LEPIDOPTERA 1976

Large White Pieris brassicae. From 1st June.
Small White Pieris rapae. From 18th April.
Green-veined White Pieris napi. 23rd June.
Grayling Eumenis semele. From 23rd June.
Small Heath Coenonympha pamphilus. From 7th June.
Small Heath Coenonympha pamphilus. From 21st June.
Ringlet Aphantopus hyperantus. From 1st July.
Red Admiral Vanessa atalanta. From 10th May to 16th October.
Painted Lady Vanessa cardui. 23rd June to 16th October.
Peacock Nymphalis io. From 16th April.
Small Tortoiseshell Aglais urticae. From 10th May.
Common Blue Polyommatus icarus. From 25th May, abundant 21st June.
Clouded Yellow Colias crocea. 7th August.
Convolvulus Hawk Moth Macroglossum stellatarum. 23rd June to 4th October, 30th June, 13 max.
Silver Y Plusia gamma. 4th July.
Ruby Tiger Phragmatobia fuliginosa. 15th June.
Small Angle-shades Euplexia lucipara. A worn specimen on 23rd April.
Marbled Coronet Hadena conspersa. 22nd May.

Early Thorn Selenia bilunaria. 7th April.

CETACEA and SHARKS

Bottle-nosed Dolphin Tursiops truncatus. 3rd August, 120, including two almost white specimens.

Basking Shark Cetorhinus maximus. The first one was seen on 6th July and singles almost every day in August with three on 23rd.

Rep. Lundy Fld. Soc., 27 (1976)

THE MARINE FAUNA OF LUNDY

BRYOZOA

P. J. HAYWARD

Department of Zoology, University College, Swansea

INTRODUCTION

Bryozoans are often a conspicuous and dominant part of marine ecosystems. They occupy a diverse range of littoral and sublittoral habitats and characteristic communities are associated with the undersides of boulders on exposed rocky shores, with damp crevices and shaded overhangs, with intertidal algae and with the holdfasts of kelp plants. Bryozoan colonies exhibit a correspondingly wide diversity of form, occurring as encrusting sheets, gelatinous or fleshy lobes, delicate branched tufts and spirals, and rigid, erect coral-like growths. The massive honeycomb colonies of *Pentapora* are familiar to many divers. Many species are easily confused with hydroids and may be overlooked in the sorting of collections. Despite their abundance, few species figure prominently in the reports of marine surveys, an omission perhaps attributable to the difficulties of identification and the scarcity of useful literature. Only eight species of bryozoa were recorded from Lundy by Professor Harvey (1950, 1951) and yet, in common with other south western areas studied, the island has a rich and varied bryozoan fauna.

SOURCES OF MATERIAL

The collections made by divers participating in the various marine surveys between 1970 and 1971 produced considerable bryozoan material. Some species were collected or observed during the course of diving operations, others were retrieved from samples of other material, such as hydroids. Large numbers were sorted from the quantitative samples of rock surface communities collected by K. Hiscock. Much material was also collected by staff and research students of the Zoology Department, University College, Swansea, during research trips to Lundy aboard the R.V. *Ocean Crest* in July 1971, January and July 1973 and July 1974. The 1971 samples included specimens collected by divers along the east coast of the island, the rest consisted of dredged material, encrusting shell and stone, from the west and east coasts.

THE LUNDY FAUNA

The Lundy survey produced records of 104 species of bryozoa, presenting a reasonably comprehensive account of the bryozoan fauna. Several characteristic intertidal species are missing from the list, for example *Cribrilina cryptooecium* and *Cauloramphus spiniferum*. This is almost certainly due to the emphasis placed on diving during the surveys, and with further shore collecting both of these species, and a very few others, may be expected to occur. Similarly, the number of Ctenostome and Cyclostome species will increase as the work of the field society continues; many of these are inconspicuous animals and, besides, may be restricted in distribution by narrow environmental tolerances. The incidence of some of the rarer species is usually dependent on the amount of time spent on the sorting of samples.

Of the 78 cheilostome species recorded, 58 (73%) occur also in the Mediterranean. Of these, 21 are widely distributed in temperate waters around the world. The rest range from the Mediterranean along the southern and western shores of the British Isles, most reaching Scotland and the Shetland Isles, and a proportion occurring also in the North Sea. This is not, therefore, to be considered a southern, or warm temperate, fauna; with one possible exception, noted below, none of the species listed approaches the northern limit of its distribution at Lundy. For several species this limit seems to be reached at the Channel Isles (for *Calpensia nobilis*) or the Isles of Scilly (for *Turbicellepora magnicostata* and *Watersipora complanata*).

Three little known bryozoans are included in the list, viz. Callopora discreta, Ammatophora nodulosa, Smittina affinis. The first was redescribed by Balavoine (1958) from specimens collected in the Dinard-St. Malo area, A. nodulosa was reported from Guernsey by Norman (1903) but S. affinis does not seem to have been found since its original description. A fourth species, Mimosella verticillata, is reported for the first time from British waters. Such interesting records as these reflect the value of intensive programmes of work carried out over a number of vears in a relatively limited area.

THE LIST

The introduction to this series (Hiscock, 1974) includes a list of abbreviations and terms and a map showing the location of sites.

The list includes specimens collected or observations and identifications made by N. K. Cooper (NKC), P. J. Hayward (PJH), K. Hiscock (KH), D. J. W. Lane (DJWL), J. E. Stebbing (JES) and J. B. Markham (JBM).

There is no comprehensive modern work on the British marine Bryozoa and Hincks' (1880) monograph remains the standard text. Although this continues to be an invaluable reference for the specialist, it is often difficult in use and is not readily available to the amateur. In the following list a reference is given, for each species, to an adequate description or illustration in the most recent work available, although Hincks remains the only source in certain cases. The systematic arrangement follows that adopted by the Plymouth Marine Fauna (Marine Biological Association, 1957). Nomenclature is according to Ryland, 1969.

Phylum BRYOZOA

Order CHEILOSTOMATA

Family AETEIDAE Aetea anguina (Linnaeus, 1758) [Prenant & Bobin, 1966, p. 80]

Seals Hole, Aug. 1970, on *Scrupocellaria*; SSE of Rat Island (51°8.9'N, 4°37.5'W), 49 m, abundant on *Cellaria*, July 1973; due S of Lee Rocks (51°8.7'N, 4°39.5'W), 47 m, on rock, July 1973; SSW of Black Rock (51°8.9'N, 4°41.8'W), 32 m, on *Scrupocellaria*, July 1973; NW Bank (51°11.5'N, 4°42.4'W), 16 m, on hydroids, July 1973; off Hen & Chickens (51°13'N, 4°42.5'W), 45 m, on rock, July 1973; off Gannets Rock, 27 m, on *Cellaria*, July 1973; Lundy Roads, 20–30 m, abundant on *Cellaria*, *Amathia* and other erect bryozoans, July 1974; NW Point, July 1975 (KH/PJH); Rat Island N, on kelp holdfast, 8.7.75 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

Aetea sica (Couch, 1844) [Prenant & Bobin, 1966, p. 83]

Knoll Pins, 10 m, on *Amathia lendigera*, 24.7.71 (KH/PJH); off Gannets Rock, 27 m, on stones and *Chlamys* valves, July 1973; 1 km NNE of Lundy, on stone, Jan. 1973; Lundy Roads, 30 m, July 1974; Knoll Pins S, 21.5 m, on rock, 10.7.75 (KH/PJH); Gannets Rock, 10 m, 15.7.75 (KH/PJH); Rat Island N, 3.6 m, on rock, 8.7.75 (KH/PJH).

