G. S. B.). The *Leucon* recorded by G. S. B. (Nat. Hist. Trans. Northumberland, Durham, and Newcastle, vol. xiv., p. 94) as *L. nasicoides* proved to be not that species, but a slight variety of the present one. N.D.

EUDORELLA EMARGINATA (Kröyer).

1846. *Leucon emarginatus*, Kröyer., Naturhist. Tidsskrift Anden Rækkes, vol. ii., p. 181, pl. i., fig. 7, and pl. ii., fig. 3; and Voyages en Scandinavie, &c., pl. v. (2), fig. 2.  
1862. *Cyrianassa ciliata*, Norman, Tyneside Nat. Field Club, vol. v., p. 273, pl. xiii., figs. 4-9 ♂.  
1900. *Eudorella emarginata*, G. O. Sars, Crust. Norway, iii. Cumacea, p. 36, pls. xxvii., xxviii.

One hundred miles E. of Tynemouth in 20-25 fathoms and off Durham coast (A. M. N.); 20-30 miles E. of Alnmouth, 50-59 fathoms (G. S. B.) N.D.

EUDORELLA TRUNCATULA (Bate).

1856. *Eudora truncatula*, Bate, "On the British Diastylidæ," Ann. and Mag. Nat. Hist., ser. 2, vol. xvii., p. 457, pl. xiv., fig. iii.  
1867. *Eudorella truncatula*, Norman, Brit. Assoc. Report for 1866, p. 197, note.  
1877. *Eudorella inermis*, Meinert, Crust. Isop. Amphip. et Decapod. Daniæ, p. 183 ♂.  
1879. *Eudorella truncatula*, G. O. Sars, Middelhavets Cumaceer, p. 86, pls. xxx.-xxxii.  
1900. *Eudorella truncatula*, G. O. Sars, Crust. Norway, iii. Cumacea, p. 36, pls. xxvii.-xxviii.

Fifty to sixty miles E. of Tynemouth (A. M. N.); E. of Alnmouth in 39 fathoms, and 5-17 miles off Souter Point in 30-39 fathoms (G. S. B.) N.D.

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EUDORELLOPSIS DEFORMIS (Kröyer).

1846. *Leucon deformis*, Kröyer, Naturhist. Tidsskrift. Anden Rækkes, vol. ii., p. 194, pl. ii., fig. 4; and Voyages en Scandinavie, &c., pl. v. (2), fig. 3.  
 1900. *Eudorellopsis deformis*, G. O. Sars, Crust. Norway, iii. Cumacea, p. 40, pls. xxxi., xxxii.

In surface-net near Sunderland (G. S. B.); Cullercoats (A. Mk.) N.D.

FAM. 5.—DIASTYLIDÆ

DIASTYLIS RATHKEI (Kröyer).

1841. *Cuma Rathkei*, Kröyer, Naturhist. Tidssk., vol. iii., p. 513, pls. v., vi., figs. 17-30, and ser. 2, vol. ii., pp. 144 and 207, pl. i., figs. 4, 6; and Voyages en Scandinavie, &c., pl. v., fig. 1.  
 1846. *Cuma angulata*, Kröyer, Naturhist. Tidssk., ser. 2, vol. ii., p. 156, pl. ii., fig. 1; and Voyages en Scandinavie, &c., pl. v., fig. 2, ♂.  
 1853. *Alauna rostrata* (Goodsir), Bell, Brit. Stalk-Eyed Crustacea, p. 330\*.  
 1856. *Diastylis Rathkei*, Bate, British Diastylidæ, Ann. and Mag. Nat. Hist., ser. 2, vol. xviii., p. 451, pl. xiii., figs. 1-21.  
 1869. *Diastylis spinosa*, Norman, Last Report Shetland Dredging, Brit. Assoc. Rep. for 1868, p. 271, ♂.  
 1878. *Diastylis bimarginatus*, Bate, "Two new Crustacea from the Coast of Aberdeen," Ann. and Mag. Nat. Hist., ser. 5, vol. i., p. 409, and vol. iii. (1879), p. 93, ♂.  
 1878. *Diastylis bimarginatus*, G. Sim, Ann. and Mag. Nat. Hist., ser. 5, vol. ii., p. 453.  
 1900. *Diastylis Rathkei*, G. O. Sars, Crust. Norway, vol. iii., Cumacea, pp. 44 and 107, pls. xxxiii., xxxiv., lxx.-lxxiii. ♂ ♀.

Off Seaham Harbour in 5-8 fathoms (G. H., 1861, and A. M. N., 1863); 20-30 miles off Newbiggin in about 40

\* See notes on this in Norman and Scott, "Crustacea of Devon and Cornwall," 1906, p. 31.

fathoms, and in several dredgings off Souter Point in 21-39 fathoms (G. S. B.) N.D.

DIASTYLIS BRADII Norman, Plates viii., ix.

1879. *Diastylis Bradii*, Norman, Crustacea Cumacea of the "Lightning," "Porcupine," and "Valorous" Expeditions, Ann. and Mag. Nat. Hist. ser. 5, vol. iii., p. 57.

1888. *Diastylis Bradii*, A. O. Walker, Proc. Biol. Soc. Liverpool, vol. ii., p. 178, pl. xii., figs. 10, 11.

*Female*.—Body moderately robust; carapace with dorsal margin little arched, the depth not very unequal throughout, about equal in length to the free segments of the trunk; anterior portion of body subequal in length to the tail exclusive of the telson. Carapace with the lateral margin minutely serrated throughout almost its entire length; surface beset with spines of very small and subequal size; these minute spines are in certain places arranged in regular lines, and thus become more conspicuous and map out the carapace into areas. These lines of spines are chiefly as follows: an arched row situated about the middle of the length of the carapace passes from the lateral margin with a curve to the dorsal line in front of this another row passing upwards from the lateral margin bifurcates, the hinder branch passing round the back of the stomachic region; the other branch is directed forward to the rostrum, just before the extremity of which it dies out. There are also two transverse rows which cross the back of the stomachic region.

The anterior free segments of the trunk have their front dorsal margin minutely crenulated; the last segment is rather widely separated from the preceding, and has its anterior margin cut into teeth which alternate with conspicuous plumose setæ; the epimera of this segment are in both sexes produced backwards into large acute processes.

The tail has a series of small spines on the lower lateral margin of the segments. The antennæ reach beyond the rostrum by the length of the last very long joint of the peduncle; flagellum as long as the last joint of the peduncle;

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shorter flagellum small, equal in length to first joint of the longer flagellum.

The first feet have their basal joint spinose all over, and the basal joint of the palp is also spinose; the penultimate and antipenultimate joints are subequal, and the last joint nearly as long as the preceding. The basal joint of all the following feet is also spinose, but not so strongly as that of the first pair.

The telson has about 14-19 spines on each side. Uropods with 20-25 spines on the peduncle; inner branch with first joint bearing 9-11 spines on the inner margin; the second 3-4, the third 3-6 and terminal spines. Length, 11-12 mills.

The adult *male* has the raised line which in that sex commonly occupies a longitudinal position on the side of the carapace only slightly developed, and it is not until a high power of the microscope is used that it is seen to bear very minute spines. The legs are very spiny. The upper and lower lateral margins of the segments of the tail are strongly spined. The telson has only about nine slender spines on each side; it equals in length the peduncle of the uropods.

This species was first dredged by the "Porcupine" in 1869 in 15 fathoms in Lough Swilley, Co. Donegal. Mr. A. O. Walker has taken it in the Irish Sea. A. M. N. has found it to be not uncommon at Plymouth.

On the Durham coast it was dredged in shallow water off Seaton Carew (A. M. N.) D.

DIASTYLIS CORNUTA (Boeck).

1863. *Cuma cornuta*, Boeck, Christiania Vid.-Selsk. Forhand., p. 190.
1864. *Diastylis bispinosa*, G. O. Sars (nec Stimpson), Om de aberrante Krebsdyrgruppe Cumacea, Vid.-Selsk. Forhand., p. 39.
1865. *Diastylis bicornis*, Bate, Ann. and Mag. Nat. Hist., ser. 3, vol. xv., p. 84, pl. i., fig. 2.
1869. *Diastylis bispinosa*, Norman, Last Report Shetland Dredging, Brit. Assoc. Rep. for 1868, p. 270.
1900. *Diastylis cornuta*, G. O. Sars, Crust. Norway, iii. Cumacea, p. 45, pls. xxxv. and xxxvi.



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A single specimen taken off Whitley in 20 fathoms  
(G. S. B.) N.

DIASTYLIS RUGOSA G. O. Sars.

1864. *Diastylis rugosa*, G. O. Sars, Aberrante Krebsdyr-  
gruppe Cumacea, Vid.-Selsk. Forhand., p. 41 ♀.

1879. *Diastylis strigata*, Norman, Crustacea Cumacea of  
"Lightning," &c., Ann. and Mag. Nat. Hist., ser. 5,  
vol. iii., p. 62 ♂.

1900. *Diastylis rugosa*, G. O. Sars, Crust. Norway, iii.  
Cumacea, p. 48, pl. xxxvii.

Off Durham coast (A. M. N.), off Whitley in 20 fathoms  
(G. S. B.) N.D.

DIASTYLIS LÆVIS Norman.

1869. *Diastylis lævis*, Norman, Last Report Shetland  
Dredging, Brit. Assoc. Report for 1868, p. 270.

1879. *Diastylis lævis*, Norman, Crustacea Cumacea of  
"Lightning," &c., Ann. and Mag. Nat. Hist., ser. 5,  
vol. iii., p. 60.

