

THE UNIVERSITY OF NEWCASTLE UPON TYNE



The Marine Fauna of the Cullercoats District

3

- a. ENTOPROCTA  
by D. Eggleston and H. O. Bull
- b. PRIAPULIDA, ECHIURIDA, SIPUNCULIDA  
by H. O. Bull
- c. CHAETOGNATHA  
by H. O. Bull
- d. ECHINODERMATA  
by J. B. Buchanan

Report of the Dove Marine Laboratory

Third Series No. 15

July, 1966

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## The Marine Fauna of the Cullercoats District

### EDITOR'S FOREWORD

It is intended to devote this and the next succeeding numbers of this Report to the publication (at short intervals) of the records of the marine fauna of the Cullercoats district. These compilations are the work of past or present members of the laboratory staff or of others closely associated with the work of the laboratory. Each number will deal with one or more phyla or parts of phyla and will be issued when ready regardless of classificatory sequence. Full uniformity of treatment is unlikely, but the general format will remain the same. The area treated is roughly from Berwick to Redcar—Latitude  $55^{\circ}47'N$  to  $54^{\circ}37'N$ —extending seawards to  $0^{\circ}0'$  Longitude, but it is recognised that the coverage is at present incomplete.

H. O. BULL

The following have appeared :

1. Porifera. H. O. Bull. Rep.Dove Mar.Lab. 3rd ser. **13**; 22p. Dec. 1963.
- 2a. Arthropoda 1 : Diplopoda : Chilopoda. H. O. Bull. Rep.Dove Mar.Lab. 3rd ser. **14**; pp. 5-8. Nov. 1964.
- 2b. Arthropoda 2a : Insecta ; Apterygota. H. O. Bull. Rep.Dove Mar.Lab. 3rd ser. **14**; pp. 9-16. Nov. 1964.
- 2c. Arthropoda 3e8 : Crustacea ; Euphausiacea. J. Bossanyi. Rep.Dove Mar.Lab. 3rd ser. **14**; pp. 17-24. Nov. 1964.
- 2d. Chordata 3 : Mammalia ; Cetacea. W. Stephenson and H. O. Bull. Rep. Dove Mar.Lab. 3rd ser. **14**; pp. 25-32. Nov. 1964.



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The Marine Fauna of the Cullercoats District

3a

ENTOPROCTA

by

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Univ. Newcastle upon Tyne

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## Phylum ENTOPROCTA Nitsche

### LOXOSOMATIDAE Hincks

#### **Loxosoma pectinaricola** (FRANZEN)

Nielsen 1964, pp. 7-9, fig. 2.

Very abundant on *Pectinaria belgica* (Pallas) from mud grounds. Over 200 specimens on each worm examined.

BREEDING—Buds April, May, July and September; embryos June and July.

**Loxosomella** sp. = **Loxosomella nitschei** Arvy and Prenant 1952, Bobin and Prenant 1953, 1954, Prenant and Bobin 1956, Nielsen 1964, not *L. nitschei* (Vigelius), Roper 1913, Harmer 1915, Ryland 1961.

Nielson 1964, p. 34, fig. 23.

Up to 50 specimens on each *Phascolion strombi* (Montagu) on in-shore grounds.

BREEDING—Buds all year, embryos all year.

#### **Loxosomella murmanica** (NILUS)

Nielsen 1964, p. 37, fig. 25.

A few specimens referable to this doubtful species (Nielsen 1964, Eggleston 1965) occasionally occur among *Loxosomella* sp. on *Phascolion strombi*.

**Loxosomella nitschei** (VIGELIUS) = *L. nitschei* Roper 1913, Harmer 1915, Ryland 1961, not *L. nitschei* Arvy and Prenant 1952, Bobin and Prenant 1953, 1954, Prenant and Bobin 1956, Nielsen 1964.

Ryland 1961, pp. 35-37, fig. 2.

"Growing in aquarium tanks in great abundance," Jun., 1912 (Roper 1913).

Abundant on *Bugula* sp. on Blyth pier piles 6 Sep. 1963; on *Cellularia fistulosa* Hincks, hydroids, dead shell and coal on gravel grounds, 20-25 fms. 3-4 miles E. of Newbiggin, 18 Apr. 1965.

BREEDING—Buds April and September.

#### **Loxosomella compressa** NIELSEN AND RYLAND

Nielsen & Ryland 1961, pp. 41-43, fig. 2; Nielsen 1964, pp. 41-42, fig. 29.

Common (up to 50 individuals) on all *Gattyana cirrosa* (Pallas) from *Chaetopterus* tubes on mud grounds. Also on *Lagisca extenuata* (Grube) from gravel grounds, 20-25 fms., 3-4 miles E. of Newbiggin.

BREEDING—Buds, July.

**Loxosomella nordgaardi** RYLAND

Ryland 1961, pp. 31-35, fig. 1 : Nielsen 1964, pp. 42-44, fig. 30.

Dredged in small numbers at Battery Park gravel ground on 28 May 1963 and 15 Jun. 1963. On *Smittoidea reticulata* MacGillivray, *Schizomavella linearis* Hassall and *Porella concinna* (Busk).

BREEDING—Buds, May and June.

**Loxosomella fauveli** BOBIN AND PRENANT

Nielsen 1964, pp. 39-41, fig. 28.

Rare. Only 3 specimens found on over 20 *Aphrodite aculeata* L. examined. Trawled on gravel ground on 18 Apr. 1953, 20-25 fms., 3-4 miles E. of Newbiggin.

**Loxosomella harmeri** (SCHULTZ)

Nielsen 1964, pp. 28-30, fig. 18.

Abundant on antennae, dorsal cirri and on dorsal surface of elytra of *Gattyana cirrosa* from *Chaetopterus* tubes on mud grounds. Up to 200 specimens occur on each *G. cirrosa*. Not found on *G. cirrosa* from *Amphitrite* tubes.

BREEDING—Buds, February, May, July. Embryos, May and July.

PEDICELLINIDAE Smith

**Pedicellina cernua** (PALLAS)

Hincks 1880, p. 565, pl. 81, figs. 1-3 : Nielsen 1964, pp. 54-56, fig. 39.

"On small sea-weeds and corallines, near low-water mark; frequent." (Alder 1856); "Present. Coquet and Berwick Bay." (Alder 1862b); "Off Holy Island." (Alder 1864); "Off Marsden, present." (Alder 1864) (all as *P. echinata*). "Very common on all kinds of algae between tide-marks, Cullercoats: Dredged abundantly on hydroids and other Polyzoa from all Stations except VI and IX and from 40 fms. east of Longstone." (Robson 1913): "From station V" (Robson 1913, var. *belgica*).

Common on *Campanularia*, etc. on piles in Blyth harbour. H.O.B.: Common wherever suitable supports e.g. algae, stones, shells, hydroids, ectoprocts, ascidians, etc. occur from between tide-marks to 50 fms.

**Barentsia gracilis** (M. SARS)

Hincks 1880, p. 570, pl. 81, figs. 4-6 (as *Pedicellina* g.):

Nielsen 1964, p. 56, fig. 41.

"On the under side of stones, and on the stems of Zoophytes,

Cullercoats and Tynemouth ; common." (Alder 1862a, as *Pedicellina* g.): "On shells, stones, hydroids and Polyzoa from stations III, IV, VII and VIII ; very common. Also from 40 fms. east of the Longstone, 32 fms. east by south of Cullercoats, and between tide-marks, Cullercoats." (Robson 1913, as *Ascopodaria* g.).

Similar in distribution to *Pedicellina cernua* but less common on the shore.

### **Barentsia laxa** KIRKPATRICK

Rogick 1948, pp.128-142, figs.1-43.