Aetea truncata (Landsborough, 1852) [Prenant & Bobin, 1966, p. 86] Quarter Wall Bay, 10 m, 1 small colony on shell, 14.7.75 (KH/PJH).

Family SCRUPARIIDAE

Scruparia chelata (Linnaeus, 1758) [Prenant & Bobin, 1966, p. 94]

SSW of Black Rock (51°8.9'N, 4°41.8'W), 32 m, on *Scrupocellaria*, July 1973; NW Bank (51°11.5'N, 4°42.4'W), 16 m, July 1973; Quarry Bay, 5 m, July 1971; Seals Rock, 32 m, on *Plumularia*, 4.8.71 (KH/PJH); Gannets Rock, 10 m, 15.7.75 (KH/PJH); NW Point, 5 m, 8.7.75 (KH/PJH); Rat Island N, kelp holdfast, 8.7.75 (KH/PJH); Seals Rock, 20 m, on *Bugula turbinata*, 11.7.75 (KH/PJH).

Scruparia ambigua (d'Orbigny, 1841)

[Prenant & Bobin, 1966, p. 99]

Lundy Roads, 20 m, on *Amathia*, July 1971; Seals Hole, 25–29 m, on *Scrupocellaria* and *Cellaria*, 20.8.70 (KH/PJH); Seals Rock, 32 m, on *Plumularia*, 4.8.71 (KH/PJH); Rat Island N, 3.6 m, on rock, 8.7.75 (KH/PJH); Knoll Pins S, 21.5 m, rock, 10.7.75 (KH/PJH).

Family MEMBRANIPORIDAE

Membranipora membranacea (Linnaeus, 1767) [Prenant & Bobin, 1966, p. 112]

A common and characteristic epiphyte of kelp fronds, this species is widespread around the British Isles. It occurs off all the Lundy shores, typically on *Laminaria digitata*, less frequently on fucoids.

Family ELECTRIDAE Electra pilosa (Linnaeus, 1767) [Prenant & Bobin, 1966, p. 140]

SSE of Rat Island, 48 m, on *Cellaria* and stones, July 1973; NW Bank (51°11·5'N, 4°42·4'W), 16 m, July 1973; off Hen and Chickens (51°13'N, 4°42·5'W), 45 m, July 1973; off Gannets Rock (51°11·8'N, 4°38·1'W), 27 m, July 1973; Lundy Roads, 30 m, common on most substrata, July 1974; Hells Gate, LWN, on *Fucus*, 7.7.75 (KH/PJH); Quarry Bay, LWN, on *Chondrus*, 10.7.75 (KH/PJH); Rat Island N, 3·6 m, 8.7.75 (KH/PJH); Quarter Wall Bay, 10.7.75 (KH/PJH); Surf Beits E EV (51 C 7 5 (KH/PJH)); Duarter Wall Bay, 10.7.75 (KH/PJH); Surf Beits E EV (51 C 7 5 (KH/PJH)); Duarter Wall Bay, 10.7.75 (KH/PJH); Surf Beits E EV (51 C 7 5 (KH/PJH)); Duarter Wall Bay, 10.7.75 (KH/PJH); Surf Beits E EV (51 C 7 5 (KH/PJH)); Duarter Wall Bay, 10.7.75 (KH/PJH); Surf Beits E EV (51 C 7 5 (KH/PJH)); Duarter Wall Bay, 10.7.75 (KH/PJH); Surf Beits E EV (51 C 7 5 (KH/PJH)); Duarter Wall Bay, 10.7.75 (KH/PJH); Duar 10 m, 14.7.75, (KH/PJH); Surf Point S, ELWS, 16.7.75, (KH/PJH).

Pyripora catenularia (Fleming, 1828)

[Prenant & Bobin, 1966, p. 158] Due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, on rock, July 1973; Lundy Roads, 30 m, on shell, July 1974.

Family FLUSTRIDAE Flustra foliacea (Linnaeus, 1758) [Prenant & Bobin, 1966, p. 169]

SSW of Black Rock (51°89'N, 4°41.8'W), 32 m, July 1973; NW Bank (51°11.5'N, 4°42.4'W), 16 m, abundant, July 1973; off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, July 1973; NNE of Seals Rock (51°13'N, 4°38.6'W), 22 m, July 1973; Rattles Anchorage, 18-25 m, Aug. 1971 (KH); Seals Rock, 36 m, on cliff and boulders, abundant, 4.8.71 (KH); Jennys Cove, patchy at 20 m, abundant at 25 m, 29.7.71, (KH); Lee Rocks, 15-18 m, occasional patches on tops of rocks, 26.7.71 (KH); Lee Rocks, 25 m, frequent patches, 13.8.72 (KH); Needle Rocks, 18 m, abundant-dominant on horizontal surfaces, 14.8.72 (KH); Battery, 20 m, occasional, 16.8.72, (KH); St. James Stone, 30 m, common, 9.9.73 (KH); N Rat/Mouse Island, 9.6.73 (KH); Gannets Rock, 30 m, 8.9.73 (KH); Rattles Anchorage, 23 m, one patch, 15 8.72 (KH); Devils Slide, 18 m, 25.8.72 (JES); Black Rock, 15 m, 28.8.72 (JES); Long Roost, 16 m, 23.8.72 (JES); Gull Rock, 12 m, 20.7.73 (NKC); generally distributed in the circalittoral, particularly abundant in areas exposed to vigorous water movement (KH).

Chartella papyracea (Ellis and Solander, 1786)

[Prenant & Bobin, 1966, p. 183 as Carbasea]

NW Bank (51°11.5'N, 4°42.4'W), 16 m, July 1973; Seals Rock, 15 m, 4.8.71, 28.7.71 (DJWL/PJH).

Hincksina flustroides (Hincks, 1877) [Prenant & Bobin, 1966, p. 200]

Due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, one live colony on stone, July 1973.

> Family CALLOPORIDAE Callopora lineata (Linnaeus, 1767)

[Prenant & Bobin, 1966, p. 223] Quarry Bay, 5 m, July 1971; Gannets Rock, 5 m, on Laminaria holdfast, 1.8.71 (KH/PJH); Rat Island NW, lower shore cave, 11.7.75 (KH/PJH).

Callopora dumerilii (Audouin, 1826) [Prenant & Bobin, 1966, p. 234]

Due S of Lee Rocks (51°8.7'N, 4°39.5'W), 47 m, fertile colonies on *Pentapora*, July 1973; SSW of Black Rock (51°8.9'N, 4°41.8'W), 32 m, on shell, July 1973; off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, abundant fertile colonies on Pentapora and Flustra, July 1973; due E of Gannets Rock (51°11.8'N, 4°38·1'W), 27 m, on Chlamys valves, July 1973; Lundy Roads, 30 m, fertile colonies on shell and Pentapora, July 1974

Callopora aurita (Hincks, 1877) [Prenant & Bobin, 1966, p. 237]

Lundy Roads, 15–30 m, on stone, common also on *Chlamys* and *Pecten* valves, July 1971, 1974; off west coast, 45 m, July 1971.