1900. *Diastylis rostrata*, G. O. Sars, Crust. Norway, iii.  
Cumacea, p. 51, pl. xxxix. (not of Goodsir, which is  
*D. Rathkei*).

1906. *Diastylis lævis*, Norman and Scott, Crustacea of  
Devon and Cornwall, p. 31.

Off Marsden and off Holy Island (A. M. N.); off Whitley,  
20 fathoms (G. S. B.); Cullercoats (A. Mk.) N.D.

DIASTYLIS TUMIDA (Lilljeborg).

1855. *Cuma tumida*, Lilljeborg, Ofvers. Vet.-Akad.  
Förhand., p. 119.

1900. *Diastylis tumida*, G. O. Sars, Crust. Norway, iii.  
Cumacea, p. 52, pl. xi.

Off Whitley, 20 fathoms, and 30 miles off Sunderland  
(G. S. B.) N.D.

DIASTYLIS LUCIFERA (Krøyer).

1841. *Cuma lucifera*, Krøyer, Naturhist. Tidsskrift, vol. iii.,  
pp. 527 and 531, pl. vi., figs. 34, 35; and Voyages en  
Scandinavie, &c., pl. iii., fig. 3.

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1900. *Diastylis lucifera*, G. O. Sars, Crust. Norway, iii.  
Cumacea, p. 49, pl. xxxviii.

Off Marsden and off Tynemouth (A. M. N.); 29 miles E. of  
Alnmouth in 59 fathoms, off Souter Point in 39 fathoms, and  
off Hawthorn 25 fathoms (G. S. B.) N.D.

DIASTYLOIDES BIPLICATA G. O. Sars.

1864. *Diastylis biplicata*, G. O. Sars, Om den aberrante  
Krebsdyrgruppe Cumacea, Vid.-Selskab. Forhand.,  
p. 46.

1867. *Diastylis lamellata*, Norman, Brit. Assoc. Report  
for 1866, p. 200.

1879. *Diastylis Calveri*, Norman, Crustacea Cumacea of  
"Lightning," &c., Ann. and Mag. Nat. Hist., ser. 5,  
vol. iii., p. 63 ♂.

1900. *Diastylodes biplicata*, G. O. Sars, Crust. Norway,  
iii. Cumacea, p. 62, pl. xlvi.

Off Tynemouth (A. M. N.). About 30 miles off Alnmouth  
in 39 fathoms; off Souter Point, 39 fathoms; and 25 miles off  
Sunderland, 45 fathoms (G. S. B.) N.D.

LEPTOSTYLIS AMPULLACEA (Lilljeborg).

1855. *Cuma ampullacea*, Lilljeborg, Ofvers. Vet. Akad.  
Förhand., p. 120.

1864. *Diastylis ampullacea*, G. O. Sars, Om den aberrante  
Krebsdyrgruppe Cumacea, Vid. Selskab. Forhand.,  
p. 50.

1900. *Leptostylis ampullacea*, G. O. Sars, Crust. Norway,  
iii. Cumacea, p. 70, pl. 1, fig. 1.

In a depth of 40 fathoms 30 miles off Sunderland (G. S. B.)  
N.

FAM. 6.—PSEUDOCUMIDÆ

PSEUDOCUMA LONGICORNIS (J. V. Thompson).

1856. *Cyrianassa longicornis* (J. V. Thompson) Bate, Ann.  
and Mag. Nat. Hist., ser. 2, vol. xvi., p. 187.

1860. *Leucon cercaria*, Van Beneden, Recherches sur la  
Faune littorale de Belgique, Crustacés, p. 85, pl. iv.

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1864. *Pseudocuma bistriata*, G. O. Sars, Om den aberrante Krebsdyrgruppe Cumacea, Vid. Selskab. Forhand., p. 70.
1877. *Cuma bella*, Meinert, Crust. Isop. Amphip. et Decap. Daniæ. Naturhist. Tidsskrift 3, R., vol. xi., p. 179.
1900. *Pseudocuma cercaria*, G. O. Sars, Crust. Norway, vol. iii., Cumacea, p. 74, pls. li., lii.
- Off Seaham and off Newbiggin (A. M. N.); off Alnmouth, Souter Point, Hawthorn, and Seaton Carew (G. S. B.); Druridge Bay and Cullercoats (A. Mk.) N.D.

PSEUDOCUMA SIMILIS G. O. Sars.

1900. *Pseudocuma similis*, G. O. Sars, Crust. Norway, iii. Cumacea, p. 76, pl. liii.
- Off Marsden, Co. Durham, in 28 fathoms (G. S. B.) D.

PETALOSARSIA DECLIVIS (G. O. Sars).

1864. *Petalopus declivis*, G. O. Sars, Om den aberrante Krebsdyrgruppe Cumacea, Vid. Selsk. Forhand., p. 72.
1882. *Petalomera declivis*, G. O. Sars, Oversigt Norges Crustaceer I., Christ. Vid. Selsk. Forhand., p. 58.
1893. *Petalosarsia declivis*, Stebbing, History of Crustacea, p. 308.
1900. *Petalosarsia declivis*, G. O. Sars, Crust. Norway, iii. Cumacea, p. 77, pl. liv.
- About 30 miles off Alnmouth in 39-57 fathoms, and off Souter Point in 37 fathoms (G. S. B.) N.

FAM. 7.—NANNASTACIDÆ

CUMELLA PYGMÆA G. O. Sars.

1864. *Cumella pygmæa*, G. O. Sars, Om den aberrante Krebsdyrgruppe Cumacea, Vid. Selsk. Forhand., p. 74.
1869. *Cumella agilis*, Norman, Last Report Dredging Shetland, Brit. Assoc. Rep. for 1868, p. 272 ♂.
1878. *Cumella pygmæa*, G. O. Sars, Nye Bidrag til Kundskaben Middelhavets Invertebratfauna, II., Middelhavets Cumaceer, Archiv. f. Mathem. og Naturvid., p. 146, pls. l.-li.

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1900. *Cumella pygmaea*, G. O. Sars, Crust. Norway,  
iii. Cumacea, p. 81, pl. lv.

Newbiggin and Seaham (A. M. N.); off Whitley and off  
Sunderland (G. S. B.) N.D.

CAMPYLASPIS RUBICUNDA (Lilljeborg).

1852. *Cuma rubicunda*, Lilljeborg, Hafs-Crustaceer vid  
Kullaberg. Ofvers. Kongl. Vet. Akad. Förhand., p. 121.

1864. *Campylaspis rubicunda*, G. O. Sars, Om en aberrante  
Krebsdyrgruppe Cumacea, Vid. Selsk. Forhand., p. 77.

1900. *Campylaspis rubicunda*, G. O. Sars, Crust. Norway,  
iii. Cumacea, p. 84, pls. lvi., lvii.

Off Souter Point, 39 fathoms, and off Hawthorn, 25 fathoms  
(G. S. B.) D.

CAMPYLASPIS GLABRA G. O. Sars.

1878. *Campylaspis glabra*, G. O. Sars, Nye Bidrag til  
Kundskaben om Middelhavets Fauna, II., Mittel-  
havets Cumaceer, Archiv. f. Mathemat. og Naturvid.,  
p. 129, pls. xlv.-xlvii.

1900. *Campylaspis glabra*, G. O. Sars, Crust. Norway,  
iii. Cumacea, p. 86, pl. lviii.

About 30 miles off Alnmouth in 39 fathoms; 5-6 miles off  
Souter Point, 30 fathoms; off Marsden, 28 fathoms (G. S. B.)

N.D.

CAMPYLASPIS COSTATA G. O. Sars.

1864. *Campylaspis costata*, G. O. Sars, Om den aberrante  
Krebsdyrgruppe Cumacea, Vid. Selsk. Forhand., p. 79.

1894. *Campylaspis costata*, Norman, A Month on the  
Trondhjem Fiord, Ann. and Mag. Nat. Hist., ser. 6,  
vol. xiii., p. 277, pl. xii., fig. 9.

1900. *Campylaspis costata*, G. O. Sars, Crust. Norway,  
iii. Cumacea, p. 87, pl. lx.

About 30 miles off Alnmouth, 39-59 fathoms; and off  
Souter Point, 39 fathoms (G. S. B.) N.D.

[*Leucon nasicooides* and *Dactylopsis resima* were recorded  
(Nat. Hist. Trans. North., Dur., and Newcastle, vol. xiv.,  
p. 94) by mistake from the coast].

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ORDER VI.—ISOPODA Latreille

The arrangement and nomenclature here employed is that of G. O. Sars' Account of the Crustacea of Norway, vol. ii., Isopoda, 1896-1899. Where necessary, however, references are given.

SECTION I.—CHELIFERA G. O. Sars

FAM. I.—TANAIDÆ

TANAIS CAVOLINII H. Milne-Edwards.

1828. *Tanais Cavolinii*, H. Milne-Edwards in Audouin et Milne-Edwards, Précis d'Entomologie, vol. i., pl. xxxi., fig. 2.
1840. *Tanais Cavolinii*, H. Milne-Edwards, Hist. Nat. des Crustacés, vol. iii., p. 141, pl. xxxi., fig. 6.
1842. *Tanais tomentosus*, Krøyer, Naturhist. Tidsskrift, vol. iv., p. 183; and Voyages en Scandinavie, &c., pl. xxvii., fig. 2.
1843. *Crossurus vittatus*, Rathke, Beitrag zur Fauna Norwegens, p. 35, pl. i., figs. 1-7.
1866. *Tanais vittatus*, Bate and Westwood, vol. ii., p. 125.
1875. *Tanais vittatus*, Macdonald, External Anatomy of *Tanais vittatus*, &c. Trans. Linn. Soc., Zool., ser. 2, vol. i., p. 67, pl. xv.
1896. *Tanais tomentosus*, G. O. Sars, Crust. Norway, ii. Isopoda, p. 12, fig. 15.
1897. *Tanais Cavolinii*, A. Dollfus, Note Prelim. Tanaidæ de l' "Hirondelle." Bull. Soc. Zool. France, vol. xxi., p. 207.
1898. *Tanais Cavolinii*, A. Dollfus, Campagnes de la "Melita," Tanaidæ. Mem. Soc. Zool. France, vol. xi., p. 35.
1899. *Tanais Cavolinii*, Norman, Ann. and Mag. Nat. Hist., ser. 7, vol. iii., p. 332.