Large colonies found growing in Dove Marine Laboratory aquaria and in outside storage tank Sep. 1962—Sep. 1964.

## ENTOPROCTA

### REFERENCES

- ALDER, J., 1856. A Catalogue of the zoophytes of Northumberland and Durham. Trans.Tyneside Nat.Fd.Cl. 3 (2) ; pp.93-162.
- ALDER, J., 1862a. Supplement to a Catalogue of the zoophytes of Northumberland and Durham. Ibid. 5 (3) ; pp.225-247.
- ALDER, J., 1862b. Report on the Zoophytes (In "Report of the Dredging Expedition to the Dogger Bank and the Coast of Northumberland." Ed. E. T. Mennell). Ibid. 5 (4) ; pp.288-290.
- ALDER, J., 1864. Report on the Zoophytes (In "Report of Dredging Operations on the coasts of Northumberland and Durham, in July and August, 1863," Ed. G. S. Brady), Ibid. 6 (2) ; pp.191-193.
- ALDER, J., 1865. Report on the Zoophytes (In "Report of Deep Sea Dredging on the coasts of Northumberland and Durham, 1862-4" Ed. G. S. Brady). Nat. Hist.Trans.Northumb.Durh. 1 (1) ; pp.45-50.
- ARVY, L. & PRENANT, M., 1952. *Loxosoma nitschei* Vigelius sur les phascolions de Dinard. Bull.Lab.marit.Dinard. No. 36 ; pp.1-5.
- BOBIN, G. & PRENANT, M., 1953. Sur les loxosomes du *Phascolion strombi* (Montagu) et sur la spécificité de l'inquinisme des loxosomes. Arch.zool. exp.gén. (Notes et Rev.) 90 ; pp.18-41.
- BOBIN, G. & PRENANT, M., 1954. Étude critique des principeaux Caractères utilisables dans la Classification des Loxosomes. Ann.Sci.Nat.Zool., 11 ser., 15 ; p.7-33.
- EGGLESTON, D., 1965. The Loxosomatidae of the Isle of Man Proc.zool.Soc. Lond. 145 (4) ; pp.529-547.
- HARMER, S. F., 1915. The Polyzoa of the Siboga Expedition, Part I. Entoprocta, Ctenostoma, and Cyclostomata. Siboga Exped., 28a ; pp.1-180.
- HINCKS, T., 1880. A history of the British marine Polyzoa. 2 vols. London. Van Voorst. vol. 1, text ; pp.cxli, 601 ; vol. 2, plates 1-83. 8°.
- NIELSEN, C., 1964. Studies on Danish Entoprocta. Ophelia 1 (1) ; pp.1-76.

- NIELSEN, C. & RYLAND, J. S., 1961. Three new species of Entoprocta from West Norway. *Sarsia* 1; pp.39-45.
- PRENANT, M. & BOBIN, G., 1956. Bryozoaires I. Entoproctes, Phylactolèmes, Cténostomes. *Faune de France* 60; pp.1-398.
- ROGICK, M. D., 1948. Studies on marine Bryozoa. II *Barentsia laxa* Kirkpatrick 1890. *Biol.Bull.Woods Hole* 94 (2); pp.128-142.
- ROPER, R. E., 1913. The marine Polyzoa of Northumberland. *Rep.Dove Mar. Lab. n.s.* 2; pp.36-57.
- RYLAND, J. S., 1961. Two species of *Loxosomella* (Entoprocta) from West Norway. *Sarsia* 1; pp.31-38.
- VIGELIUS, W. J., 1882. A catalogue of the Polyzoa collected during the Dutch North-Polar cruises of the "Wilhelm Barents". *Niederl. Arch.Zool.*, 1 (suppl.); pp.1-20.





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3b

PRIAPULIDA, ECHIURIDA, SIPUNCULIDA

by

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## Phylum PRIAPULIDA Savigny

### **Priapulus caudatus** LAMARCK

Stephen 1960, pp. 25, 26, fig. 17.

3 dug in mud in upper fringe of *Zostera* bed NE bank of Sleekburn at point of entry into R. Blyth estuary 18 Oct. 1933 ; 2 dug same place 20 Mar. 1934 and 2 more 10 Feb. 1935 ; 1 dug N. side Foulwork Burn 150 yds. from Tealhole Point, Fenham Flats 17 Mar. 1934 ; 36 dug in  $\frac{1}{2}$  hr. Chesterhill Stakes, Budle Bay 15 Aug. 1950 (H.O.B.) : Dug occasionally in mud H.W.N.T., N. of Ross Low, Budle Bay, 1962-64 (Ladle 1965) : 1 trawled, 27 fms.,  $11\frac{1}{2}$  miles N  $6^\circ$  E. R. Tyne 29 Nov. 1935 (H.O.B.) : Occasional (15 specimens in grab samples 1960-64), 20 fms.,  $1\frac{1}{2}$  miles N  $31^\circ$  E Newbiggin Church (J.B.B.).  
BREEDING—gonads empty Mar. 1935 ; ripe Oct. 1933 ; sperms liberated 29 Nov. 1935 (H.O.B.).

## Phylum ECHIURIDA de Blainville

ECHIURIDAE de Blainville

### **Echiurus echiurus** (PALLAS)

Stephen 1960, p. 4, figs. 1, 2.

One, fresh and intact, from stomach of codling caught 3 miles SE of R. Tyne 16 Feb. 1949 (H.O.B.).

## Phylum SIPUNCULIDA de Quatrefages

### **Golfingia (Golfingia) elongata** (KEFERSTEIN)

Stephen 1960, p. 15 : Théel 1905, p. 62, pl. 1, figs. 9-13, pl. 13, fig. 188.  
(as *Phascolosoma elongatum*).

1, trawled, approx. 5 miles E. of Blyth, 10 Jan. 1934 ; 1, L.W.S.T. in mud and stones 300 yds. S. of St. Mary's, Feb. 1949 ; since then, occasionally from mud and gravel under stones, L.W.S.T., all along the coast (H.O.B.) : Common in grab hauls throughout the area between Farnes and Tyne in mud and muddy sand at all depths to 50 fms., 1960-65 (J.B.B.).

### **Golfingia (Golfingia) vulgaris** (DE BLAINVILLE)

Stephen 1960, p. 19 : Théel 1905, pp. 60-62, pl. 1, figs. 1-5, pl. 2, fig. 14, pl. 13, fig. 186 (as *Phascolosoma vulgare*).

"got by Mr. Howse in one of the dredging expeditions off Whitburn" (Alder 1850 as *Syrinx harveyi*).

1, L.W.S.T. St. Mary's, 4 Apr. 1935 : 1, aquarium tanks 21 Dec. 1945 (H.O.B.). Common, and often large (up to 5 inches), in offshore muds and on *Nephrops* grounds off the coast down to 50 fms., 1960-65 (J.B.B.).

**Golfingia (Phascoloides) minuta** (KEFERSTEIN)

Stephen 1960, pp.17-18 : Cuénot 1922, p.9, fig.4a, b.  
(as *Phascolosoma m.*).

Both sexes, common, at all tide levels on all rocky shores in the area ; especially in horizontal cleavages (with *Polydora*) ; in *Rhodocorton* clumps (with *Tanais*) ; in roots of *Laminaria* ; and amongst *Sabellaria* tubes.

**Golfingia (Phascoloides) procera** (MÖBIUS)

Stephen 1960, p.18 : Théel 1905, p.70, pl.2, figs.19-26 ; pl.3, figs.27,28 ; pl.13, fig.190.

Common in grab hauls in mud near rock edges, Newbiggin Pt., 20-30 fms. ; off Hauxley 55°18½'N 1°29½'W, 20 fms. ; and occasional specimens in offshore mud on the *Nephrops* ground, 35-50 fms. 1960-65 (J.B.B.).