Callopora discreta (Hincks, 1862)

Fig. 1A

SSW of Black Rock (51°8·9'N, 4°41·8'W), 32 m, several dead colonies on shell fragments, July 1973.

Described by Hincks (1862) from South Devon, *Callopora discreta* has been recorded very rarely since. Herdman (1896) reported it from off the Isle of Man, although it was not found by Eggleston (1963) in his survey of the area, and there is a single specimen in the Norman collection (British Museum reg. no. 1911.10.1.549) from Guernsey. Balavoine (1958: 58, pl. 1, fig. 1) redescribed the species from material dredged off the Dinard-St. Malo region. *C. discreta* is, nonetheless, a readily recognizable species; it is characterized by the small size of the zooids, the numerous (18–22) thin, incurved spines surrounding the opesium, and the total lack of avicularia. The apparent rarity of the species may be attributed perhaps to the fact that the particular habitat it favours is so rarely sampled. In all cases it has occurred on small shell fragments and has not been found in dredgings of larger material, such as *Chlamys* and *Pecten* shell debris.

The species described and figured by Prenant and Bobin (1966: 228) is not Callopora discreta.

Callopora rylandi Bobin & Prenant, 1965 [Prenant & Bobin, 1966, p. 231] Quarry Bay, LWN, on rock, 10.7.75 (KH/PJH).

Crassimarginatella solidula (Hincks, 1860) [Prenant & Bobin, 1966, p. 213, as *Alderina*] SSW of Black Rock (51°8'9'N, 4°41'8'W), 32 m, on shell, July 1973.

> Amphiblestrum flemingii (Busk, 1854) [Prenant & Bobin, 1966, p. 265]

Due S of Lee Rocks (51°8.7'N, 4°39.5'W), 47 m, on *Pentapora*, July 1973; SSW of Black Rock (51°8.9'N, 4°41.8'W), 32 m, on shell, July 1973; off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, abundant fertile colonies on *Pentapora* and *Flustra*, July 1973; Lundy Roads, 15 m, on *Flustra*, fertile, July 1971.

Ammatophora nodulosa (Hincks, 1877) [Prenant & Bobin, 1966, p. 274] Fig. 1B

SSW of Black Rock ($51^{\circ}8.9'N$, $4^{\circ}41.8'W$), 32 m, one live colony encrusting shell, July 1973.

Hincks (1880: 170) obtained very little material of this species and recorded it from only two British localities, South Devon and the Antrim coast, from depths of 55 m and greater. Herdman (1896) reported a specimen from off the Isle of Man, but it does not seem to have been found again since the single specimen reported by Norman (1903) from Guernsey. In common with *Callopora discreta*, *A. nodulosa* has been found only on the smaller shell debris.

Membraniporella nitida (Johnston, 1838)

[Prenant & Bobin, 1966, p. 569]

SSE of Rat Island (51°8·9'N, 4°37·5'W), 49 m, on rock, July 1973; due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, abundant fertile colonies on rock and *Pentapora*, July 1973; off Hen and Chickens (51°13'N, 4°42·5'W), 45 m, abundant fertile colonies on *Pentapora*, July 1973; Gannets Rock, 12 m, on stone (KH/PJH).



Fig. 1. A. Callopora discreta, three zooids with ovicells. B. Ammatophora nodulosa, four zooids and the characteristic interzooidal nodules.

SSE of Eq. Extended (First M. Schenner, 1996), (First, 1993), (SSE of Black Rock (SUSYM, 4-4) (W), (Sum, Jaly 1993), (SUM), (First, 1993), (SSE of Jaly 1997), (SUSYM, 4-4) (W), (Sum, Jaly 1993), (SUM), (Sum, Kock (SU-11-8)), (SSE W), (First, 1976), (Sum, Sub), (FIR), (SUM), (Source Rock (SU-11-8)), (SSE W), (SUM), (Sum, Jaly 1997), (Sould 1997), (SUM), (Sould Rock (SU-11-8)), (SSE W), (SUM), (Sum, Jaly 1997), (Sould 1997), (SUM), (SUM), (Sum, 10 and 247), (SUM), (Sum, W), (Sould 1997), (Sum, 10 and 247), (SUM), (Sum, W), (Sould 1997), (Sum, 10 and 247), (SUM), (Sum, W), (Sum, Jaly 1997), (Sum, 10 and 247), (SUM), (Sum, W), (Sum, Jaly 1997), (Sum, 10 and 247), (SUM), (Sum, W), (Sum, Jaly 1997), (SUM), (SUM), (Sum, 10 and (SUM), (SUM), (Sum, W), (Sum, Jaly 1997), (SUM), (SUM), (Sum, 10 and (SUM), (SUM), (Sum, W), (Sum, Jaly 1997), (SUM), (SUM)

Family MICROPORIDAE Mollia rosselii (Audouin, 1826) [Prenant & Bobin, 1966, p. 346]

One km NNE of Lundy, on shell, Jan. 1973; Lundy Roads, 30 m, on shell, July 1974.

Family SETOSELLIDAE Setosella vulnerata (Busk, 1860) [Prenant & Bobin, 1966, p. 358]

East Bank (51°10.9'N, 4°37.8'W), 14 m, on shell, July 1973.

Family CELLARIIDAE Cellaria fistulosa (Linnaeus, 1758) [Prenant & Bobin, 1966, p. 378, as *C. salicornia*]

SSE of Rat Island $(51^{\circ}8 \cdot 9'N, 4^{\circ}37 \cdot 5'W)$, 49 m, common on rocks, July 1973; due S of Lee Rocks $(51^{\circ}8 \cdot 7'N, 4^{\circ}39 \cdot 5'W)$, 47 m, common on rocks, July 1973; SSW of Black Rock $(51^{\circ}8 \cdot 9'N, 4^{\circ}41 \cdot 8'W)$, 32 m, dead fragments; NW Bank $(51^{\circ}11 \cdot 5'N, 4^{\circ}42 \cdot 4'W)$, 16 m, on *Aleyonidium gelatinsoum*, July 1973; Seals Rock, 15 m, 4.8.71 (DL); Seals Hole, 25–29 m, 20.8.70 (KH); Lundy Roads, 30 m, abundant, July 1974; Knoll Pins S, 21 \cdot 5 m, 10.7.75 (KH/PJH); Rat Island N, 3 \cdot 6 m, 8.7.75 (KH/PJH).

Cellaria sinuosa (Hassall, 1840) [Prenant & Bobin, 1966, p. 375]

Due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, July 1973; SSW of Black Rock (51°8·9'N, 4°41·8'W), 32 m, dead fragments, July 1973; off Hen and Chickens (51°13·1'N, 4°40·6'W), 43 m, July 1973; off Gannets Rock (51°11·8'N, 4°38·1'W), 27 m, common, July 1973; Seals Rock, 15 m, 4.8.71 (DJWL); Lundy Roads, 30 m, July 1974; Knoll Pins S, 21·5 m, on rock (KH/PJH).