In 1866 G. O. Sars (Nye Bidrag til Kundskaben om Middelhavets Invertebratfauna, iii. Middelhavets Saxisopoder, Archiv. f. Mathemat. og Naturvid., p. 312, pl. ix., figs. 1-3)

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described the *Tanais* which has *four-jointed* uropods under the name *Tanais Cavolinii* Milne-Edwards; but A. Dollfus has shown that Milne-Edwards' species is that which has *three-jointed* uropods, and must take precedence of the synonyms given above. To a *four-jointed* uropod species A. Dollfus has given the name *A. Chevreuxi*; and this would seem to be *T. Cavolinii* G. O. Sars. The present species is also *Tanais hirticaudatus* of Bate.

Berwick Bay (Dr. G. Johnston); Cullercoats (G. S. B.). N.

TANAISUS LILLJEBORGII (Stebbing).

1891. *Leptognathia Lilljeborgii*, Stebbing, "Sessile-Eyed Crustacea." Ann. and Mag. Nat. Hist., ser. 6, vol. viii., p. 325. pl. xvi.

1897. *Leptognathia crassimana*, Dollfus (A.), Campagnes de la "Melita," Tanaidæ. Mem. Soc. Zool. France, vol. xi., p. 46 ♂.

1906. *Tanaisus Lilljeborgii*, Norman and Scott, "The Crustacea of Devon and Cornwall," p. 34, pl. i., figs. 1-7.

Off North Sunderland and Seaton Carew in 4 fathoms (G. S. B.). N.D.

LEPTOGNATHIA FILIFORMIS (Lilljeborg).

Off Northumberland coast between St. Mary's Island and Souter Point, 1904 (G. S. B.) N.

LEPTOGNATHIA BREVIREMIS (Lilljeborg).

In the same dredgings as the last (G. S. B.) N.

LEPTOGNATHIA LONGIREMIS (Lilljeborg).

With the two preceding species (G. S. B.) N.

LEPTOGNATHIA BREVIMANA (Lilljeborg).

About 30 miles off Alnmouth in 57 fathoms, and 5-6 miles off Souter Point in 30 fathoms, both ♂ and ♀ (G. S. B.) N.

[Bate and Westwood record *Apseudes Latreillii* from Northumberland from A. M. N. It was a *lapsus* on their part. The specimen sent to them was labelled "Moray Firth."]

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SECTION II.—FLABELLIFERA G. O. Sars

FAM. 1.—GNATHIIDÆ

GNATHIA MAXILLARIS (Montagu).

This is *Anceus maxillaris* ♂ and *Praniza cœruleata* ♀ of Bate and Westwood; but not *Gnathia maxillaris* of G. O. Sars (see Norman and Scott's "Crustacea of Devon and Cornwall," 1906, p. 36, pl. ii., figs. 1-8).

Not rare off the coasts of the two counties. N.D.

FAM. 2.—ÆGIDÆ

ÆGA PSORA (Linné).

A specimen taken off the N.E. coast is (or was) in the Newcastle Museum. N.(D?)

ÆGA MONOPHTHALMA Johnston.

1834. *Æga monophtalma* (larger form), Johnston, Loudon's Mag. Nat. Hist., vol. vii., p. 233, figs. a, b.

Johnston procured three specimens attached to a large codfish taken in Berwick Bay. One of these specimens is in the British Museum, "Berwick Bay (on codfish), presented by Dr. G. Johnston"; another specimen is in the British Museum, "Northumberland, presented by R. Howse, Esq."; a third specimen is in the Newcastle Museum labelled "Presented by W. Hutchenson, Whitburn"; a fourth specimen was procured by Mr. G. Abbs at Whitburn, and came into the possession of Mr. A. Hancock, who gave it to A. M. N. N.D.

ÆGA STREMI Lütken.

1834. *Æga monophtalma* (smaller form), Johnston, Loudon's Mag. Nat. Hist., vol. vii., p. 233, fig. c.

1843. *Æga bicarinata*, H. Rathke, Beit. zur Fauna Norwegens, p. 25, pl. vi., figs. 1-18 (but not *Æga bicarinata* Leach).

1858. *Æga Stremii*, Lütken, Vid. Medd. Nat. For. Kjobenhavn, p. 68, pl. i. a, figs. 6-8.

1906. *Æga Stremii*, Norman and Scott, "Crustacea of Devon and Cornwall," p. 38, pl. viii., figs. 9, 10.

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In *Æga bicarinata* Leach the eyes are widely separated, in *Æga Strömii* they meet each other. Bate and Westwood (vol. ii., p. 281) erroneously regarded the *Æga monophthalma*, smaller form, as a variety to *Æga tridens* Leach.

A specimen is in A. M. N.'s collection which was taken at Whitburn, May 18, 1849, by Mr. Abbs, and given to Mr. Hancock, who kindly added it to A. M. N.'s collection. A second specimen is in the Newcastle Museum. Bate and Westwood (vol. ii., p. 280) erroneously referred the Whitburn specimen above-named, which was sent to them for their use, to *Æga bicarinata*. N.D.

SECTION III.—VALVIFERA G. O. Sars

FAM. I.—IDOTEIDÆ

IDOTEA BALTHICA (Pallas)=*I. tricuspidata* Bate and Westwood.

For synonyms see G. O. Sars' Crust. Norway, vol. ii., Isopoda. Frequent on and off the coast in shallow water. N.D.

IDOTEA NEGLECTA G. O. Sars.

Two quite young specimens, only 4 millims. long, appear to be referable to this species. Cullercoats (G. S. B.) N.

IDOTEA GRANULOSA Rathke.

1843. *Idotea granulosa*, H. Rathke, Beit. z. Fauna Norwegens, p. 23.

1895. *Idotea marina*, A. Dollfus, Les Idoteidæ des cotes de France, Feuille des Jeunes Naturalistes, ser. 3, 25 année, p. 7, fig. 22.

1897. *Idothea granulosa*, G. O. Sars, Crust. Norway, ii. Isopoda, p. 82, pl. xxxiv., fig. 1.

Hartley, tidemarks, common (A. M. N.)

Dr. Brady has also found this species in one or two places on the coast, and it is doubtless common between tidemarks, but has been confounded with *I. balthica*. N.D.

IDOTEA EMARGINATA (Fabricius).

Seaham (A. M. N.); Roker and Whitburn from fishing boats (G. S. B.) N.D.



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IDOTEA LINEARIS (Linné).

Seaham in 10 fathoms, 1861 (G. H.) D.

Professor Sars has changed the usual spelling of this genus *Idotea* to *Idothea*. Such a change is not desirable, first because Fabricius spelt his genus *Idotea*\*, and secondly because there is a genus *Idothea* among the Mollusca.

FAM. 2.—CIROLANIDÆ

EURYDICE PULCHRA Leach.

Occasionally taken in the tow-net in sandy bays near shore. It seems to be more gregarious in habits than are the more recently described species of the genus, which moreover are usually found in deeper water. N.D.

FAM. 3.—LIMNORIIDÆ

LIMNORIA LIGNORUM (Rathke).

A very elaborate paper was published in 1893 by Dr. P. P. C. Hoeck on the structure of this species, and on the damage done by it in Holland†. It is common on the Northumberland and Durham coasts, and often does much injury to piles, etc. N.D.

FAM. 4.—ARCTURIDÆ

ASTACILLA LONGICORNIS (Sowerby).

The *Arcturus gracilis* of Goodsir and of Bate and Westwood is the male of this species.

Not uncommon off the coast. N.D.

ASTACILLA INTERMEDIA (Goodsir).

1841. *Arcturus intermedius*, H. Goodsir, Edinb. New Philos. Jour., vol. xxxi., p. 309, pl. vi., figs. 1-3.

1867. *Arcturus intermedius*, Bate and Westwood; Brit. Sessile-eyed Crustacea, vol. ii., p. 271.

\* It is curious that Fabricius (Ent. Syst. Supp., 1798) in the body of his work pells his genus *Idotea*, but in the index it appears as *Idothea*.

† Report der Commissie uit de Koninklige Akademie von Wetenschappen. *Limnoria lignorum*. Amsterdam, 1893.

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1869. *Arcturus affinis*, G. O. Sars, Nye Dybvands-  
 crustaceer fra Lofoten. Chr. Vid. Selsk. Forh., p. 163  
 (p. 19 separate copy).

1897. *Astacilla affinis*, G. O. Sars, Crust. Norway, vol. ii.,  
 Isopoda, p. 90., pl. xxxvii., fig. 2.

Dr. Henderson has recorded the occurrence of this species  
 in the Firth of Forth, which is the locality whence the types of  
 Goodsir came; he writes, "N.E. of Inchkeith in the Firth of  
 Forth, April, 1884, attached to spines of *Echinus esculentus*.  
 Colour pale white, transparent, the distal end of joints of  
 antenna banded with green; green bands (faint) on anterior  
 segments of body." This observation is interesting in con-  
 nection with the fact that this *Astacilla* was taken in consider-  
 able numbers near the Farne Islands in 1863 clinging to the  
 test of *Strongylocentrotus drabachiensis* (Müller). The year  
 previously this species had been taken off Tynemouth (A.M.N.)  
 N.