**Phascolion strombi** (MONT.)

Stephen 1960, p.21, fig.14.

Common throughout the area in a variety of old gastropod and worm shells, but especially *Dentalium* and *Turritella*, 10-50 fms.

INITIALS

H.O.B. ...	...	...	H. O. Bull
J.B.B. ...	...	...	J. B. Buchanan

PRIAPULIDA, ECHIURIDA, SIPUNCULIDA

REFERENCES

- ALDER, J., 1850. President's address. March 1st, 1850. Trans.TynesideNat.Cl. 1(5) ; 311-26.
- CUÉNOT, L., 1922. Sipunculiens, Echiuriens, Priapulien. Faune de France 4. Paris : Lechevalier. pp.1-29.
- STEPHEN, A. C., 1960. British Echiurids (Echiuroidea), Sipunculids (Sipunculoidea) and Priapulids (Priapuloidea). Synopses Br. Fauna No. 12. 27p. (Linn. Soc.Lond.).
- THÉEL, H., 1905. Northern and Arctic Invertebrates in the Collections of the Swedish State Museum (Riksmuseum). I. Sipunculids. K. Svensk. Vetensk-Akad.Hand. 39(1) ; pp.1-130.

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3c

CHAETOGNATHA

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## Phylum CHAETOGNATHA Leuckart

### *Sagitta elegans* VERRILL

Fraser 1952, p. 7, pl. 1, figs. 1A, 1B : 1957, pp. 3 & 4, fig. 2.

Records are available for most years from 1921 to the present time, but they refer chiefly to collections made between April and October. Generally present and common at all depths ; more numerous on the whole in the easterly and northern areas of the region (Bainbridge 1963, Burton & Meek 1932, Fraser 1937, 1952, 1965, Marshall 1948, Meek 1923, 1924, 1928, Wimpenny 1937) : Also taken in plankton samples in estuaries of R. Tyne (Meek 1923), R. Coquet (Jorgensen 1924), and R. Tees (Alexander et al 1935).

BREEDING—Large mature males, entering or completing female phase, or spent, appear in spring and autumn (Meek 1928, Wimpenny 1937).

### *Sagitta setosa* J. MÜLLER

Fraser 1952, p. 7, pl. 1, figs. 2A, 2B : 1957, pp. 3 & 4, fig. 1.

Records are available as for *S. elegans* (same references). Since 1921 has been generally common at all depths throughout the area but less so than *S. elegans* : Also taken in estuary of R. Tees (Alexander et al 1935).

BREEDING—April, July ; planktonic ova maxima May and August (Wimpenny 1937).

### *Spadella cephaloptera* BUSCH

Fraser 1957, p. 4, fig. 18.

1, plankton net hanging in current, Inner Farnes, 23 Jun. 1904 (Meek 1904).

1, with hand net, rock pool, N. of Cullercoats bay 6 Feb. 1935 (H.O.B.) ;

1, in bottom sledge-net, 5 fms., Blyth bay 13 Jun. 1950 ; 1, 14 fms., Cambois bay 5 Jun. 1950 ; 1, 25 Apr. 1952 at same place (J.B.).

#### INITIALS

J.B. ... .. Jo Bossanyi

H.O.B. ... .. H. O. Bull

## CHAETOGNATHA

### REFERENCES

- ALEXANDER, W. B., SOUTHGATE, B. A., & BASSINDALE, R., 1935. Survey of the River Tees Part 2. The Estuary—Chemical and Biological. Tech.Pap. Wat.Pollut.Res.D.S.I.R. No. 5. pp.XIV,171. London: H.M.S.O.
- BAINBRIDGE, V., 1963. Continuous Plankton Records: Contribution towards a plankton atlas of the North Atlantic and North Sea. Part 8: Chaetognatha. Bull.mar.Ecol., 6(2); pp.40-51.
- BURTON, M. K. & MEEK, A., 1932. The Northumbrian species of *Sagitta*. Rep. Dove mar.Lab. n.s.21; pp.37-38.
- FRASER, J. H., 1937. The distribution of Chaetognatha in Scottish waters during 1936, with notes on the Scottish indicator species. J.Cons.perm.int.Explor.Mer. 12(3); pp.311-320.
- FRASER, J. H., 1952. The Chaetognatha and other zooplankton of the Scottish area and their value as biological indicators of hydrographical conditions. Mar.Res.1952(2); 52pp.
- FRASER, J. H., 1957. Chaetognatha. Fich.Ident.Zooplankton Sheet 1. (First revision). 6pp.
- FRASER, J. H., 1965. Zooplankton indicator species in the North Sea. In Webster, W. (Ed.) Serial atlas of the marine environment Fol.8.Amer.Geogr. Soc.
- JORGENSEN, O. M., 1924. Estuarine plankton of the River Coquet. Rep.Dove mar.Lab. n.s.13; pp.116-119.
- MARSHALL, N. B., 1948. Continuous plankton records: Zooplankton (other than Copepoda and young fish) in the North Sea. 1938-1939. Hull Bull.mar. Ecol. 2(13); pp.173-213.
- MEEK, A., 1904. The trawling experiments. Rep.N.Sea Fish.Invest.Comm.1904; pp.7-20 (p.18).
- MEEK, A., 1923. Plankton investigations, 1921-22. Chaetognatha. Rep. Dove mar.Lab. n.s.12; pp.135-6.
- MEEK, A., 1924. Plankton investigations, 1923. Chaetognatha. Rep.Dove mar. Lab. n.s.13; pp.103-110.
- MEEK, A., 1928. On *Sagitta elegans* and *Sagitta setosa* from the Northumbrian Plankton, with a note on a Trematode parasite. Proc.Zool.Soc.Lond. 1928; pp.743-76.
- WIMPENNY, R. S., 1937. The distribution, breeding and feeding of some important plankton organisms of the south-west North Sea in 1934. Part 1. *Calanus finmarchicus* (Gunn), *Sagitta setosa* (J. Müller) and *Sagitta elegans* (Verrill). Fishery Invest.Lond. ser.2, vol.15(3); pp.1-53.

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ECHINODERMATA

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## Phylum ECHINODERMATA

### Class CRINOIDEA

#### Order ARTICULATA

##### ANTEDONIDAE

#### **Antedon bifida** (PENNANT)

Mortensen 1927, pp.28-30, figs.13-16.

One specimen in summer 1841 from "deep water Embleton Bay" (Embleton 1843, as *Comatula rosacea*): Off Redcar "deep water, rare" (Ferguson 1860, as *Comatula rosacea*): Three specimens in 1864 off Dunstanburgh Castle "from a rocky ledge in about twenty-five fathoms" (Hodge 1872, as *Antedon rosaceus*): One specimen off Seaham 30 fms. (Hodge 1872, as *A. rosaceus*): Two arms dredged 6 miles east of Longstone 1912 (Storrow 1913).

Three specimens dredged 26 fms. Dunstanburgh Castle bearing W by N, 1925 (H.O.B.): One specimen, 12 miles E  $\frac{1}{2}$  N River Tyne, from a trawler 1934 (H.O.B.): One specimen from a crab pot, 25 fms. E.S.E. Blyth, 1950 (J.A.T.).

### Class ASTEROIDEA

#### Order PHANEROZONIA

##### ASTROPECTINIDAE

#### **Astropecten irregularis** (PENNANT)

Mortensen 1927, pp.57-58, fig.32.