Cellaria salicornioides Lamouroux, 1816 [Prenant & Bobin, 1966, p. 382]

Lundy Roads, 20 m, July 1971; Benjamins Chair, 20 m, on *Crisia*, 22.8.70 (KH/PJH); Lee Rocks, 17 m, 26.7.72 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

Family SCRUPOCELLARIIDAE Scrupocellaria scruposa (Linnaeus, 1758) [Prenant & Bobin, 1966, p. 400]

Due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, on rock, July 1973; NW Bank (51°11·5'N, 4°42·4'W), 16 m, on *A. gelatinosum* and *Flustra*, July 1973; off Gannets Rock (51°11·8'N, 4°38·1'W), 27 m, on *Glycimeris* valve, July 1973; Lundy Roads, 30 m, July 1974; Knoll Pins S, 21·5 m, 10.7.75 (KH/PJH); Rat Island N, on kelp holdfast, 8.7.75 (KH/PJH).

Scrupocellaria scrupea Busk, 1852 [Prenant & Bobin, 1966, p. 432]

SSE of Rat Island $(51^{\circ}8.9'N, 4^{\circ}37.5'W)$, 49 m, July 1973; SSW of Black Rock $(51^{\circ}8.9'N, 4^{\circ}41.8'W)$, 32 m, July 1973; off Hen and Chickens $(51^{\circ}13.1'N, 4^{\circ}40.6'W)$, 43 m, on *Cellaria*, July 1973; off Gannets Rock $(51^{\circ}11.8'N, 4^{\circ}38.1'W)$, 27 m, on *Chlamys* valve, July 1973; off Seals Rock $(51^{\circ}13'N, 4^{\circ}38.6'W)$, 22 m, on *Flustra*, July 1973; Seals Hole, 20.8.70 (KH/PJH); Knoll Pins, 10 m, 24.7.71 (KH/PJH); Lundy Roads, 30 m, July 1974; Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH); Quarter Wall Bay, 10 m, 14.7.75 (KH/PJH); Gannets Rock, 10 m, 15.7.75 (KH/PJH).

Scrupocellaria reptans (Linnaeus, 1767)

[Prenant & Bobin, 1966, p. 413] Off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, on rock, Flustra and Pentapora, July 1973; Lundy Roads, 5–15 m, on *Flustra*, July 1971; Lee Rocks, 18 m, 26.7.71 (KH); Seals Hole, 25–29 m, 20.8.70 (KH); Knoll Pins, 7 m, on kelp holdfast (KH); NW Needle Rock, 12 m (KH); Rat Island N, on rock and kelp holdfast, 3.6 m (KH/PJH).

Caberea boryi (Audouin, 1826) [Prenant & Bobin, 1966, p. 449]

Gannets Rock, 10 m, 15.7.75 (KH/PJH); Rat Island N, on vertical gully wall, 3.6 m, 8.7.75 (KH/PJH).

Family BICELLARIELLIDAE

Bicellariella ciliata (Linnaeus, 1758) [Prenant & Bobin, 1966, p. 466] SSE of Rat Island (51°8.9'N, 4°37.5'W), 49 m, July 1973; due S of Lee Rocks (51°8.7'N, 4°39.5'W), 47 m, July 1973; off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, on hydroids, July 1973; Lundy Roads, 20–30 m, common, July 1971, 1973, 1974; Gannets Rock, 12–14 m, on *Tubularia*, 8.8.74 (KH/PJH); Black Rock, 30 m, on *T. indivisa*, 23.8.70 (KH/PJH); NW Point, 5 m, 8.7.75 KH/PJH; Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

Family BUGULIDAE Bugula plumosa (Pallas, 1766)

[Prenant & Bobin, 1966, p. 522] Lee Rocks, 20 m, 15.8.72 (KH); Outer Knoll Pin, 20–21 m, 2.8.74 (JBM); Long Roost, 10 m, 2.8.74 (KH); Lundy Roads, 30 m, abundant, July 1974; Battery, 20 m, 16.8.72, common (KH); Gannets Rock, 15 m, 8.8.74 (KH); NW Needle Rock, frequent to common below 4.5 m, 3.8.74 (KH); Knoll Pins S, 21.5 m, 10.7.75 (KH); present throughout the sublittoral and particularly common in shallow water at exposed sites (KH).

Bugula turbinata Alder 1857

[Prenant & Bobin, 1966, p. 516]

Black Rock, 30 m, 23.8.70 (KH); Seals Rock, 28.7.71 (KH); Hells Gate, 3 m, 7.7.75 (KH/PJH); NW Point, 8.7.75 (KH/PJH); Rat Island N, 3.6 m (KH/PJH); Quarter Wall Bay, 10 m, 14.7.75 (KH/PJH); Knoll Pins S, 21.5 m, rock, 10.7.75 (KH/PJH); Seals Rock, 20 m, 11.7.75 (KH/PJH).

Bugula flabellata (Thompson in Gray, 1848)

[Prenant & Bobin, 1966, p. 503]

NW Needle Rock, 12 m, 3.8.74 (KH); Lundy Roads, 30 m, abundant, July 1974; Rat Island N, 6 m, with embryos, 8.7.75 (KH).

Bugula stolonifera Ryland, 1960 [Prenant & Bobin, 1966, p. 541]

NW Bank (51°11.5'N, 4°42.4'W), 16 m, July 1973; Lundy Roads, 30 m, July 1974.

Family CRIBRILINIDAE Cribrilaria radiata (Moll. 1803)

[Harmelin, 1970, p. 80]

East Bank, 51°10.9'N, 4°37.8'W), 14 m, on Chlamys valve, July 1973.

Cribrilaria innominata (Couch, 1844)

[Harmelin, 1970, p. 84]

SSW of Black Rock (51°8·9'N, 4°41·8'W), 32 m, on shell, July 1973; off Gannets Rock (51°11·8'N, 4°38·1'W), 27 m, on *Chlamys* valve, July 1973; East Bank (51°10·9'N, 4°37·8'W), 14 m, fertile colonies on shell, July 1973; Lundy Roads, 30 m, on shell, July 1974.

Cribrilina punctata (Hassall, 1841) [Ryland & Stebbing, 1971, p. 68]

Due E of Gannets Rock $(51^{\circ}11\cdot8'N, 4^{\circ}38\cdot1'W)$, 27 m, on *Chlamys* valve, July 1973; East Bank $(51^{\circ}10\cdot9'N, 4^{\circ}37\cdot8'W)$, 14 m, on shell, July 1973; Lundy Roads, 30 m, July 1974.

Figularia figularis (Johnston, 1847) [Prenant & Bobin, 1966, p. 604] Lundy Roads, 30 m, on shell, July 1974.

> Family ExocheLLIDAE Escharoides coccineus (Abildgaard, 1806) [Marcus, 1940, p. 235, as *Peristomella*]

Off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, on stone, July 1973; Lundy Roads, 5 m, July 1971; Gannets Rock, 5 m, on kelp holdfast, 1.8.71 (DJWL); Rat Island N, on kelp holdfast, 8.7.75 (KH/PJH).

> Family UMBONULIDAE Umbonula littoralis Hastings, 1944 [Hastings, 1944, p. 280]

Seals Rock, LWS, 13.7.75 (KH/PJH); NW Point, 8.7.75 (KH/PJH); Surf Point S, ELWS, 16.8.75 (KH/PJH); present in the infralittoral fringe and upper infralittoral, often common on exposed shores (KH).

Family HIPPOTHOIDAE Hippothoa hyalina (Linnaeus, 1758) [Marcus, 1940, p. 211]

SSE of Rat Island (51°8.9'N, 4°37.5'W), 49 m, on hydroids, July 1973; Lundy Roads, 5–20 m, July 1971; Seals Rock, 15 m, on *Chartella*, 28.7.71, 4.8.71 (DJWL); Rat Island N, 3.6 m, 8.7.75 (KH/PJH); Surf Point S, ELWS, fertile, 16.7.75 (KH/PJH).