ARCTURELLA DILATATA G. O. Sars.

Souter Bank in 39 fathoms, and 32 miles E. of Alnmonth in  
 40 fathoms (G. S. B.) N.D.

SECTION IV.—ASELLOTA

FAM. 1.—ASELLIDÆ

ASELLUS AQUATICUS (Linné).

In lakes and streams. N.D.

FAM. 2.—JANIRIDÆ

JANIRA MACULOSA Leach.

In the coralline zone, not rare. N.D.

JÆRA MARINA (Fabricius).

This is *Jæra albifrons* of Bate and Westwood. It is  
 common under stones between tidemarks.

N.D.

FAM. 3.—MUNNIDÆ

MUNNA LIMICOLA G. O. Sars.

Off Seaham Harbour (G. H.); 2½ miles off Souter Point in  
 21 fathoms (G. S. B.); Bate and Westwood (vol. iv., p. 328)

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refer some *Munna* which A. M. N. sent them from Cullercoats and Seaham to *Munna Krøyeri*; but as far as the Seaham specimens were concerned certainly erroneously (A. M. N.)

D.

MUNNA FABRICII Krøyer.

Thirty-four miles E. of Alnmouth in 39 fathoms, and off Souter Point in the same depth (G. S. B.)

N.D.

PARAMUNNA BILOBATA G. O. Sars.

Twenty-nine miles E. of Alnmouth, 59 fathoms; and 5-6 miles off Souter Point in 50 fathoms (G. S. B.)

N.D.

PLEUROGONIUM RUBICUNDUM G. O. Sars.

Two and a half miles off Souter Point, 21 fathoms; off Marsden 30 fathoms, and off Sunderland in 40 fathoms. (G. S. B.)

N.D.

PLEUROGONIUM SPINOSISSIMUM G. O. Sars.

1899. *Pleurogonium spinosissimum*, Th. Scott, "Report Marine and Freshwater Crustacea from Franz-Josef Land." Jour. Linn. Soc., Zool., vol. xxvii., p. 67, pl. iii., fig. 15.

A half-grown specimen apparently referable to this species, but with characters not fully developed, dredged off Souter Point. The metasome is as in Scott's figure, more contracted distally and more pointed at the extremity than in the figure given by Sars (G. S. B.)

N.

PLEUROGONIUM INERME G. O. Sars.

Dredged in about 25 fathoms off Northumberland coast between St. Mary's Island and Souter Point, 1904 (G. S. B.)

N.

FAM. 4.—MUNNOPSISÆ

PSEUDARACHNA HIRSUTA G. O. Sars.

Twenty-nine miles E. of Alnmouth, 59 fathoms, and off Souter Bank, 39 fathoms (G. S. B.)

N.D.

EURYOPE MUTICA G. O. Sars.

Twenty to thirty miles E. of Alnmouth in 50-60 fathoms (G. S. B.)

N.

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SECTION V.—SPHÆROMIDEA

FAM. 1.—SPHÆROMIDÆ

SPHÆROMA RUGICAUDA Leach.

Wansbeck, Seaton Sluice, Hartlepool, Port Clarence  
(A. M. N.); Hylton Dene (G. S. B.) N.D.

SECTION VI.—ONISCOIDEA

Mr. R. S. Bagnall, of Winlaton-on-Tyne, has during the last two years worked at this tribe energetically and with great success. He has kindly placed the results of his investigations at our disposal.

FAM. 1.—LIGIIDÆ

LIGIA OCEANICA Linné.

Rocks, at and above high-water mark, common. N.D.

FAM. 2.—TRICHONISCIDÆ

TRICHONISCUS PUSILLUS Brandt.

This species, which is the *Philourgria riparia* Bate and Westwood, is frequent among damp leaves and moss. N.D.

VAR. VIOLACEUS Schöbl?

1861. *Trichoniscus violaceus*, Schöbl, Korysi stejnonozi (Crustacea Isopoda) ohledem na rody a druhy v Cechách se nalézající (Ziva. Casopis Prárodnický, p. 310, V. Praze).

Mr. Bagnall writes of the *Trichoniscus* here referred to, "It is always met with in exceedingly moist situations, and in its movements differs from *T. pusillus*. It was first met with by Mr. Gill and myself in the moss of a waterfall, and among refuse at the foot of the same over which water continually drops, at Gibside; and subsequently it was found at another waterfall in Gibside. Also a single specimen from a well in a garden at Winlaton; and others from under stones in a small stream at Scour Banks, near Winlaton Mill; and under stones in a similar situation at Hart, near Hartlepool." It was also taken a great many years ago by A. M. N. in a very damp

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situation by the side of the stream which runs into Seaton Sluice, Northumberland. Under stones on the sea banks at Fulwell and Ryhope (G. S. B.) N.D.

TRICHONISCUS PYGMÆUS G. O. Sars.

1898. *Trichoniscus pygmæus*, G. O. Sars, Crust. Norway, vol. ii., Isopoda, p. 162, pl. lxxii., fig. 2.

1906. *Trichoniscus pygmæus*, Bagnall (R. S.), Ann. and Mag. Nat. Hist., ser. 7, vol. xviii., p. 474.

1907. *Trichoniscus pygmæus*, Bagnall (R. S.), Ann. Soc. Royale Zoologique et Malacologique de Belgique, xlii., pp. 263-266.

Gardens at Winlaton, where it is common; Gibside, Ravensworth, Egglestone-in-Teesdale; in flower-pots at South Hylton; and in Northumberland in gardens, Leazes Park and Hancock Museum grounds, Newcastle; Butcher Hill, near Matfen; Wylam, and Alnwick. Mr. Bagnall, who gives all the foregoing localities, adds "I have found it on several occasions away from cultivated ground." N.D.

TRICHONISCUS STEBBINGI Patience.

1907. *Trichoniscus Stebbingi*, Patience (A.), Journ. Linn. Soc., Zool., vol. xxx., p. 42, pl. vii., figs. 1-7.

1908. *Trichoniscus Stebbingi*, Bagnall (R. S.), Ann. Soc. Royale Zoologique et Malacologique de Belgique, xliii., pp. 127-129.

A single specimen in an orchid house belonging to Mr. Cookson at Wylam, and also a few examples in hothouses at Alnwick and Newcastle-upon-Tyne (Bagnall). N.D.

TRICHONISCUS INTERMEDIUS n. sp. (provisional), Bagnall.

"Two examples taken amongst herbage on Butcher Hill Farm, near Matfen, in September, 1906, but unfortunately so mutilated about the abdomen as to defy description. The locality is seven or more miles over a hilly road from the nearest station, and I have not been able to search for further examples. The telson is identical with that of *pusillus*, to which species it bears the strongest resemblance; but the

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antennæ are like those of *vividus*, Koch; the flagellum 5-7 jointed, and the peduncle very smooth, without the spines which characterize the peduncle of *pusillus*.<sup>1</sup> (Bagnall). N.

TRICHONISCUS ROSEUS (Koch).

Four specimens of the white variety under a stone in the grounds of the Hancock Museum at Newcastle; and richly coloured examples with *Cylisticus*, *T. pygmaeus*, etc., at Alnwick: also rarely in a garden at Winlaton and in the winter gardens, Sunderland (Bagnall). N.D.

TRICHONISCOIDES ALBIDUS (Budde Lund).

1885. *Trichoniscus albidus*, Budde Lund, Crust. Isopoda terrestria, p. 248.

The *Trichoniscoides albidus* G. O. Sars would seem to be a different species from that of Budde Lund.

Carley Hill Quarry near Sunderland, 1904 (G. S. B.). Two examples in a garden at Winlaton. A few examples with *Trichoniscus roseus* and *T. pygmaeus* at Alnwick, which were of a beautiful and pronounced yellowish-pink colour when alive (Bagnall). N.D.

HAPLOPHTHALMUS MENGII (Zaddach).

1898. *Haplophthalmus Mengii*, Sars (G. O.). Crust. Norway, vol. ii., Isopoda, p. 167, pl. lxxiv., fig. 1.

1906. *Haplophthalmus Mengii*, Webb and Sillem, The British Woodlice, p. 26, pl. vii.

This is *Haplophthalmus elegans* of Schöbl.

Fulwell Quarry, near Sunderland (G. S. B.) Under stones in garden and field at the Groves, Winlaton, with *T. pygmaeus*. In gardens and cool greenhouse Leazes Park, Newcastle, and under stone in grounds of the Hancock Museum. On one occasion in the open country (Bagnall). N.D.

HAPLOPHTHALMUS DANICUS, Budde Lund.

1898. *Haplophthalmus danicus*, Sars (G. O.), Crust. Norway, vol. ii., Isopoda, p. 165, pl. lxxiv., fig. 2.

1906, *Haplophthalmus danicus*, Webb and Sillem, The British Woodlice, p. 27, pl. viii.

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Humbleton Hill, near Sunderland (G. S. B.). A mature male and young under a piece of wood in a garden at Wylam-on-Tyne, and in numbers Leazes Park, Newcastle, where they occurred in the gardens as well as in the cooler houses (Bagnall). N.D.

FAM. 3.—ONISCIDÆ

ONISCUS ASELLUS Linné.

Everywhere.

N.D.

PHILOSCIA MUSCORUM (Scopoli).