Common on Northumberland coast (Embleton 1843, as *Asterias aurantiaca*): Off Seaham Harbour 6-25 fms. 1861 (Hodge 1863, as *A. aurantiaca*): "A considerable number" 25-30 fms., 70-80 miles east of Tynemouth (Brady 1863, as *A. aurantiaca*): Several from Berwick Bay 26-46 fms. and Durham coast 23-35 fms. 1863 (Hodge 1864, as *A. aurantiaca*): Frequent, Northumberland and Durham coast 1864 (Hodge 1867): "This species appears to be generally distributed along our coast . . . from moderately deep water (20-30 fms.)" (Hodge 1872).

Common on sand and muddy sand 15-35 fms. all along the coast (J.B.B.).

**Luidia sarsi** DÜBEN & KOREN

Mortensen 1927, p. 69, fig. 39b.

"Not very common", Berwick Bay (Johnston 1836, as *Asterias rubens*): Northumberland coast, "rare" (Embleton 1843, as *L. fragillissima*): Off Redcar "deep water, rare" (Ferguson 1860, as *L. fragillissima*): "This species occurred pretty plentifully . . . no specimens of the seven rayed form were met with"—25-30 fms., 70-80 miles east of Tynemouth 1862 (Brady 1863, as *L. savignii* Audouin): One specimen 46 fms. Berwick Bay; three specimens 35 fms. Durham coast 1863 (Hodge 1864): Northumberland and Durham coast "rather rare" 1864 (Hodge 1867): Occasionally taken by dredge at Seaham; common off Cullercoats 1866 from line fishing (Hodge 1872): Present S.E. of Crumstone 35 fms. 1912 (Storrow 1913).

One specimen 29 fms. W. of Coquet 1925; one specimen 28 fms. E.N.E. Blyth 1937; one specimen 29 fms. 5¼ miles E. Souter point 1938 (H.O.B.): The species has been taken frequently but in small numbers 1960-65 in dredge and trawl hauls from 20-40 fms. in the area of Newbiggin and Druridge Bay (J.B.B.).

BREEDING—The larva as "*Bipinnaria asterigera*" found in the plankton in September and early October 1926, 1927, 1929 (Meek 1930); early Oct. 1931 (H.O.B.): Newly metamorphosed young with remnants of *bipinnaria* attached in Oct. 1932 (H.O.B.).

**Luidia ciliaris** (PHILIPPI)\*

Mortensen 1927, p. 70, fig. 39a.

Present, Berwick Bay (Johnston 1836): The larval forms only 1926-27 (Meek 1930, as "*Bipinnaria asterigera*"): No recent records (J.B.B.).

\* The only 20th century records of this species are of the larval forms found by Meek in 1926-27 (Meek 1930) as "*Bipinnaria asterigera*". His collections contained both *Luidia sarsi* with five-armed starfish rudiments and *Luidia ciliaris* with seven arms. *Luidia fragillissima* Forbes contained both *L. ciliaris* (Phillipi) and *L. sarsi* Düben & Koren which were considered to be seven and five-armed varieties. Consequently, it is impossible to state with certainty which species is referred to in records before 1864 if the variety has not been noted. According to Forbes (1841) both the seven-armed and the five-armed species were collected by Johnston from Berwick Bay and indeed Johnston (1836) figures the seven-armed *Luidia ciliaris*, but under the name of *Asterias rubens*. This is the only apparently authentic record of the adult in this area.

**Hippasteria phrygiana** (PARELIUS)

Mortensen 1927, pp. 88-89, fig. 50.

One specimen "in bay eight miles south of Embleton" (Embleton 1843, as *Goniaster equestris*): "Large basketfull" from the Northumberland Nephrops ground, 40 fms. 1858 (Howse 1863, as *Goniaster equestris*): Frequent from "trawling boats, fishing in deep water far out to sea" (Hodge 1872, as *Goniaster phrygianus*): Common E. of Farne Islands 55°37¼'N, 1°18'W-1°2'W and 55°28'N-34'N, 0°36'W-0°50'W (S. S. Huxley 1909): Present 40 fms. S.E. Coquet (Storrow 1912).

Taken in small numbers from muddy grounds 10-15 miles E. of Blyth.

## PORANIIDAE

**Porania pulvillus** (O. F. MÜLLER)

Mortensen 1927, pp. 90-92, fig. 51.

One specimen, trawl, 24 miles N.E. by N. of Tyne 1939 (H.O.B.).

**Order SPINULOSA**

## ASTERINIDAE

**Anseropoda placenta** (PENNANT)Mortensen 1927, pp. 100-101, fig. 57 (as *Palmipes membranaceus*),

One specimen, E. of Farne Islands, collected on trawler, 1933 (H.O.B.).

## SOLASTERIDAE

**Solaster papposus** (L.)

Mortensen 1927, pp. 112-114, fig. 66(1) and 67.

Northumberland coast "common" (Embleton 1843): Off Redcar, "common" (Ferguson 1860): "Two or three small specimens from shallow water near Holy Island" 1862 (Brady 1863): Two from 26 fms. Berwick Bay 1863 (Hodge 1864): Frequent, Northumberland and Durham coast 1864 (Hodge 1867): "Often taken by dredge on the Durham coast 10-25 fms."; "Frequent between tide marks" on rocky shores (Hodge 1872).

Common in trawl hauls 1960-65 from southern half of Northumberland coast 20-40 fms. (J.B.B.); small specimens commonly on rock shores.

**Solaster endeca** (L.)

Mortensen 1927, pp.115-116, fig.68.

Northumberland coast "common" (Embleton 1843) : Off Redcar "deep water and occasionally Salt Scar" (Ferguson 1860) : Durham coast "frequent" 1864 (Hodge 1867) : Rather rare off Seaham" : Frequent from fishing lines off Cullercoats (Hodge 1872).

Common 20-30 fms. south Northumberland coast 1960-65 (J.B.B.).

BREEDING—Specimens have been observed to spawn in aquarium tank in May and June.

ECHINASTERIDAE

**Henricia sanguinolenta** (O. F. MÜLLER)\*

Mortensen 1927, pp.118-120, fig.70.

Northumberland coast "common" (Embleton 1843 as *Cribrella oculata*) : Off Redcar, West Scar Head (Ferguson 1860, as *C. oculata*) : One specimen 26 fms. Berwick Bay 1863 (Hodge 1864, as *Echinaster oculata*) : "A generally distributed species", between tide marks to 6 fms. Durham coast but deeper off Northumberland (Hodge 1872, as *Cribrella sanguinolenta*).

Common intertidally on rock shores but also found off Northumberland associated with the epifauna from offshore gravel 20-30 fms. (J.B.B.).

BREEDING—A brood protecting species. Five specimens out of twelve 12 Feb. 1933 low water St. Mary's were brooding eggs. The smallest "brooder" R=1.5 cm. Three out of twelve brooding same locality 28 Feb. 1933. Eggs extruded in aquarium tanks 30 Dec. 1933 and brooded till 10 Feb. 1934 (H.O.B.).

Order FORCIPULATA

STICHASTERIDAE

**Stichasterella rosea** (O. F. MÜLLER)

Mortensen 1927, p.136, fig.77.

"One fine specimen was obtained 25-30 fms. off Coquet Island" 1862 (Brady 1863, as *Uraster rosea*) : "A single specimen . . . taken in Beadnell Bay, some years ago, by Mr. Embleton" (Hodge 1872, as *Stichaster roseus*).

No recent records (J.B.B.).

\* In a recent paper, Rasmussen (1965) has made a case for re-adopting the three species of *Henricia* described by O. F. Müller (1776) whereas several authors are of the opinion that only one species—*Henricia sanguinolenta*—actually exists. If Rasmussen's contentions are accepted, both *Henricia perforata* (O. F. Müller) and *Henricia sanguinolenta* (O. F. Müller) occur on our coasts, although no attempt has been made to distinguish the two in the present list.