Hippothoa divaricata Lamouroux, 1821 [Marcus, 1940, p. 210] Due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, on rocks, July 1973.

Hippothoa flagellum (Manzoni, 1870) [Hincks, 1880, p. 293] No details of locality—specimen no. B/04/71.

Trypostega venusta (Norman, 1864) [Hincks, 1880, p. 276, as *Schizoporella*] East Bank (51°10.9'N, 4°37.8'W), 14 m, on *Chlamys* valve, July 1973,

Haplopoma graniferum (Johnston, 1847) [Ryland, 1963, p. 16] Rat Island NW, lower shore cave, 11.7.75 (KH/PJH).

Chorizopora brongniartii (Audouin, 1826) [Marcus, 1940, p. 214]

Due S of Lee Rocks (51°8.7′N, 4°39.5′W, 47 m, on rock, July 1973; NW Bank (51°11.5′N, 4°42.4′W), 16 m, July 1973; off Hen and Chickens (51°13′N, 4°42.5′W), 45 m, on rock, July 1973; off Seals Rock (51°13′N, 4°38.6′W), 22 m, July 1973; off Gannets Rock (51°11.8′N, 4°38.1′W), 27 m, July 1973; East Bank (51°10.9′N, 4°37.8′W), 14 m, on shell, July 1973; Lundy Roads, 30 m, frequent fertile colonies on shell, July 1974.

Family MICROPORELLIDAE Microporella ciliata (Pallas, 1766) [Marcus, 1940, p. 257]

SSE of Rat Island ($51^{\circ}8.9'$ N, $4^{\circ}37.5'$ W), 49 m, abundant fertile colonies on rock, July 1973; due S of Lee Rocks ($51^{\circ}8.7'$ N, $4^{\circ}39.5'$ W), 47 m, on rock, fertile, July 1973; off Hen and Chickens ($51^{\circ}13'$ N, $4^{\circ}22.5'$ W), 45 m, on rock and *Flustra*, fertile, July 1973; off Gannets Rock ($51^{\circ}11.8'$ N, $4^{\circ}38.1'$ W), 27 m, on rock, July 1973; east Bank ($51^{\circ}10.9'$ N, $4^{\circ}37.8'$ W), 14 m, on shell, July 1973; Lundy Roads, 30 m, July 1974; Rat Island N, kelp holdfast, 8.7.75 (KH/PJH).

Fenestrulina malusii (Audouin, 1826) [Marcus, 1940, p. 260]

Due S of Lee Rocks ($51^{\circ}8.7'N$, $4^{\circ}39.5'W$), 47 m, on rock, July 1973; off Gannets Rock ($51^{\circ}11.8'N$, $4^{\circ}38.1'W$), 27 m, on shell and stone, July 1973; East Bank ($51^{\circ}10.9'N$, $4^{\circ}37.8'W$), 14 m, on shell, July 1973; Lundy Roads, 30 m, fertile, July 1974.

Family SCHIZOPORELLIDAE Schizoporella unicornis (Johnston in Wood, 1844) [Ryland, 1965, p. 65]

Rat Island NW, lower shore cave, 11.7.75 (KH/PJH); NW Point, July 1975 (KH/PJH).

Schizoporella dunkeri (Reuss, 1848) [Ryland, 1968, p. 538]

Due S of Lee Rocks $(51^{\circ}8.7'N, 4^{\circ}39.5'W)$, 47 m, on rock, July 1973; off Hen and Chickens $(51^{\circ}13'N, 4^{\circ}42.5'W)$, 45 m, on rock, July 1973; Gannets Rock, 12 m, on stone, 8.8.74 (KH/PJH).

Schizomavella auriculata (Hassall, 1842) [Marcus, 1940, p. 242]

Due S of Lee Rocks ($51^{\circ}8.7'N$, $4^{\circ}39.5'W$), 47 m, July 1973; off Hen and Chickens ($51^{\circ}13'N$, $4^{\circ}42.5'W$), 45 m, on stone, July 1973; off Gannets Rock ($51^{\circ}11.8'N$, $4^{\circ}38.1'W$), 27 m, on stone and shell, July 1973; Gannets Rock, 12 m, on stone, 8.8.74 (KH/PJH); Lundy Roads, 30 m, July 1974; NW Point, 5 m, 8.7.75 (KH/PJH).

Schizomavella linearis (Hassall, 1841) [Marcus, 1940, p. 244]

SSE of Rat Island ($51^{\circ}8.9'$ N, $4^{\circ}37.5'$ W), 49 m, on rock, July 1973; due S of Lee Rocks ($51^{\circ}8.7'$ N, $4^{\circ}39.5'$ W), 47 m, on rock, July 1973; East Bank ($51^{\circ}10.9'$ N $4^{\circ}37.8'$ W), 14 m, on shell, July 1973; Lundy Roads, 30 m, July 1974; Knoll Pins S, 21.5 m, 10.7.75, (KH/PJH); Quarry Bay, LWN, on rock, 10.7.75 (KH/PJH); Gannets Bay, 6 m, on *Ascidia mentula*, July 1975 (KH/PJH).

Escharina johnstoni (Quelch, 1884)

[Hincks, 1880, p. 246, as Schizoporella simplex]

SSW of Black Rock ($51^{\circ}8.9'$ N, $4^{\circ}41.8'$ W), 32 m, July 1973; off Gannets Rock ($51^{\circ}11.8'$ N, $4^{\circ}38.1'$ W), 27 m, on *Chlamys* valve, July 1973; East Bank ($51^{\circ}10.9'$ N, $4^{\circ}37.8'$ W), 14 m, on shell, fertile, July 1973; Lundy Roads, 30 m, July 1974.

Escharina spinifera (Johnston, 1847) [Marcus, 1940, p. 247] Lundy Roads, 20 m, 4.7.71, two colonies on *Cellaria*.

Family ESCHARELLIDAE Escharella immersa (Fleming, 1828) [Marcus, 1940, p. 226]

SSE of Rat Island (51°8.9'N, 4°37.5'W), 49 m, on rock, July 1973; due S of Lee Rocks (51°8·7/N, 4°39·5'W), 47 m, on rock, July 1973; SSW of Black Rock (51°8.9'N, 4°41.8'W), 32 m, on shell, July 1973; off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, abundant on stone, July 1973; off Gannets Rock (51°11.8'N, 4°38·1'W), 27 m, on shell and stone, July 1973; East Bank (51°10.9'N, 4°37.8'W), 14 m, on shell, July 1973; Lundy Roads, 30 m, on shell, July 1974.

Escharella ventricosa (Hassall, 1842)

[Marcus, 1940, p. 227] Off Gannets Rock (51°11.8'N, 4°38.1'W), 27 m, on *Chlamys* valve, July 1973; East Bank (51°10.9'N, 4°37.8'W), 14 m, on shell, July 1973; Gannets Rock, 12 m, on stone, 8.8.74 (KH/PJH); Lundy Roads, 30 m, July 1974.