Sedgefield (A. M. N.); Humbleton Hill, Cleadon, and Carley Hill Quarry near Sunderland, Stocksfield, and Ratcheugh Crag (G. S. B.). Mr. Bagnall has taken it in a great many localities in our two northern counties. He writes to us "Generally common under stones in hedgerows, and amongst dry grass, vegetable matter, etc. A very dark and almost unicolorous form is found under stones in gardens; a totally yellow variety in damp moss of waterfalls (Gibside, Durham, and Saltburn, Yorkshire). A number sent to me from the south of England are of a beautiful pink colour, exhibiting no trace of brown. All our Northumberland and Durham specimens are much darker than the southern examples, with the exception of the yellow variety; and none of them exhibit the slightest trace of pink or red in their coloration." N.D.

PHILOSCIA PATIENCEI Bagnall.

1908. *Philoscia Patientei*, Bagnall (R. S.), Ann. and Mag. Nat. Hist., ser. 8, vol. i., pp. 428-451, pl. xviii.

After describing this small species of *Philoscia*, which was discovered in large numbers in a hothouse at Kew, Mr. Bagnall writes, "On examining the species something in its general facies appealed to me as being familiar, and I remembered a few examples of a puzzling form which I had found with *Trichoniscus pygmaeus*, Sars, in a garden at Winlaton, Co. Durham. This form was entered in my diary for October, 1906, and February, 1907, as "*Trichoniscus dilaticornis*, sp. nov.?" but, as the specimens were undoubtedly immature,

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I put them away, and they thus escaped my memory. I was very interested therefore to find upon re-examination that the species was apparently conspecific with the one just described, or, at least, very closely allied to it."

When alive *P. Patiencei* bears a very strong superficial resemblance to the ubiquitous *Trichoniscus pusillus*, both in its general appearance and movements. N.D.

PLATYARTHURUS HOFFMANSEGGII Brandt.

1898. *Platyarthrus Hoffmansseggi*, Sars (G. O.), Crust. Norway, vol. ii., Isopoda, p. 175, pl. lxxvi., fig. 2.

1906. *Platyarthrus Hoffmansseggii*, Webb and Sillem, The British Woodlice, p. 30, pl. xiii.

Carley Hill Quarry, near Sunderland (G. S. B.). Two examples with *Myrmica rubra* at Chopwell, and several with the same ant at Greatham, near Hartlepool (Bagnall). D.

PORCELLIO SCABER Latreille.

Very common, "Including varieties *marmorata* and *marginata* of Brandt and Ratzeburg, the latter variety very rare. Also a large form, bright red in colour, which might be called var. *rufa*, a single specimen Winlaton, and three examples sent to me by Mr. Donisthorpe, taken in the nest of the red ant *Formica sanguinea*. A small variety is found in colonies in the busiest parts of the nests of the wood ant *Formica rufa* at Corbridge-on-Tyne; it is much smaller than the type, the dorsal surface not so scabrous, cephalic lobe less pointed, and distal joint of the flagellum longer in relation to basal joint; but as the sexual characters, etc., on dissection, entirely agree with *P. scaber*, it would be better to regard it as a form of that species, most likely produced after several generations of life with the ants; it might bear the distinguishing name var. *Darwiniana*. On two occasions I have found colonies almost identical with the last living under stones in rock-pools of salt water and entirely submerged; and when disturbed they merely ran along the bed of the pool to seek shelter under another submerged stone or piece of weed" (Bagnall). N.D.



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PORCELLIO PICTUS Brandt and Ratzeburg.

1898. *Porcellio pictus*, Sars (G. O.), Crust. Norway, vol. ii., Isopoda, p. 177, pl. lxxviii., fig. 1.

1906. *Porcellio pictus*, Webb and Sillem, The British Woodlice, p. 33, pl. xiv.

A few in the Hancock Museum grounds, Newcastle. Several examples in garden and cellars, and a small colony under a stone in quarry at Winlaton. Common under stones near inn at Egglestone-in-Teesdale, also under bark of logs laid for firewood; and at Corbridge (Bagnall). N.D.

PORCELLIO DILATATUS Brandt.

Several taken in rubbish heap behind Hancock Museum, Newcastle; a few in orchid houses at Wylam; common at Alnwick; swarming in cold greenhouses at Winlaton, and also in propagating houses Ravensworth, and in Leazes Park, Newcastle-on-Tyne (Bagnall). N.D.

PORCELLIO RATHKEI Brandt.

1853. *Porcellio trivittatus*, Lereboullet, Mem. Crust. Fam. Cloportides (Mem. Soc. Nat. Hist. Strasbourg), p. 54, pl. i., figs. 13, 14, pl. iii., figs. 66-70.

1898. *Porcellio Rathkei*, Sars (G. O.), Crust. Norway, vol. ii., Isopoda, p. 180, pl. lxxix., fig. 1.

1906. *Porcellio Rathkei*, Webb and Sillem, The British Woodlice, p. 34, pl. xvi.

Near Winlaton Mill, Stocksfield, and Humbledon Hill near Sunderland (G. S. B.). A single example under stones in meadow at Lockhaugh near Rowlands Gill (Bagnall). N.D.

PORCELLIO LÆVIS Latreille.

One adult and three young under stone on rubbish heap behind the Hancock Museum, Newcastle-upon-Tyne (Bagnall). N.

METOPONORTHUS PRUINOSUS (Brandt).

1868. *Porcellio pruinosus*, Bate and Westwood, vol. ii., p. 487.

1898. *Metoponorthus pruinosus*, Sars (G. O.), Crust. Norway, vol. ii., Isopoda, p. 184, pl. lxxx., fig. 2.

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1906. *Metoponorthus pruinus*, Webb and Sillem, The British Woodlice, p. 37, pl. xix.

Garden, Burnmoor Rectory, co. Durham (A. M. N.). In numbers swarming with *P. scaber* in heap of garden rubbish, Hancock Museum grounds, Newcastle. Alnwick, common. One specimen in a quarry near the village of Winlaton, where also it occurred in a cellar, and swarming in old greenhouses with *Porcellio dilatatus*; Axwell Park, near Blaydon; a colony under large stone near the salt-works at Greatham (Bagnall).

N.D.

CYLISTICUS CONVEXUS (De Geer).

1868. *Porcellio armadilloides*, Bate and Westwood, vol. ii., p. 485.

1898. *Cylisticus convexus*, Sars (G. O.), Crust. Norway, vol. ii., Isopoda, p. 186, pl. lxxxii.

1906. *Cylisticus convexus*, Webb and Sillem, The British Woodlice, p. 39, pl. xxi.

Several specimens at Alnwick in fernery, and a solitary example crawling on the footpath at Monkseaton near Whitley Bay, Northumberland. A single example in a manure heap, Axwell Park, November, 1908 (Bagnall).

N.D.

FAM. 4.—ARMADILLIDIIDÆ

ARMADILLIDIUM VULGARE (Latreille).

Widely distributed, but not nearly so common as it is in the south of England.

N.D.

ARMADILLIDIUM PULCHELLUM Brandt.

1892. *Armadillidium pulchellum*, Dollfus (A.), Tableaux synoptiques de la Faune Française. Le genre Armadillidium. Feuille des Jeunes Naturalistes, p. 14 (separate copy).

1898. *Armadillidium pulchellum*, Sars (G. O.), Crust. Norway, vol. ii., Isopoda, p. 191, pl. lxxxiii., fig. 4.

1906. *Armadillidium pulchellum*, Webb and Sillem, The British Woodlice, p. 42, pl. xxiv.

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This species is apparently fond of dry situations. Near Stocksfield, Devil's Water (G. S. B.). Two adult and many young under a stone at Winlaton. Found in colonies of the black ant (*Formica fusca*) at Hedley, near Stocksfield, and near Ebchester in the Derwent Valley (Bagnall). N.D.

ARMADILLIDIUM NASATUM Budde Lund.

1892. *Armadillidium nasatum*, Dollfus (A.), Tableaux synoptiques de la Faune Française. Le genre Armadillidium. Feuille des Jeunes Naturalistes, p. 10 (separate copy).

1899. *Armadillidium nasatum*, Norman (A. M.), British Land Isopoda. Ann. and Mag. Nat. Hist. ser. 7, vol. iii., p. 75, pl. vi., figs. 5-8,

1906. *Armadillidium nasatum*, Webb and Sillem, The British Woodlice, p. 40, pl. xxii.

Common in Mr. Cookson's orchid house at Wylam-on-Tyne; garden and cool greenhouse in Leazes Park, Newcastle-upon-Tyne; and a few taken at Alnwick (Bagnall). N.D.

SECTION VII.—EPICARIDA

FAM. 1.—PHRYXIDÆ

PHRYXUS ABDOMINALIS Kröyer.

Bate and Westwood write, "Mr. Alder has obligingly forwarded to us a specimen of the male on *Hippolyte Barleei* taken at Cullercoats on the Northumberland coast." N.

FAM. 2.—BOPYRIDÆ

PLEUROCRYPTA LONGIBRANCHIATA (Bate and Westwood).

This is *Phryxus longibranchiatus* B. and W. (vol. ii., p. 246). They write "The Rev. A. M. Norman announces it from a specimen of *Pagurus Thompsoni* dredged off Tynemouth, August, 1863." The specimen thus recorded had been examined and named by Mr. Bate, the name at that time being a MS. one. It and specimens recorded by Bate as taken on *Galathea squamifera* belonged probably to different

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species. The specimen from the Northumberland coast remained in Mr. Bate's possession, so that it must be doubtful what it really was. Sars suggests, and perhaps rightly, that it was *Pseudione Hyndmanni* (Bate) (G. O. Sars, Crust. Nor., Isop., p. 207, cf. p. 203).