**Asterias rubens L.**

Mortensen 1927, pp. 139-141, fig. 79.

The early records are as *Uraster rubens* and *Uraster violacea*, which were regarded as two distinct species (Embleton 1863; Howse 1847; Ferguson 1860; Brady 1863; Hodge 1864), later as *Asterias rubens* and *Asterias violacea* (Hodge 1872), and finally combined as *Asterias rubens* (Meek & Storrow 1912; Storrow 1912).

Common all along the coast, intertidal to 50 fms. on gravel, sand and muddy sand (J.B.B.).

BREEDING—Successful artificial fertilisations in March and April.

**Leptasterias mulleri (M. Sars)**

Mortensen 1927, pp. 141-143, figs. 80 and 81(1)

(According to Norman (1865) the species recorded by Brady (1863) and Hodge (1864) as *Uraster glacialis* was in fact *Leptasterias mulleri*).

A few specimens 15 fms. 10 miles east of Tynemouth 1862 (Brady 1863, as *Uraster glacialis*): Three specimens 35 fms. Durham coast 1863 (Hodge 1864, as *Uraster glacialis*): Four specimens dredged off Holy Island, 30 fms. 1906 (Tesché 1096, as *Asterias mulleri*).

No recent records (J.B.B.).

**[Marthasterias glacialis (L.)]**

Mortensen 1927, pp. 143-145, fig. 82.

According to Mortensen (1927) this species is not recorded from the British North Sea coasts. The record of Tesché 1906 from 30 fms. off Holy Island refers to a single juvenile specimen and should be regarded with reservation until confirmatory material is obtained.

## Class OPHIUROIDEA

## Order OPHIURAE

## OPHIOTRICHIDAE

**Ophiothrix fragilis (Abildgaard)**

Mortensen 1927, pp. 174-176, fig. 98.

Northumberland coast, "common" (Embleton 1843, as *Ophiocoma rosula*): Off Redcar "common" (Ferguson 1860, as *O. rosula*): Off Seaham Harbour 25 fms. 1861 (Hodge 1863, as *O. rosula*): "Common", Farne Islands 13-17 fms.; Berwick Bay 26-46 fms.; Durham coast

23-35 fms. 1863 (Hodge 1864, as *O. rosula*): "It is very abundant on the rocky portions of our coast . . . low water to 35 fms. and even deeper": On Durham coast associated with *Alcyonium digitatum* 20-25 fms. (Hodge 1872).

Common intertidally on stony beaches and on stony or gravelly grounds offshore 10-40 fms. Particularly common in the Holy Island channels, L.W.S.T. (J.B.B.).

#### OPHIOCOMIDAE

##### **Ophiocomina nigra** (ABILDGAARD)

Mortensen 1927, pp.178-179, fig.83 and 100.

Northumberland coast, "common" (Embleton 1843, as *Ophiocomina granulata*): Off Redcar, "rare" (Ferguson 1860, as *O. granulata*): Several from 13 fms. Farne Islands 1863 (Hodge 1864, as *O. granulata*): "Partial in distribution" 1864 (Hodge 1867, as *Ophiocomina nigra*): Very common off Dunstanburgh on rough ground "about three miles off the castle" (Hodge 1872, as *Ophiocomina nigra*):

Abundant off the Farne Islands and in the region of Seahouses—Dunstanburgh 1929-39 (H.O.B.): Abundant in same region 1962-63 (J.B.B.).

#### OPHIACTIDAE

##### **Ophiactis balli** (THOMPSON)

Mortensen 1927, pp.200-202, fig.112.

One specimen "from a mass of corallines and stones from deep water in Embleton Bay 1842 (Embleton 1843, as *Ophiocomina goodsiri*): Several "from recesses in stones 7-8 miles east of Tynemouth"; "Some off Berwick" 1862 (Brady 1863, as *O. goodsiri*): "Frequent", Farne Islands 13-17 fms.; Berwick Bay 26-46 fms.; Durham coast 23-35 fms. 1863 (Hodge 1864, as *O. goodsiri*): "Very frequent", Northumberland and Durham coast 1865 (Hodge 1867, as *Amphiura balli*): "Very common all along our coast in 10-20 fms., usually inhabiting the crevices and holes of stones . . . : On the Durham coast, the perforated magnesian limestone from deep water contains large numbers" (Hodge 1872, as *A. balli*): Present, 8 miles E. by S. Cullercoats, 32 fms. 1911 (Meek & Storrow 1912).

Two specimens in Filograna sp. S.E. of Farne Islands 1933 (H.O.B.): Very common in magnesian limestone and clinker 20-30 fms. off Druridge Bay 1960-65 (J.B.B.).

**Ophiopholis aculeata** (L.)

Mortensen 1927, pp. 204-206, fig. 116.

Northumberland coast, "common" (Embleton 1843, as *Ophiocoma bellis*): Off Redcar, "rare" (Ferguson 1860, as *Ophiocoma bellis*): Farne Islands 13-17 fms.; Berwick Bay 26-46 fms.; Durham coast 23-35 fms.—"One or two from each locality" 1864 (Hodge 1867, as *O. bellis*): "Off Dunstanburgh 25 fms., frequent": "Its usual habitat . . . . 15-30 fms. on a rough bottom . . . associated with *Ophiothrix fragilis* and *Amphiura ballii* . . . ." (Hodge 1872): Present, 8 miles E. by S. Cullercoats, 32 fms. 1911 (Meek & Storrow 1912).

One specimen on clinker 18 fms. 2 miles E. St. Mary's Island; 3 specimens on clinker 20 fms. 2 miles E. Marsden Rock; several on clinker 2 miles E. by S. of Souter Point 1932 (H.O.B.): Nine specimens, S.E. Farne Islands in colony of *Filograna* 1933 (H.O.B.): Two specimens, under whinstone boulders L.W.S.T., south end of Embleton Bay 1948 (H.O.B.): Common, 20-30 fms. associated with stones and gravel 1960-65 (J.B.B.).

AMPHIURIDAE

**Amphiura chiajei** FORBES.

Mortensen 1927, pp. 212-213, figs. 117 and 120 (1 and 2).

Two or three specimens, 25-30 fms. off Seaham 1862 (Hodge 1864) Northumberland and Durham coasts, "rather rare" 1864 (Hodge 1867).

Common, 30-50 fms., 8-20 miles offshore Northumberland and Durham coast 1960-65 (J.B.B.): Present at a density of 13-15 per m<sup>2</sup>, 10 miles E. of Blyth 1961-63 (J.B.B.).

BREEDING—Successful fertilisation 25 Sep. 1933 (H.O.B.).

**Amphiura filiformis** (O. F. MÜLLER)

Mortensen 1927, pp. 214-215, fig. 120 (3-5).

Present 7 miles off Seaham Harbour 25 fms. 1861 (Hodge 1863, as *Ophiocoma filiformis*): Berwick Bay and Durham coast, "several from 35-46 fms." 1863 (Hodge 1864, as *Ophiocoma filiformis*): "Frequent", Northumberland and Durham coasts 1864 (Hodge 1867): "This species is generally distributed along our coast, and in considerable numbers" (Hodge 1872).

Very common, up to 400 per m<sup>2</sup>, on sand and muddy sand from 20-40 fms. along most of the coast (J.B.B.).

BREEDING—July.

**Acrocrida brachiata** (MONTAGU)

Mortensen 1927, pp. 218-219, fig. 123.

Six specimens, from muddy sand in 20 fms., 2 miles E. of Tyne-mouth 1962; no specimens found 1963-65 (J.B.B.).