Escharella variolosa (Johnston, 1838)

[Marcus, 1940, p. 229]

Off Hen and Chickens $(51^{\circ}13'N, 4^{\circ}42.5'W)$, 45 m, abundant on stone, July 1973; off Gannets Rock $(51^{\circ}11.8'N, 4^{\circ}38.1'W)$, 27 m, on rock, July 1973; east Bank (51°10.9'N, 4°37.8'W), 14 m, on shell, July 1973; Lundy Roads, 30 m, on shell, July 1974; Gannets Rock, 12 m, on stone, 8.8.74 (KH/PJH).

Family HIPPOPORINIDAE

Hippoporina pertusa (Esper, 1796)

[Marcus, 1940, p. 251, as *Hippodiplosia*] Off Gannets Rock (51°11.8'N, 4°38.1'W), 27 m, fertile colonies on *Chlamys* valves, July 1973; Lundy Road, 30m, on Chlamys, fertile, July 1974.

Cryptosula pallasiana (Moll, 1803)

[Marcus, 1940, p. 253] Rat Island NW, lower shore cave, 11.7.75 (KH/PJH); NW Point, 8.7.75 (KH/PJH).

Pentapora foliacea (Ellis & Solander, 1786)

[Hastings & Ryland, 1968, p. 506] [Hastings & Ryland, 1968, p. 506] SSE of Rat Island (51°8.9'N, 4°37.5'W), 49 m, July 1973; due S of Lee Rocks (51°8.7'N, 4°39.5'W), 47 m, July 1973; SSW of Black Rock (51°8.9'N, 4°41.8'W), 32 m, July 1973; off Hens and Chickens (51°13'N, 4°42.5'W), 45 m, abundant, July 1973; off Gannets Rock (51°11.8'N, 4°38.1'W), 27 m, July 1973; east Bank (51°10.9'N, 4°37.8'W), 14 m, dead fragments, July 1973; Gannets Rock, 14 to 16 m-occasional and small, 36 m-abundant, dominant on boulder plain July Aug 1071 (W): Lee Rocke 15 to 18 m, abundant at bottoms of plain, July-Aug. 1971 (KH); Lee Rocks, 15 to 18 m, abundant at bottoms of gullies, on horizontal rocks and boulders, July 1971 (KH); Jennys Cove, common at 20 m, abundant at 30 m, July 1971 (KH); Seals Rock, 11-34 m, frequent to abundant on plain, July 1971 (KH); Knoll Pins, 14-30 m, occasional and small, Aug. 1971 (KH); Quarry Bay, 15 m, occasional and small, Aug. 1971 (KH); Rattles Anchorage, rare at 18 m, abundant at 25-30 m, Aug. 1971 (KH); Gull Rock, 10-15 m, occasional and small, 6.6.72 (KH); Lee Rocks, 25 m, 13.8.72 (KH); Needle Rock, 21-25 m, frequent, 14.8.72 (KH); Battery, 17 m, frequent/ common, 16.8.72 (KH); N Rat/Mouse Id., occasional, 9.6.73 (KH); St. James Stone, 30 m, occasional, 9.9.73 (KH); Brazen Ward, 13 m, frequent/occasional, 29.7.74 (KH); present all around the island in the circalittoral, very rare in sheltered sites and abundant in sites exposed to strong tidal streams (KH).

Hippoporidra edax (Busk, 1859)

[Cook, 1964, p. 26]

Quarry Bay, 12 m, a single colony on a pagurised Turritella shell, 18.7.75 (KH/PJH).

Family SMITTINIDAE Smittina landsborovii (Johnston, 1847) [Marcus, 1940, p. 275]

SSE of Rat Island ($51^{\circ}8.9'N$, $4^{\circ}37.5'W$), 49 m, on rock, July 1973; due N of Island ($51^{\circ}13.1'N$, $4^{\circ}40.6'W$), 43 m, on rock, July 1973.

Smittina cheilostoma (Manzoni, 1870) [Gautier, 1962, p. 192]

Lundy Roads, 30 m, several colonies on shell, July 1974.

Smittina affinis (Hincks, 1862) [Hincks, 1880, p. 348, as Smittia]



Fig. 2. Smittina affinis; A. Zooids from the growing edge two showing ovicell rudiments; B. three ovicelled zooids.

Lundy Roads, 20 m, two small colonies on Cellaria, 4.7.71.

This species does not seem to have been collected since its original description by Hincks (1862), who obtained a single specimen from Start Bay, South Devon. S. affinis is, however, readily recognizable, being the only British species of Smittina in which the suboral avicularium is orientated transversely. Nothing is known of the biology or ecology of this species; it is possibly restricted to a narrowly defined microhabitat and may have a limited geographical distribution as well, additional material would be useful.

Smittoidea reticulata (J. Macgillivray, 1842) [Marcus, 1940, p. 280, as *Smittina*]

SSE of Rat Island (51°8.9'N, 4°37.5'W), 49 m, abundant fertile colonies on rock, July 1973; off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, abundant fertile colonies on *Pentapora*, July 1973; east Bank (51°10.9'N, 4°37.8'W), 14 m, on *Pentapora*, July 1973; Gannets Rock, 12 m, on stone, 8.8.74 (KH/PJH); Lundy Roads, 30 m, July 1974; Gannets Bay, 6 m, on *Ascidia mentula*, fertile, July 1975 (KH/PJH).

Parasmittina trispinosa (Johnston, 1838)

[Marcus, 1940, p. 279, as Smittina]

Off Quarry Bay, 15 m, on stone, July 1971; Knoll Pins, 22 m, rock, 9.7.75 (KH); Gannets Rock, 12 m, 15.7.75 (KH/PJH).

Porella concinna (Busk, 1854)

[Marcus, 1940, p. 267]

Off Quarry Bay, 15 m, on stone, July 1971; due S of Lee Rocks (51°8·7'N, 4°39·5'W), on rock, July 1973; Lundy Roads, 30 m, on shell, July 1974.

Family ADEONIDAE

Reptadeonella violacea (Johnston, 1847) [Hincks, 1880, p. 216, as *Microporella*]

Due S of Lee Rocks (51°8·7/N, 4°39·5′W), 47 m, on rock, July 1973; SSW of Black Rock (51°8·9′N, 4°41·8′W), 32 m, July 1973; off Hen and Chickens (51°13′N, 4°42·5′W), 45 m, July 1973.

Family SERTELLIDAE Schizotheca fissa (Busk, 1856) [Hincks, 1880, p. 284]

Due S of Lee Rocks $(51^{\circ}8 \cdot 7'N, 4^{\circ}39 \cdot 5'W)$, 47 m, on rock, July 1973; SSW of Black Rock $(51^{\circ}8 \cdot 9'N, 4^{\circ}41 \cdot 8'W)$, 32 m, on shell, July 1973; off Gannets Rock $(51^{\circ}11 \cdot 8'N, 4^{\circ}38 \cdot 1'W)$, 27 m, on *Chlamys*, fertile, July 1973; East Bank $(51^{\circ}10 \cdot 9'N, 4^{\circ}37 \cdot 8'W)$, 14 m, on shell, July 1973; Lundy Roads, 30 m, fertile, July 1974.

Rhynchozoon bispinosum (Johnston, 1847)

[Hincks, 1880, p. 385, as Rhynchopora]

Due S of Lee Rocks (51°8.7'N, 4°39.5'W), 47 m, on rock, July 1973; Gannets Rock, 12 m, on stone, 8.8.74 (KH/PJH).