[It may be here mentioned that while the work of Bate and Westwood was in course of publication, species of Amphipoda and Isopoda, which could not be identified, were sent to Mr. Bate for use in his work. Manuscript names of some of these, including that of the foregoing parasitic Isopod, as well as *Heiscladus longicaudatus* and *Nenia caudadentata* were sent by Mr. Bate, and entered in the lists (Nat. Hist. Trans. North. and Dur., vol. i., 1865, p. 25), but the descriptions were never published, nor were the specimens returned. They were presumably lost, as Mr. Bate was usually very exact in the return of specimens.]

### ORDER VI.—AMPHIPODA

Prof. A. Meek has during the last few years been doing excellent work on the Amphipoda, and the following list will show how much it owes to his researches (see Report on Scientific Investigations of Northumberland Sea Fisheries Committee, 1891, and Nat. Hist. Trans. Northumberland, Durham, and Newcastle-upon-Tyne, vol. xiv., pt. 1, p. 57); but many of his records are now first given here. At p. 256 the number of Amphipods from the two counties is given as 130, but it will be found that in the following notes more than that number are recorded; additional species having been discovered by Professor Meek.

#### SECTION I.—HYPERIIDÆ

##### FAM. 1.—HYPERIIDÆ

HYPERIA GALBA (Montagu) = *Lestrigonus exulans* and *Kinahani*  
B. & W. ♂

Occasionally taken off the coasts of Northumberland and  
Durham. N.D.

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HYPEROCHE TAURIFORMIS (Bate and Westwood)=*H. Kröyeri*  
Bovallius and G. O. Sars.

Young and adult specimens have been obtained nearly every year in the surface nets at the trawling excursions; and washed up in abundance in Cullercoats Harbour, March, 1903 (A. Mk.) N.D.

EUTHEMISTO COMPRESSA (Goës).

1878. *Lestrigonus spinidorsalis*, Bate, Ann. and Mag. Nat. Hist., ser. 5, vol. i., p. 411, fig. 2.

Professor Meek tells us that he has taken typical specimens of this species off Northumberland. N.

EUTHEMISTO GRACILIPES (Norman).

1863. *Hyperia oblivia*, Bate and Westwood, vol. ii., p. 16 (but not of Kröyer).

1869. *Hyperia gracilipes*, Norman, "Last Report Dredging Shetland." Brit. Assoc. Rep. for 1868, p. 287.

1887. *Parathemisto longipes*, Bovallius, "Syst. List of Amphip., Hyperiidea." Bihang t. K. Sv. Vet.-Akad. Hand., vol. xi., no. 16, p. 21.

1889. *Parathemisto gracilipes*, Bovallius, "Contrib. to Monog. of Amphip., Hyperiidea." K. Sv. Vet.-Akad. Hand., vol. xvii., no. 7, p. 368.

1906. *Ethemisto gracilipes*, Norman and Scott, The Crustacea of Devon and Cornwall, p. 54.

There are some Arctic Amphipods which reach the British Isles, but which are there of very much smaller size and less pronounced characters; by some naturalists these are regarded as distinct species, by others as varieties. *Ethemisto gracilipes* is such a form. It differs from *E. compressa* in its very small size, and the absence of dorsal spinose keels. Although we have given it as a species, we really regard it as a depauperized form of *E. compressa*. British writers, following the mistake of Bate and Westwood, have frequently recorded it as *Parathemisto oblivia*. From that species it may at once be distinguished by the carpus of the first two pairs of peræopods, which are ovately formed, and wider than the preceding joint.

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Druridge Bay, 1896, Cambois Bay, 1898, and subsequently at other places on the Northumberland coast (A. Mk.). Mr. Thomas H. Nelson, the ornithologist, has observed this *Euthemisto* cast up at Redcar, Yorkshire, in the most extraordinary quantity on several occasions in the early part of the year, the first time being April 4, 1892.\* These shoals must have come from the north past Northumberland and Durham.  
N.D.

SECTION II.—GAMMARIDEA

FAM. 2.—ORCHESTIIDÆ

TALITRUS LOCUSTA (Pallas).

High-water mark among decaying weeds, sandy shores, common.  
N.D.

HVALE LUBBOCKIANA (Bate)=*Allorchestes imbricatus*.

"Coast of Northumberland by Mr. Joshua Alder" (Bate and Westwood).  
N.

HVALE NILSSONI (Rathke).

Common amongst the rocks, especially under the little masses of mussels at Cullercoats and Whitley near high-water mark (A. Mk.)  
N.D.

ORCHESTIA LITTOREA (Montagu).

Common high-water mark among pebbles mixed with sand. *Orchestia brevidigitata* B. and W., vol. ii., p. 277, is the young of this species.  
N.D.

ORCHESTOIDEA DESHAYESII (Audouin).

Abundant among pebbles high-water mark at Ryhope (A. M. N.)  
D.

FAM. 3.—LYSIANASSIDÆ

LYSIANASSA PLUMOSA Boeck.

1861. *Lysianassa Costæ*, Bate and Westwood vol. i., p. 74 ♀.

1861. *Lysianassa longicornis*, Bate and Westwood (partim), vol. i., p. 85 ♂.

\* See Norman, The Naturalist, 1892, p. 175, and refer to what has been written under *Thysanoessa longicaudata*, p. 271.

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1870. *Lysianassa plumosa*, Boeck, Crust. Amphip. Bor. et Arct., p. 14 ♂.

1893. *Lysianassa septentrionalis*, Della Valle, Fauna und Flora des Golfes von Neapel, p. 775.

This does not seem to be the *Lysianassa Coste* of Milne-Edwards, and Della Valle re-named it; but Boeck's name must take precedence.

A single specimen from coast of Northumberland sent by Mr. Alder (Bate and Westwood). N.

LYSIANASSA CERATINA (Walker).

1889. *Lysianax ceratinus*, Walker, "Third Report on Higher Crustacea." Fauna of Liverpool Bay, vol. iii., p. 200, pl. x., figs. 1-8.

The *Lysianassa Coste* ♀ and *L. longicornis* ♂ of Dredging Report of 1863 and 1864 are referable to this more recently described form, which is distinguished from *L. plumosa* in wanting the upturned process of the lower hind margin of the third segment of the metasome. *L. ceratina* was taken off Holy Island, Northumberland (A. M. N.) N.

ACIDOSTOMA OBESUM (Bate)=*Anonyx obesus* Bate.

A number of specimens dredged in 39-59 fathoms off Durham and Northumberland coasts (A. M. N.) N.D.

SCOPELOCHEIRUS HOPEI (A. Costa)=*Callisoma crenata* B. & W.

Seven miles E. by S. from Tynemouth, 25 fathoms; near Holy Island and off other parts of Northumberland coasts (A. M. N.); off Seaham Harbour, 30-40 fathoms, abundant (G. H. and A. M. N.); off Berwick, 25 fathoms (A. Mk.) N.D.

HIPPOMEDON DENTICULATUS (Bate).

Seven miles E. by S. from Tynemouth, 25 fathoms; near Holy Island and several other places in deep water off Northumberland coast (A. M. N.); twelve fathoms off Newbiggin (G. S. B.); off Seaham Harbour (G. H.) N.D.

HIPPOMEDON PROPINQUUS G. O. Sars.

Mr. Meek has taken a few specimens in 39 fathoms off Northumberland and Durham. N.D.

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ORCHOMENE HUMILIS (A. Costa)

This is *Anonyx Edwardsii* Bate and Westwood (not Kröyer), *Anonyx melanophthalmus* Norman, *Anonyx serratus* Stebbing (not Boeck), and *Orchomene Batei* G. O. Sars, whose illustrations should be consulted, as those of Bate and Westwood are worthless.

Forty to fifty miles off Tynemouth, 40 fathoms, and 100 miles off in 25-30 fathoms (A. M. N.) N.

ORCHOMENELLA NANA (Kröyer) = *Tryphosa ciliata* G. O. Sars.

Five to six miles off Souter Point in 39 fathoms (A. Mk.); off the Durham coast (A. M. N.) D.

TRYPHOSA NANOIDES (Lilljeborg).

Thirty-four miles east of Alnmouth in 39 fathoms (A. Mk.) N.

TRYPHOSA SARSI (Bonnier) = *Tryphosa nana* G. O. Sars (not Kröyer).

Cullercoats and Beadnell in 1900 (A. Mk.) N.

TRYPHOSA HERINGII (Boeck).

Cullercoats (A. Mk.) N.

TRYPHOSITES LONGIPES (Bate) = *Anonyx longipes* B. & W. ♀ = *Anonyx ampulla* B. & W. (not Kröyer) ♂.

One hundred miles off Tynemouth, 25-30 fathoms, 1862; and off Berwick, 1864 (A. M. N.); trawlers, Sunderland (G. S. B.); off Souter Point in 39 fathoms, and off Tyne in 25 fathoms (A. Mk.) N.D.

TMETONYX CICADA (Fabricius) = *Anonyx Halbolli* B. & W. (not Kröyer).

Off Holy Island, 35-50 fathoms, 1864, and off Seaham Harbour (A. M. N.) N.D.

LEPIDEPECREUM CARINATUM Bate & Westwood.

1861. *Anonyx longicornis*, Bate and Westwood, Brit. Sessile-eyed Crust., vol. i., p. 91 ♂; and Bate, Cat. Amphip. Brit. Mus., 1862, p. 72, pl. xi., fig. 4.

1869. *Lepidepecreum carinatum*, Bate and Westwood, Brit. Sessile-eyed Crust., vol. ii., p. 509 ♀.