**Amphipholis squamata** (DELLE CHIAJE)

Mortensen 1927, pp. 221-22, fig. 125. (1-2).

Northumberland coast, "rare" (Embleton 1843, as *Ophiocoma neglecta*): "Common between tide marks, under stones . . . also occurred from 20-30 fms." (Hodge 1872, as *Amphiura elegans*).

Abundant intertidally beneath stones and in *Cladophora* etc. in rock pools along the coast in most localities (H.O.B.).

OPHIOLEPIDAE

**Ophiura texturata** LAMARCK

Mortensen 1927, pp. 236-238, fig. 128 (3-4).

Northumberland coast, "frequent" (Embleton 1843): Taken from 30 fms., 30 miles off the south Northumberland coast (King 1846): Two or three specimens from sandy bottom in 60 fms., 50 miles off Durham coast 1846 (Howse 1847): Taken, 7 miles off Seaham Harbour in 25 fms. 1861 (Hodge 1863): Several from Berwick Bay 26-40 fms. and Durham coast 23-35 fms. 1863 (Hodge 1864): "Frequent in deep water", Northumberland coast (Hodge 1867, as *O. lacertosa*): "Frequently brought up by dredge . . . usually from sandy bottom. Immature forms in shallow water 6-15 fms . . . mature forms in deep water 20-46 fms." (Hodge 1872, as *Ophiura lacertosa*): Common, 55°40'—44°N, 0°18'W, 35 fms., sand 1905 (S. S. Huxley).

Single specimens from 3 miles E. of Blyth 1921; 29 fms. off Newbiggin 1934; 3¼ miles E. Souter Point in 24 fms. 1938 (H.O.B.): Twenty-eight specimens from beam trawl Cambois Bay in 20 fms. 1948 (J.A.T.): Very common in Cambois Bay, Newbiggin and Druridge Bay 20-30 fms. 1960-65; several juvenile specimens from intertidal sand Newton Haven 1965 (J.B.B.).

**Ophiura albida** FORBES

Mortensen 1927, pp. 239-240, fig. 128 (5-6).

Northumberland coast, "not common" (Embleton 1843): Present 7 miles off Seaham Harbour in 25 fms. 1861 (Hodge 1863): Several small specimens from Berwick Bay 40-55 fms. 1862 (Brady 1863): Common, Farne Islands 13-17 fms.; Berwick Bay 26-46 fms.; Durham coast 23-35 fms. 1863 (Hodge 1864): "Very common", Northumber-



land and Durham coast dredging 1864 (Hodge 1867) : "It is by far the commonest of the sand stars, 6-20 fms." (Hodge 1872).

The species has been recorded by the laboratory many times 1911-65 mainly from muddy sand 20-30 fms. from the Durham and south Northumberland coast : It is particularly abundant in the muddy sand at 20 fms. all round Newbiggin Point (J.B.B.).

### **Ophiura robusta** AYRES

Mortensen 1927, pp. 242-243, fig. 131 (1-2).

"Rare, a few specimens from 46 fms." Berwick Bay 1863 ; also taken at Cullercoats and at Seaham (Hodge 1864, as *Ophiura squamosa*)

Twenty-two specimens from a colony of *Filograna* taken S.E. of the Farne Islands 1933 (H.O.B.) : Locally common in association with *Haploops tubicola*, 20-25 miles E. of Blyth, 35-40 fms., 40-50 per m<sup>2</sup>, (J.B.B.) : Two specimens by grab 2 miles E. Crumstone, 25 fms. (J.B.B.).

### **Ophiura affinis** LÜTKEN

Mortensen 1927, pp. 244-245, fig. 132.

Seaham on a sandy bottom 6-25 fms. 1862 (Hodge 1863, as *Ophiura normani*) : Frequent, Farne Islands 13-17 fms. and Berwick Bay 24-46 fms. 1863 (Hodge 1864) : Commonly dredged, Northumberland and Durham coast 1864 (Hodge 1867) : "Durham coast, 6-25 fms., common" (Hodge 1872).

One specimen 19 miles E. of Alnmouth, 45 fms. and one specimen 22 miles E. of Tyne, 35 fms. 1961 (J.B.B.) : This species although apparently common in the mid-19th century must now be considered rare (J.B.B.).

## Class ECHINOIDEA

### Order ECHINOIDA

#### ECHINIDAE

### **Psammechinus miliaris** (GMELIN)

Mortensen 1927, pp. 294-295, fig. 166.

Present at Redcar, West Scar (Ferguson 1860, as *Echinus miliaris*) : "A few specimens . . . off Coquet Island" 1862 (Brady 1863, as *Echinus miliaris*) : "Several" from 24-46 fms. Berwick Bay 1863 (Hodge 1864, as *Echinus miliaris*) : Northumberland coast "common" 1862-64 ; Durham coast "common" 1864 (Hodge 1867, as *Echinus miliaris*) : "Frequently taken by dredge . . . Northumberland and Durham coast (Hodge 1872, as *Echinus miliaris*) :

Two specimens between Inner Farnes and Bamburgh castle 1912 (H.O.B.): Two specimens N. side Blyth Harbour entrance in Laminaria zone 1946 (H.O.B.): Between tide-marks, a few can generally be found under stones L.W.S.T., St. Mary's, Blyth Harbour, Boulmer; but less common elsewhere (H.O.B.): Common on offshore gravel 20-30 fms. south Northumberland coast (J.B.B.).

### **Echinus esculentus L.\***

Mortensen 1927, pp. 297-299, fig. 168.

"Taken by lobster fishermen off Newton" (Wallis 1769, as "The great subglobose Echinus"): Northumberland coast "very common" (Embleton 1843, as *Echinus sphaera*): Present at Redcar, West Scar (Ferguson 1860, as *E. sphaera*): Several young specimens in "Laminaria Zone off Holy Island (Brady 1863, as *E. sphaera*): "Very common in 13 fms.", Farne Islands and Berwick Bay 1863 (Hodge 1864, as *E. sphaera*): Common, Northumberland coast 1862-1864 (Hodge 1867): Present, N. of Pinnacles and S.E. of Holy Island 14 fms. 1911 (Meek & Storrow 1912). "Plentiful on the local rocks during July" 1920 (Storrow 1921).

Very common intertidally St. Mary's Island in spring and early summer, less common at Cullercoats; Rare intertidally, Durham coast and north Northumberland coast (J.B.B.): Very common in shallow water 5-15 fms. on hard ground all along the coast; rarer in deeper water (J.B.B.).

BREEDING—Successful artificial fertilisation usually possible in May.

\* [Two distinct varieties of *Echinus* are found on the Northumberland coast:—The first occurs from intertidally to a depth of 15 fms. It has a thick low test, robust spines and the colouration is in shades of purple and blue. The second variety occurs around the rock edges 20-25 fms. at the Farne Islands, off Hauxley, Newbiggin and St. Mary's Island. It has a thin light test which is high compared with the diameter, slender spines and the colouration is in shades of brick red, green and yellow (J.B.B.).]

Depth (fms)	Height Diameter	Weight (g.) Volume (ml.)	Colour	Spines
20-25	0.8	0.15	Brick-red/green-yellow	Slender; colourless
0-15	0.68	0.18	Purple-blue	Robust; purple-tipped

**Echinus acutus** LAMARCK

Mortensen 1927, pp. 300-302, fig. 170.

East of the Farne Islands 55°37'N 1°18'W 1904 (S. S. Huxley)  
No recent records (J.B.B.).

STRONGYLOCENTROTIDAE

**Strongylocentrotus dröbachiensis** (O. F. MÜLLER)

Mortensen 1927, pp. 313-314, fig. 181.