> Family PHYLACTELLIDAE Phylactella labrosa (Busk, 1854) [Hincks, 1880, p. 357]

Off Gannets Rock $(51^{\circ}11 \cdot 8'N, 4^{\circ}38 \cdot 1'W)$, 27 m, on *Chlamys*, fertile, July 1973; East Bank $(51^{\circ}10 \cdot 9'N, 4^{\circ}37 \cdot 8'W)$, 14 m, on *Chlamys*, July 1973; Lundy Roads, 30 m, on *Chlamys*, July 1974.

Phylactellipora collaris (Norman, 1867) [Hincks, 1880, p. 358, as *Phylactella*]

Lundy Roads, 30 m, on shell, July 1974.

Family CELLEPORARIIDAE Celleporaria pumicosa (Pallas, 1766) [Marcus, 1940, p. 292, as Cellepora]

Off Hen and Chickens ($51^{\circ}13'N$, $4^{\circ}42\cdot5'W$), 45 m, on rock, July 1973; off Gannets Rock ($51^{\circ}11\cdot8'N$, $4^{\circ}38\cdot1'W$), 27 m, on *Chlamys* valve, July 1973; Lundy Roads, 30 m, July 1974; Knoll Pins S, $21\cdot5$ m, 10.7.75 (KH/PJH).

Omalosecosa ramulosa (Linnaeus, 1767)

[Marcus, 1940, p. 287, as *Cellepora*] Due N of island (51°13·1'N, 4°40·6'W), 43 m, on *Cellaria*, July 1973; off Quarry Bay, 20 m, July 1971; Rattles Anchorage, 20 m, 5.8.71, (DJWL); Gannets Rock, 15-18 m, on rock, 1.8.71 (KH); Lee Rocks 18 m, 26.7.71, (KH); Outer Knoll Pin, on Cellaria, 2.8.74 (KH); Knoll Pins S, 21.5 m, 22 m, 10.7.75 (KH); common all around the island, attached to hydroids and other bryozoans (KH).

Family CELLEPORINIDAE Turbicellepora avicularis (Hincks, 1860)

[Marcus, 1940, p. 290, as *Cellepora*] SSE of Rat Island (51°8·9'N, 4°37·5'W), 47 m, on hydroids, July 1973; due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, on rock, July 1973; NW Bank (51°11·5'N, 4°42·4'W), 16 m, July 1973; off Hen and Chickens (51°13'N, 4°42·5'W), 45 m, on hydroid, July 1973; off Gannets Rock (51°11·8'N, 4°38·1'W), 27 m, on *Chlamys* valve, July 1973; east Bank (51°10·9'N, 4°37·8'W), 4 m, hydroid B. Boak, 20 m, chundent on *Tubularia indivisa*, 22°70 14 m, July 1973; Black Rock, 30 m, abundant on Tubularia indivisa, 23.8.70 (KH/PJH); Lundy Roads, 30 m, July 1974; Knoll Pins, 21.5 m, 10.7.75 (KH/PJH).

Celleporina hassallii (Johnston, 1847)

[Marcus, 1940, p. 293, as Siniopella costazii] Black Rock, 30 m, on Tubularia, 23.8.70 (KH/PJH); Lundy Roads, 20 m, July 1971; Seals Rock, on hydroid stems, 28.7.71 (KH/PJH); Rat Island N, on kelp holdfast, 8.7.75 (KH/PJH).

Celleporina decipiens Hayward, 1976

[Hayward, 1976, p.325] Due N of island (51°13·1'N, 4°40·6'W), 43 m, July 1973; Seals Rock, 15 m, on *Cellaria fistulosa*, 4.8.71; Lundy Roads, 30 m, on hydroids, July 1974.

Buskea dichotoma (Hincks, 1862) [Marcus, 1940, p. 288, as *Cellepora*] Lee Rocks, 8 m, small colonies on Crisia, 26.7.71 (KH/PJH).

Order Ctenostomata Flustrellidra hispida (Fabricius, 1780) [Prenant & Bobin, 1956, p. 186, as Flustrella] Lundy Roads, July 1974, several small colonies on detached Fucus fragment;

Rat Island NW, lower shore cave, 11.7.75 (KH/PJH); Hells Gate, MTL-LWN on Fucus, 7.7.75 (KH/PJH).

> Family ALCYONIDIIDAE Alcyonidium hirsutum (Fleming, 1828)

[Prenant & Bobin, 1956, p. 196] Quarry Bay, LWN, on *Chondrus*, 10.7.75 (KH/PJH); Hells Gate, LWN, on Fucus, 7.7.75 (KH/PJH).

Alcyonidium polyoum (Hassall, 1841) [Prenant & Bobin, 1956, p. 211] Dr. Fucus, 7,7,75 (KH/PH). Hells Gate, MTL, on Fucus, 7.7.75 (KH/PJH).

Alcyonidium gelatinosum (Linnaeus, 1767)

[Prenant & Bobin, 1956, p. 204] SSE of Rat Island (51°8·9'N, 4°37·5'W), 49 m, July 1973; due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, July 1973; NW Bank (51°11·5'N, 4°42·4'W), 16 m, abundant, July 1973; Lundy Roads, 30 m, July 1974; Seals Rock, 28.7.71 (KH); Rattles Anchorage, 20 m, 15.8.72 (KH); Lee Rocks, 8–18 m, 3 to 9 colonies/m², on rock, 16.7.73 (KH); SE Gannets Rock, 14 m, rare, 15.7.75 (KH); Knoll Pins S, 23 m, common, 9.7.75 (KH); Rat Island N, 4 m, 8.7.75 (KH).

Alcyonidium parasiticum (Fleming, 1828) [Prenant & Bobin, 1956, p. 194]

Lundy Roads, 30 m, several large colonies on Cellaria and hydroids, July 1974.

Family NOLELLIDAE Nolella dilatata (Hincks, 1860)

[Prenant & Bobin, 1956, p. 232]

Lundy Roads, 20 m, July 1971; Lundy Roads, 30 m, July 1974; Gannets Rock, 10 m, on hydroid stem, 15.7.75 (KH/PJH); Knoll Pins S, 21.5 m, rock, 10.7.75 (KH/PJH).

Nolella stipata Gosse, 1855

[Prenant & Bobin, 1956, p. 235, as N. gigantea] Knoll Pins S, 21.5 m, on other bryozoans, 10.7.75 (KH/PJH); Rat Island N, 3.6 m, 8.7.75 (KH/PJH).

Family WALKERIIDAE

Walkeria uva (Linnaeus, 1758) [Prenant & Bobin, 1956, p. 252, as Valkeria] Gannets Rock, 12-14 m, on Tubularia indivisa, 8.8.84 (KH/PJH); Lundy Roads, 30 m, July 1974; Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

> Family MIMOSELLIDAE Mimosella verticillata Heller, 1867 [Prenant & Bobin, 1956, p. 264] Fig. 3

Quarter Wall Bay, 10 m, 14.7.75 (KH/PJH). Described by Heller (1867) from the Adriatic, this species has been shown since to be widely distributed in warm temperate and subtropical waters (Harmer 1915, Prenant & Bobin 1956). It has been reported from Roscoff on two occasions (Joliett 1877, Pruvot 1897) though recent records are lacking. This is the first noted occurrence of the species in British waters.