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1890. *Lepidepecreum mirabile*, Meinert, Videnskab. Udbytte  
Kanonbaden "Hauchs" Togter, Crust. Malacos., p. 153,  
pl. i., figs. 7-12.
1891. *Lepidepecreum carinatum*, G. O. Sars, Crust. Norway,  
Amphip., p. 113, pl. xxxviii., fig. 2, pl. xxxix., fig. 1.
1893. *Anonyx longicornis*, Della Valle, Fauna und Flora  
des Golfes von Neapel, Gammarini, p. 814, pl. lx.,  
figs. 47-49.

Della Valle erroneously synonymizes the *Lepidepecreum clypeatum* of Chevreux and *L. foraminiferum* of Stebbing with the present species.

Although the specific name *longicornis* is the earlier one, it is altogether misleading, as it applies only to the male; and no injury is done to the describers in using their later name *carinatum*.

*L. carinatum* has a known distribution from South Norway and Shetland to the Mediterranean, but it would seem to be always scarce when found.

Two specimens have been taken by G. S. B. in 25 fathoms, four miles off Tynemouth; and another by A. Mk. in 25 fathoms off St. Mary's Isle in 1903. N.

FAM. 4.—PONTOPOREIIDÆ

BATHYPOREIA GUILLIAMSONIA (Bate 1856)=*B. pilosa* B. & W.  
(not Lindström)=*B. norvegica* G. O. Sars.  
Whitburn (G. S. B.) D.

BATHYPOREIA PELAGICA (Bate).

East of Souter Point, 39 fathoms; and very common in sand from 6 down to 40 fathoms (A. Mk.); Seaton Carew, 4 fathoms (G. S. B.) N.D.

HAUSTORIUS ARENARIUS (Slabber)=*Sulcator arenarius* B. & W.  
Sands between Whitburn and Sunderland (A. M. N.);  
coast of Northumberland (Albany Hancock *vide* Bate);  
Bamburgh and Whitburn (G. S. B.) N.D.

CRUSTACEA OF NORTHUMBERLAND AND DURHAM

UROTHOE MARINA (Bate).

Near Holy Island, Northumberland, 35-50 fathoms  
(A. M. N.); off Seaham, 22 fathoms (G. S. B.) N.D.

UROTHOE ELEGANS Bate.

Towing net off the Tees, 1866 (G. S. B.) D.

FAM. 5.—PHOXOCEPHALIDÆ

METAPHOXUS FULTONI (Th. Scott).

Off the Tyne, 25 fathoms, 1904 (A. Mk.)

HARPINIA NEGLECTA G. O. Sars=*Phoxus plumosus* B. & W.  
(not of Kröyer).

In many dredgings off Northumberland and Durham in  
39-59 fathoms (A. Mk.); seven miles off Tynemouth, 25  
fathoms. frequent, and 100 miles off in 40-50 fathoms  
(A. M. N.) N.D.

HARPINIA SERRATA G. O. Sars.

Off Blyth in 22 fathoms (A. Mk.)

FAM. 6.—AMPELISCIDÆ

AMPELISCA TYPICA (Bate)=*Ampelisca Gaimardi* B. & W. (not  
Kröyer).

Off Holy Island and off Seaham, 25 fathoms (A. M. N.);  
off Ryhope, 10-12 fathoms (G. H.) N.D.

AMPELISCA TENUICORNIS Lilljeborg=*A. lævigata* B. & W.  
(not Lilljeborg).

Off Seaham (A. M. N.); in many dredgings off Northum-  
berland and Durham (A. Mk.) N.D.

AMPELISCA ASSIMILIS (Boeck).

Off Marsden, 10 fathoms (A. M. N.); 25 miles E. of  
Alnmouth, 50 fathoms (A. Mk.); off Souter Point, 1904  
(G. S. B.) N.D.

AMPELISCA BREVICORNIS (A. Costa)=*A. Belliana* B. & W.=  
*A. lævigata* (Lilljeborg) G. O. Sars.

In haddocks' stomachs, Hartlepool, off Seaham, near Holy  
Island, 40-50 fathoms (A. M. N.); off Whitburn (G. S. B.);  
not uncommon in moderate depths (A. Mk.) N.D.

CRUSTACEA OF NORTHUMBERLAND AND DURHAM

AMPELISCA SPINIPES Boeck.

Northumberland coast, 1864; off Seaham (A. M. N.); off Cullercoats, and down to 50 fathoms 25 miles E. of Alnmouth, also off Blyth in 22 fathoms (A. Mk.) N.D.

AMPELISCA MACROCEPHALA Lilljeborg.

In 39-50 fathoms off Northumberland (A. Mk.) N.

BYBLIS GAIMARDI (Kröyer).

This is not *Ampelisca Gaimardi* B. & W., for which see *Ampelisca typica*.

Off Seaham (A. M. N.); 29 miles E. of Alnmouth in 59 fathoms (A. Mk.) N.D.

HAPLOOPS TUBICOLA Lilljeborg.

Off Marsden, 7 miles E. of Tynemouth, 1862, off Berwick, 1863, near Holy Island, 1864 (A. M. N.); 25 miles E. of Alnmouth in 50 fathoms, and off Blyth in 22 fathoms (A. Mk.) N.D.

FAM. 7.—AMPHILOCHIDÆ

AMPHILOCHUS MANUDENS Bate=*A. Boeckii* Meinert and *A. concinnus* and *Callimera acutidigitata* Stebbing.

Off Seaham, 25-30 fathoms (G. H.); east of Alnmouth and Souter Point, 39-50 fathoms, 1901, and off Blyth in 22 fathoms, 1904 (A. Mk.) N.D.

AMPHILOCHOIDES SERRATIPES (Norman).

1869. *Probolium serratipes*, Norman, Last Report Dredging Shetland Isles. Brit. Assoc. Report for 1868, p. 273.

1892. *Amphilochoides odontonyx*, G. O. Sars, Crust. Norway, Amphip., p. 221, pl. lxxv., fig. 2 (not *A. odontonyx* Boeck).

1895. *Amphilochoides Boeckii*, id. *ibid.*, p. 690.

East of Alnmouth and Souter Point, 39-50 fathoms, and also off the Tyne in 22 fathoms (A. Mk.) N.D.

AMPHILOCHOIDES ODONTONYX (Boeck).

1870. *Amphilochus odontonyx*, Boeck, Crust. Amphip. Borealia et Arctica, p. 51.

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1892. *Amphilochoides pusillus*, G. O. Sars, Crust. Norway, Amphip., p. 222, pl. lxxvi., fig. 1.

1895. *Amphilochoides odontonyx*, id. *ibid*, p. 690.

Two and a half miles off Souter Point, Durham, 21 fathoms  
(A. Mk.) D.

GITANA SARSI Boeck.

In 21 fathoms off Northumberland (A. Mk.) N.

GITANOPSIS INERMIS (G. O. Sars).

Off Cullercoats (G. S. B.) N.

FAM. 8.—STENOTHOIDÆ

STENOTHOE MARINA (Bate).

Cullercoats and off Durham coast (A. M. N.); Cullercoats  
(J. Alder); Seaham, 25-30 fathoms (G. H.) N.D.

STENOTHOE MONOCULOIDES (Montagu).

Cullercoats (J. Alder); Ryhope (A. M. N.); Sunderland  
and near mouth of the Coquet (G. S. B.); North Sunderland  
(A. Mk.) N.D.

METOPA ALDERI (Bate)=*Montagua norvegica* B. & W. (not  
Lilljeborg) ♂.

Cullercoats (J. Alder and A. M. N.); 40-50 miles E. by N.  
from Tynemouth, 40 fathoms (A. M. N.); Alnmouth Bay  
(A. Mk.) N.

METOPA RUBROVITTATA G. O. Sars.

Several specimens from Cambois Bay, 1901, and 16-17  
miles off Souter Bank, 39 fathoms (A. Mk.) N.D.

METOPA PUSILLA G. O. Sars.

East of the Longstone in 40 fathoms, Sept. 2, 1902 (A. Mk.)  
N.

METOPA NORVEGICA (Lilljeborg).

1850. *Leucothoe norvegica*, Bidr. till Norra Russlands och  
Norrige fauna, &c. K. Vet.-Akad. Hand., vol. ii.,  
p. 335, pl. xx., fig. 4.

1855. *Montagua pollexiana*, Bate, Brit. Assoc. Report,  
p. 57.

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1900. *Metopa norvegica*, Norman, Ann. and Mag. Nat. Hist., ser. 7, vol. vi., p. 41.

In the paper last referred to reasons are given for adopting Lilljeborg's specific name.

Cullercoats (J. Alder and A. M. N.); near Holy Island, 35-50 fathoms, and 40-50 miles E. by N. from Tynemouth, 40 fathoms (A. M. N.); Seaham (G. H.); Dogger Bank, 1899 (G. S. B.); 25 fathoms off Berwick (A. Mk.) N.D.

METOPA PROPINQUA G. O. Sars.

Off Blyth in 22 fathoms, 1904 (A. Mk.) N.

METOPA ABCISIA Norman.

1869. *Montagua clypeata*, Bate and Westwood, vol. ii., p. 499 (not *Leucothoe clypeata*, Kröyer).

1900. *Metopa abscisa*, Norman, Ann. and Mag. Nat. Hist., ser. 7, vol. vi., p. 42, pl. iii., figs. 6-10.

Cullercoats (A. M. N.) N.

METOPELLA NASUTA (Boeck).

The genus *Metopella* was suggested by Sars in his work at p. 274.

Twenty-nine miles off Alnmouth in 50 fathoms, and 16 miles off Souter Point, Durham, in 39 fathoms (A. Mk.) N.D.