"A large number" dredged inside the Farne Islands 13 fms. 1863 (Hodge 1864, as *Echinus neglectus*): Large numbers, "as many as 41 specimens being taken in one haul", between Inner Farne and Bamburgh Castle 1912 (Storrow 1913).

Four specimens from same locality 11 fms. 1912 (H.O.B.): Three specimens same locality 1962 (J.B.B.).

**Order CLYPEASTROIDEA**

FIBULARIIDAE

**Echinocyamus pusillus** (O. F. MÜLLER)

Mortensen 1927, pp. 316-317, fig. 182.

Northumberland coast, "frequent" (Embleton 1843): Present, 7 miles off Seaham Harbour 25 fms. 1861 (Hodge 1863): Abundant 25-30 fms. 1862 (Brady 1863): "Several from 26-46 fms. Berwick Bay and Durham coast 23-35 fms. 1863 (Hodge 1864): "Common from deep water all along our coast (Hodge 1872): Single specimens, 55°27'N 0°16'W, 35 fms. (Davis 1925).

Common, 2½ miles E. of Dunstanburgh Castle 1912; common in sand "just off rock edges, Cullercoats" (H.O.B.): Common in sand and fine gravel 25-30 fms. all along Northumberland coast (J.B.B.).

**Order SPATANGOIDEA**

SPATANGIDAE

**Spatangus purpureus** O. F. MÜLLER

Mortensen 1927, pp. 328-329, fig. 190.

One specimen, Northumberland coast, 1842 (Embleton 1843): Present 30 miles off S. Northumberland coast 1845 (King 1846): Abundant on sandy bottom 60 fms. 50 miles E. of the Durham coast 1846 (Howse 1847): Present 7 miles off Seaham Harbour 25 fms. 1861 (Hodge 1863): "Very abundant" 25-35 fms. 50-80 miles E. of Tyne-mouth 1862 (Brady 1863): "Several" from 35-46 fms. Berwick Bay and Durham coast 1863 (Hodge 1867): ". . . great quantity got dead at Alnmouth Bay, 7 Jul., in every haul of the trawl, and again in much

less quantity at Cambois Bay, on 14 Jul., (Meek 1897): Common, E. of Farnes 55°28'N—34°N 0°W—0°50'W 1904 (S. S. Huxley): One specimen 55°29'N 0°7'W 42 fms. 1923 (Davis 1925).

One specimen 3 miles E. of Dunstanburgh Castle, 1912; one specimen 29½ fms. 7 miles E. of Blyth, 1913; one specimen, N.E. Bank from trawler 1935 (H.O.B.): Several specimens, 1960-65 from fine gravel and sand all along the coast 25-35 fms., but more common in the northern parts of the Northumberland coast (J.B.B.).

#### **Echinocardium cordatum** (PENNANT)

Mortensen 1927, pp.331-334, fig.194 (1-2).

Many washed up dead specimens on the coast S. of Alne river (Wallis 1769, as "*Echinus marinus deppressus cordatus*"): "Very plentiful", Northumberland coast (Embleton 1843, as *Amphidotus cordatus*): Present, 30 miles off S. Northumberland coast 30 fms. 1845 (King 1845, as *A. cordatus*): Present in "deep water" off Redcar (Ferguson 1860, as *A. cordatus*): Present 7 miles off Seaham Harbour 25 fms. 1861 (Hodge 1863, as *A. cordatus*): Two specimens, Durham coast 23-35 fms. 1863 (Hodge 1864, as *A. cordatus*): Very common "on some sandy portions of our coast" (Hodge 1872): Fifty small specimens, 2 miles off Marsden 10 fms. (Brady 1872).

Several specimens from mouth of the Wansbeck river 1933 (H.O.B.); One specimen at mouth of River Waren 1933 (H.O.B.); Four specimens N.E. St. Mary's Island 10 fms. 1935 (H.O.B.); Three specimens from Blyth sands 1936 (H.O.B.); Abundant, Embleton Bay 1947 (H.O.B.): Common, Embleton Bay 1958-65 (J.B.B.); Common 20-30 fms. in muddy sand off the south Northumberland coast, up to 30 per m<sup>2</sup>, but patchy in distribution 1958-65 (J.B.B.).

#### **Echinocardium flavescens** (O. F. MÜLLER)

Mortensen 1927, pp.334-335, fig.194 (3).

Present, 7 miles off Seaham Harbour 25 fms. 1861 (Hodge 1863, as *Amphidotus roseus*): "In considerable numbers" 25-35 fms. 50-80 miles off Tynemouth 1862 (Brady 1863, as *A. roseus*): "Several" from 35-46 fms. Berwick Bay and Durham coast 1863 (Hodge 1864, as *A. roseus*): "Very common" Northumberland and Durham coast 1864 (Hodge 1867, as *E. ovatum*): Common in dredgings from 15-35 fms. (Hodge 1872, as *E. ovatum*): Present 8 miles E. by S. of Cullercoats 32 fms. 1911 (Meek & Storrow 1912): Nine specimens 55°25'N 0°26'W 36 fms. (Davis 1925).

Commonly replaces *E. cordatum* in deeper water all along the coast 30-45 fms. (J.B.B.).

**Echinocardium pennatifidum** NORMAN

Mortensen 1927, pp. 335-337, fig. 198.

One specimen from Berwick Bay 1864 (Hodge 1867):

There are no other authentic records of this species from the Northumberland and Durham coasts. The records of Meek (1902) where "several" specimens were dredged in Cambois Bay, Druridge Bay and Alnmouth Bay must be regarded with reservation and may represent wrongly identified *E. flavescens* which is moderately common in these areas (J.B.B.).

**Brissopsis lyrifera** (FORBES)

Mortensen 1927, pp. 338-340, fig. 200.

Present, 7 miles off Seaham Harbour 25 fms. 1861 (Hodge 1863, as *Brissus lyrifer*): "Pretty plentiful" 25-35 fms. 50-80 miles off Tyne mouth 1862 (Brady 1863, as *Brissus lyrifer*): "Several" from 35-46 fms. Berwick Bay and Durham coast 1863 (Hodge 1864): "Frequent in deep water" Northumberland and Durham coast 1864 (Hodge 1867): Abundant E. of Farne Islands 55°37' N 1°18' W and common 55°28'—34°N 0° 36'—0°50' W 1904 (S. S. Huxley): One specimen 55°16' N 1° 3' W 49 fms. (Davis 1925).

Eleven specimens 10 miles E. River Tyne 37 fms. 1935 (H.O.B.): Common in sandy mud 35-50 fms. all along the coast (J.B.B.).

Class HOLOTHURIOIDEA

Order DENDROCHIROTA

CUCUMARIIDAE

**Cucumaria elongata** DÜBEN & KOREN

Mortensen 1927, pp. 399-400, fig. 237 (2).

Two specimens from fishing boats working in deep water 1857 (Alder 1860): "Two or three" from 35 fms. Durham coast 1863 (Hodge 1864): "Rather rare" Northumberland coast 1864 (Hodge 1867): . . . a few specimens when dredging off Holy Island and again off Seaham (Hodge 1872).

Very common in mud and muddy sand 15-25 fms. all along the coast but patchy in distribution; may reach densities greater than 30 per m<sup>2</sup> (J.B.B.).

**Cucumaria lactea** (FORBES)

Mortensen 1927, pp.402-403, figs.237(1) and 241(3).

One specimen, Northumberland coast, 1862 (Brady 1863, as *Ocnus lacteus*): "Rather rare", Northumberland coast, 1864 (Hodge 1867): "Two or three" small specimens from Seaham (Hodge 1872): Present, 8 miles E. by S. of Cullercoats 32 fms. 1911 (Meek & Storrow 1912).

Five specimens in Filograna from S.E. of Farne Islands 1933 (H.O.B.): One specimen  $5\frac{1}{2}$  miles E. Cullercoats 28 fms. 1960; found commonly associated with hydroids and other epifaunistic growths on rock or gravel bottom (J.B.B.).

**Thyone fusus** (O. F. MÜLLER)

Mortensen 1927, pp.406-407, fig.244.

Several small specimens, Northumberland coast, 1862 (Brady 1863): Two specimens from Durham coast 35 fms. 1863 (Hodge 1864): "Rare" Northumberland coast, 1864 (Hodge 1867, as *Thyone flexus*): "Frequent", Northumberland and Durham coasts 1864 (Hodge 1867).

Common on stones and gravelly sand 20-40 fms. (J.B.B.).

**Thyone raphanus** DÜBEN & KOREN

Mortensen 1927, pp.407-408, fig.242 (2).

One specimen from 46 fms. Berwick Bay and one from 35 fms. Durham coast 1863 (Hodge 1864): "Rather rare", Northumberland coast 1864 (Hodge 1867).

Common in cleaner sand and gravelly sand 20-40 fms. all along the Northumberland coast (J.B.B.).

**Thyonidium pellucidum** (FLEMING)

Mortensen 1927, pp.411-412, fig.250.

"Several specimens . . . off Berwick, adhering to stones and to the surface of dead shells" 1862 (Brady 1863): A single specimen from Northumberland coast 1864 (Hodge 1872, as *T. hyalinum*).

No recent records (J.B.B.).

PSOLIDAE

**Psolus phantapus** (STRUSSENFELT)

Mortensen 1927, pp.415-417, fig.251.

"A few young specimens", 50 fms. 60 miles E. of Sunderland 1845 (King 1846): One small specimen 25-30 fms. Berwick Bay 1862 (Brady 1863).

One large specimen 40 miles E.  $\frac{1}{2}$  N. of Tyne 1934; three specimens North-east Bank 1935 (H.O.B.).

## Order APODA

SYNAPTIDAE

### **Leptosynapta inhaerens** (O. F. MÜLLER)

Mortensen 1927, pp. 427-429, fig. 261.

Two specimens dug at L.W.S.T. south end of Newton Haven 1947 ; Ten specimens dug at L.W.S.T. behind Emblestone 1948 ; common in gravelly clay on the beaches in front and on either side of Holy Island Castle (H.O.B.): One specimen, 32 fms. 55°15'N 1° 18'W sandy gravel 1964 (J.B.B.).

### **Leptosynapta bergensis** (OSTERGRÉN)

Mortensen 1927, pp. 429-430, fig. 262 (1).

A fragment from 14 miles E.N.E. Tyne 1936 (H.O.B.): Very common in muddy sand and mud throughout the area 1958-65 (J.B.B.).

#### INITIALS

H.O.B.	...	...	...	H. O. Bull
J.A.T.	...	...	...	J. A. Thompson
J.B.B.	...	...	...	J. B. Buchanan

## ECHINODERMATA

#### REFERENCES

- ALDER, J., 1860. Notice of the occurrence, on this coast, of a holothurian (*Cucumaria elongata*) new to Britain. *Trans. Tyneside Nat. Fld. Club* 4; pp. 43-4.
- ANON. (S. S. HUXLEY), 1909. Trawling Investigations 1904-05. *Rep. N. Sea Fish. Invest. Comm.* 2(2); pp. 114-278.
- BRADY, G. S., 1863. Report on the Echinodermata (Dredging Expdn. 1862). *Trans. Tyneside Nat. Fld. Club* 5; pp. 283-7.
- BRADY, G. S., 1872. *Echinocardium cordatum*. *Nat. Hist. Trans. Northumb.* 4; p. 513.
- DAVIS, F. M., 1925. Quantitative studies on the fauna of the sea bottom—No. 2. Results of investigations in the southern North Sea, 1921-24. *Fishery Invest., Lond.* ser. 2, 8(4).
- EMBLETON, 1843. Note on the occurrence of Echinodermata in Northumberland. *Zoologist* 1; p. 275.
- FERGUSON, D., 1860. The natural history of Redcar and its neighbourhood. London: Simpkin, Marshall & Co. Redcar: J. H. Webster. pp. vi, 128. 8°.
- FORBES, E., 1841. A history of British starfishes and other animals of the class Echinodermata. London: John Van Voorst. pp. xx, 267. 8°.
- HODGE, G. 1863. On a new sand-star of the genus *Ophiura* (*Ophiura Normani*) found on the coast of Northumberland and Durham. *Trans. Tyneside Nat. Fld. Club* 5; pp. 296-7.

- HODGE, G., 1864. Report on the Echinodermata (Dredging Expdn. 1863). *Ibid.* 6; pp.189-91.
- HODGE, G., 1867. Reports on the Echinodermata (Dredging Expdns. 1862-4). *Nat.Hist.Trans.Northumb.* 1; pp.42-45.
- HODGE, G., 1872. Catalogue of the Echinodermata of Northumberland and Durham. *Ibid.* 4; pp.120-150.
- HOWES, R., 1847. Notes on a dredging excursion off the coast of Durham. *Ann. Mag.nat.Hist.* 19(125); pp.160-4.
- HOWSE, R., 1863. *Goniaster equestris* and *Nephrops norwegicus*. *Trans.Tyneside Nat.Fld. Club* 2; pp.59-60.
- JOHNSTON, G., 1836. Illustrations in British zoology. *Mag.nat.Hist.(Loudon's)* Ser.1. 9(59); pp.144-7.
- KING, W., 1846. An account of some shells and other invertebrate forms found on the coast of Northumberland and Durham. *Ann.Mag.nat.Hist.* 18(119); pp.233-51.
- MEEK, A., 1902. The trawling excursions (General results). *Rep.N.Sea Fish. Invest.Comm.* pp.7-32.
- MEEK, A., 1930. Further notes on *Bipinnaria asterigera* from the Northumberland plankton. *Proc.zool.Soc.Lond.* pp.355-6.
- MEEK, A., & STORROW, B., 1912. Biological investigations. *Rep.Dove mar. Lab.* n.s.1; pp.61-70.
- MORTENSEN, T., 1927. Handbook of the Echinoderms of the British Isles. London: Oxford. Univ.Press.
- MÜLLER, O. F., 1776. *Zoologiae Danicae Prodrromus*. Havniae. pp.xxxii,282. 8°.
- NORMAN, A. M., 1865. On the genera and species of British Echinodermata. *Ann. Mag.nat.Hist.* ser.3. 15(86); pp.98-129.
- RASMUSSEN, B. N., 1965. On taxonomy and biology of the North Atlantic species of the asteroid genus *Henricia* Gray. *Meddr Danm.Fisk.-og Havunders* n.s.4; pp.157-213.
- STORROW, B., 1912. Material collected by B. Storrow during July and August of 1911, when on board trawlers fishing on the local prawn ground, together with catches of edible fish then made. *Rep.Dove mar.Lab.* n.s.1. pp. 68-70.
- STORROW, B., 1913. Faunistic Notes. *Ibid.* 2; p.99.
- STORROW, B., 1921. Faunistic Notes. *Ibid.* 10; p.111.
- TESCHE, J. J., 1906. Echinodermata verzameld met de "Wodan" 1902-1906 voor J. J. Tesch. *Jaar.Rijksinst.Onderz.Zee.* 1905; pp.76-88.
- WALLIS, J., 1769. The Natural History and Antiquities of Northumberland and of so much of the County of Durham as lies between the Rivers Tyne and Tweed. Vol. 1 pp.xxvii, 438 (Chap. 11 "Of Fishes" (includ. whales and shellfish), pp.376-404).



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