STHENOMETOPA PALMATA (G. O. Sars).

A genus *Metopina* was established by A. M. N. with this species as the type (Ann. and Mag. Nat. Hist., ser. 7, vol. vi., 1900, p. 45), but that name being already preoccupied, *Sthenometopa* was substituted (Notes on the Natural History of East Finmark, Ann. and Mag. Nat. Hist., ser. 7, vol. x., 1902, p. 481).

About five miles off Souter Point, Durham, 30 fathoms (A. Mk.) D.

STHENOMETOPA ROBUSTA (G. O. Sars).

1892. *Metopa robusta*, G. O. Sars, Crust. Norway, Amphip., p. 270, pl. xcvi., fig. 1.

1900. *Metopina robusta*, Norman, Ann. and Mag. Nat. Hist., ser. 7, vol. vi., p. 45.

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1902. *Sthenometopa robusta*, Norman, Ann. and Mag. Nat. Hist., ser. 7, vol. x., p. 480.

Off Cullercoats, August 30, 1906 (A. Mk.) N.

CRESSA DUBIA (Bate)=*Danaia dubia* B. & W.

Off Alnmouth, 39-50 fathoms, off Cullercoats, and off Blyth in 22 fathoms (A. Mk.) N.

FAM. 9.—CEDICERIDÆ

MONOCULODES CARINATUS (Bate).

*Monoculodes Stimpsoni* B. & W. would seem to be the same species (see A. M. N.'s notes Ann. and Mag. Nat. Hist., ser. 6, vol. iii., 1889, p. 447, pl. xix., figs. 1-5).

Off Berwick, 1864 (A. M. N.); one young specimen from the Inner Farne Islands, 1898 (A. Mk.) N.

PERIUCULODES LONGIMANUS (Bate & Westwood)=*Monoculodes Grubei* Boeck=*Monoculodes æquimanus* Norman, MS., D. Robertson.

Off Marsden, 10 fathoms (A. M. N.); Druridge Bay and 5-6 miles off Souter Point, 30-50 fathoms (A. Mk.) N.D.

PONTOCRATES ARENARIUS (Bate).

1889. *Pontocrates arenarius*, Hoek, Crustacea Neerlandica ii., p. 28, pl. ix., fig. 7.

1906. *Pontocrates arenarius*, Norman and Scott, Crustacea of Devon and Cornwall, p. 68, pl. vi., figs. 1-4.

*Pontocrates arenarius* has not as yet been found in Norway. The species which Sars figures under that name (Supplement, pl. vi., fig. 2, pl. vii., fig. 1) must bear the name *Pontocrates norvegicus* Boeck. As far as our observations go the latter species is more generally met with on our coasts than *P. arenarius*. Hoek, on the plate referred to, has given an excellent figure of the second gnathopod of *P. arenarius*, the carpus of which is rounded at its extended point, whereas in *P. norvegicus* it is hollowed like a little spoon (Sars, Supp., pl. vi., fig. 2); there is still greater difference in the first gnathopod, which in *arenarius* has a very oblique palm (as in *P. altamarinus*, see Sars, Supp., pl. vii., fig. 2), whereas

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in *P. norvegicus* it is scarcely at all oblique (Sars, Supp., pl. vi., fig. 2). Figures of this and allied forms are given in the "Crustacea of Devon and Cornwall."

Whitburn in sand between tidemarks (John Hancock and G. S. B.); Howden (G. H. and A. M. N.) N.D.

PONTOCRATES ALTAMARINUS (Bate).

1906. *Pontocrates altamarinus*, Norman and Scott, Crust. Devon and Cornwall, p. 69, p. vii., figs. 1-4.

One hundred miles off Tynemouth in 25-30 fathoms (A. M. N.) N.

SYNCHELIDIUM HAPLOCHELES (Grube).

1906. *Synchelidium haplocheles*, Norman and Scott, Crust. Devon and Cornwall, p. 67, pl. vi., figs. 7-9.

A. M. N. in his paper "A Month on the Trondhjem Fiord" (Ann. and Mag. Nat. Hist., ser. 6, vol. xv., 1895, p. 486) gave reasons for regarding *Krøyeria brevicarpa* B. & W. and *Synchelidium brevicarpum* Sars as synonyms of this species, and substituted the name *P. tenuimanum* Norman for the *Synchelidium haplocheles* of Sars.

Inner Farne Islands, Alnmouth, Druridge Bay, Blyth Bay, and Cullercoats (A. Mk.) N.

HALIMEDON PARVIMANUS (Bate and Westwood).

This is *Westwoodia caecula* and *W. hyalina* Bate, *Ædiceros parvimanus* B. & W., and *Halimедon Muellerei* Boeck (see Norman, Notes on British Amphipods, Ann. and Mag. Nat. Hist., ser. 6, vol. iii., p. 455, pl. xx., figs. 10-14).

Near Holy Island, 40-100 miles E. of Tynemouth in several dredgings, 7 miles off Seaham, 25 fathoms (A. M. N.); in dredgings in 21-39 fathoms off Souter Point (A. Mk.)

N.D.

FAM. 10.—PLEUSTIDÆ

NEOPLEUSTES BICUSPIS (Krøyer).

This is not *Pherusa bicuspis* B. & W., but the species which was recorded in 1865 (Nat. Hist. Trans. Northumberland, Durham, and Newcastle, vol. i., p. 24) under the MS. name which Spence Bate had given to the specimens sent to him

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"*Calliope bidentata*." It seems to be a common form along the east coast of Great Britain.

Forty to a hundred miles E. of Tynemouth, 25-40 fathoms, 1862 (A. M. N.), fishing boats, Cullercoats (J. Wright); trawlers, Sunderland (G. S. B.); off Seaham, 25-30 fathoms (G. H.); 45 fathoms 52 miles E.N.E. off Tyne, off Souter Point, and off Blyth, 22 fathoms (A. Mk.) N.D.

SYMPLEUSTES LATIPES (M. Sars) = *Calliope Ossiani* and *Fingalli* Bate.

Cullercoats (J. Alder and A. M. N.); trawlers, Sunderland (G. S. B.); 40 fathoms off Seaham (G. H.); 16-17 miles off Souter Point, 30 fathoms (A. Mk.) N.D.

FAM. 11.—EPIMERIIDÆ

EPIMERIA CORNIGERA (Fabricius) = *Acanthonotus Owenii* B. & W.

Near Holy Island 35-50 fathoms, 3-50 miles off Tynemouth, and off Durham coast (A. M. N.); 25 miles off Alnmouth 50 fathoms and Berwick Bank 27 fathoms (A. Mk.) N.D.

FAM. 12.—IPHIMEDIIDÆ

IPHIMEDIA OBESA H. Rathke.

Cullercoats, fishing boats (J. Alder and A. M. N.); off Northumberland and Dogger Bank, and off Durham coast, 1862 (A. M. N.); Sunderland, trawlers (G. S. B.); off Alnmouth and off Souter Point (A. Mk.) N.D.

ODIUS CARINATUS (Bate) = *Otus carinatus* Bate.

A specimen taken on gravelly ground in 46 fathoms 10 miles off Berwick Bay, 1863 (A. M. N.) N.

FAM. 13.—TIRONIDÆ

TIRON ACANTHURUS Lilljeborg.

This is *Syrrhoe bicuspis* Goës and *Tessarops hastata* Norman (Crustacea Amphipoda New to Science or to Britain, Ann. and Mag. Nat. Hist., ser. 4, vol. ii., 1868, p. 412, pl. xxii.; figs. 4-7).



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Off Durham coast, 1862 (A. M. N.); about five miles off  
Souter Point, 30 fathoms (A. Mk.) D.

ARGISSA HAMATIPES (Norman).

1869. *Syrrhoe hamatipes*, Norman, Last Report Dredging  
among the Shetland Isles. Brit. Assoc. Rep. for 1868,  
p. 279.

1870. *Argissa typica*, Boeck, Crust. Amphip. Borealia et  
Arctica, p. 45.

1890. *Chimæropsis danica*, Meinert, Videnskab. Udbytte  
Kanonbaden "Hauchs" Togter, Crust. Malacos.,  
p. 167, pl. ii., figs. 42-47 ♂.

1891. *Argissa typica*, G. O. Sars, Crust. Norway, Amphip.,  
p. 141, pl. xlvi.

In several dredgings off Northumberland and Durham in  
39-59 fathoms (A. Mk.) N.D.

FAM. 14.—EUSIRIDÆ

EUSIRUS LONGIPES Boeck=*E. helvetia* Bate.

Deep water E. of Tynemouth, 1862, off Berwick, 1868, near  
Holy Island, 35-50 fathoms, 1864 (A. M. N.) N.

FAM. 15.—CALLIOPIIDÆ

APHERUSA BISPINOSA (Bate).

Cullercoats (J. Alder and A. M. N.); seven miles E. by S.  
from Tynemouth, 25 fathoms (A. M. N.); off Seaham, 25-40  
fathoms (G. H.); low water, Sunderland, and 25 miles off  
Tynemouth (G. S. B.); off Blyth, 22 fathoms (A. Mk.) N.D.

APHERUSA BOREALIS (Boeck).

Tidemarks, Boulmer, and Cullercoats, Northumberland  
(G. S. B.) N.

APHERUSA CLEVEI G. O. Sars.

1904. *Apherusa Clevei*, G. O. Sars, "On a new planktozic  
species of the genus Apherusa (Conseil permanent  
international pour l'exploration de la Mer. Publications  
de circonstance, No. 10)."

In 22 fathoms off Blyth (A. Mk.) N.