Although an inconspicuous animal, M. verticillata, once found, has a highly characteristic appearance. The elongated, creeping stolon, usually tangled amongst or closely applied to the substratum, bears at intervals fans of quadrate kenozooids, each of which supppots one or more stalked autozooids. These striking morphological features are sufficient to distinguish it from other stoloniform Ctenostomes of British and Mediterranean waters.

Family VESICULARIIDAE Vesicularia spinosa (Linnaeus, 1767) [Prenant & Bobin, 1956, p. 276] Lundy Roads, 30 m, among Crisia clumps, July 1974.

> Amathia lendigera (Linnaeus, 1767) [Prenant & Bobin, 1956, p. 280]

Lundy Roads, 15-20 m, on Flustra, July 1971; Knoll Pins, 10 m, 24.7.71 (KH); Tibbetts Point, 20 m, 21.8.70 (KH); Gannets Rock, 10 m, 3.7.71 (KH); Quarry Bay, 9 m, 11.7.75 (KH/PJH); Tibbetts Point, 15 m, 15.7.75 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

Bowerbankia pustulosa (Ellis & Solander, 1786)

[Prenant & Bobin, 1956, p. 297]

Tibbetts Point, 15 m, 15.7.75 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH); Quarter Wall Bay, 10 m, 14.7.75 (KH/PJH).

Bowerbankia citrina (Hincks, 1877)

[Prenant & Bobin, 1956, p. 300]

Lundy Roads, 30 m, abundant large colonies attached to shell and stones. July 1974.



Fig. 3. Mimosella verticillata; A. Details of two zooids; B. A single stolon showing the fan-like arrangement of kenozooids and zooids; C. Two series of zooids supported by a branching stolon.

Bowerbankia gracilis Leidy, 1855 [Prenant & Bobin, 1956, p. 303] SS Carmine Filomena, 8 m, 2.8.71 (KH/PJH).

Order CYCLOSTOMATA Family CRISIIDAE Crisidia cornuta (Linnaeus, 1758)

[Marcus, 1940, p. 37] SSE of Rat Island, 51°8·9'N, 4°37·5'W), 49 m, on *Cellaria*, July 1973; due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, July 1973; NW Bank (51°11·5'N, 4°42·4'W), 16 m, on Flustra, July 1973; Seals Hole, 28 m, 20.8.70 (KH); Lundy Roads, 30 m, July 1974; Gannets Rock, 10 m, 15.7.75 (KH/PJH); Rat Island N, 3.6 m, 8.7.75 (KH/PJH); Seals Rock, 20 m, 11.7.75 (KH/PJH).

Crisia eburnea (Linnaeus, 1758)

[Marcus, 1940, p. 41] SSE of Rat Island (51°8·9'N, 4°37·5'W), 49 m, on *Cellaria*, July 1973; due S of Lee Rocks (51°8·7'N, 4°39·5'W), 47 m, July 1973; NW Bank (51°11·5'N, 4°42·4'W), 16 m, July 1973; off Hen and Chickens (51°13'N, 4°42·5'W), 45 m, July 1973; off Seals Rock (51°13'N, 4°38.6'W), 22 m, on Flustra, July 1973; Lundy Roads, 30 m, July 1974; Rat Island N, Kelp Holdfast, 8.7.75 (KH/PJH); Gannets Rock, 10 m, 15.7.75 (KH/PJH).

Crisia aculeata (Hassall, 1841)

[Marcus, 1940, p. 43]

Lundy Roads, 30 m, occasional amongst C. ramosa, July 1974.

Crisia ramosa Harmer, 1891

[Marcus, 1940, p. 45]

Benjamins Chair, 20 m, 22.8.70 (KH/PJH); Lee Rocks, 18 m, 26.7.71 (KH/PJH); Lundy Roads, 30 m, abundant, July 1974; Gannets Rock, 10 m, 15.7.75 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH); Rat Island N, on rock and kelp holdfast, 3.6 m, 8.7.75 (KH/PJH); Quarter Wall Bay, 10 m, 14.7.75 (KH/PJH).

Crisia denticulata (Lamarck, 1816)

[Marcus, 1940, p. 47] [Marcus, 1940, p. 47] SSE of Rat Island (51°8.9'N, 4°37.5'W), 49 m, July 1973; NW Bank (51°11.5'N, 4°42.4'W), 16 m, on hydroid, July 1973; off Hen and Chickens (51°13'N, 4°42.5'W), 45 m, July 1973; off Gannets Rock (51°11.8'N, 4°38.1'W), (27 m, July 1973; Lee Rocks, 18 m, 26.7.71; Outer Knoll Pins, 20–21 m, 2.8.74 (KH); Benjamins Chair, 20 m, 2.8.70 (KH); Lundy Roads, 30 m, July 1974; Rat Island N, on rock and kelp holdfast, 8.7.75 (KH/PJH); Gannets Rock, 10 m, 15.7.75 (KH/PJH).

Family ENTALOPHORIDAE Entalophora deflexa (Couch, 1841)

[Hincks, 1880, p. 437, as Stomatopora deflexa; 456, as Entalophora clavata] Benjamins Chair, 20 m, on Crisia, fertile, 22.8.70 (KH/PJH); Lee Rocks, 8 m, on Crisia, 26.7.71 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH); Gannets Rock, 10 m, among Crisia spp., 15.7.75 (KH/PJH).

Family TUBULIPORIDAE Tubulipora phalangea (Couch, 1844) [Marcus, 1940, p. 62] Knoll Pins S, 21.5 m, on rock, 10.7.75 (KH/PJH).

Tubulipora plumosa (Harmer, 1898)

[Marcus, 1940, p. 65]

Lee Rocks, 8 m, on Crisia, 26.7.71 (KH/PJH); Lundy Roads, 30 m, on hydroids, July 1974.

Stomatopora trahens (Couch, 1841) [Marcus, 1940, p. 52, as *S. granulata*] Gannets Rock, 12 m, on stone, 8.8.74 (KH/PJH).

Family DIASTOPORIDAE Berenicea patina (Lamarck, 1816) [Marcus, 1940, p. 73]

Off Quarry Bay, 15 m, on *Flustra*, July 1971; Gannets Rock, 12 m, on rock, 8.8.74 (KH/PJH); Lee Rocks, 17–18 m, on *Cellaria*, 26.7.72 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

Family LICHENOPORIDAE Lichenopora radiata (Audouin, 1826) [Hincks, 1880, p. 476] Lundy Roads, 30 m, one colony on *Chlamys* valye, July 1974.

Disporella hispida (Fleming, 1828)

[Marcus, 1940, p. 83, as Lichenopora]

Gannets Rock, 12 m, on rock, common, 8.8.74; Gannets Rock, 36 m, on rock, 26.7.71 (KH); Gannets Rock, 10 m, 15.7.75 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

ENTOPROCTA

The Entoprocta, traditionally, are included with the Bryozoa, although the relationship between the two phyla is obscure and subject to dispute. They are a smaller, less conspicuous and hence more neglected group of animals than the bryozoa, and are even more frequently overlooked. The majority of entoproct species are epizooites and the accumulation of specimens depends on careful examination of likely hosts. They may be found on sponges, ascidians, bryozoans, crustaceans, sipunculids, molluscs and, most commonly, in the tubes and on the appendages of polychaetes. A number of species occur on inorganic, as well as organic, substrata. The two species recorded below are perhaps the commonest, and the most readily recognizable, of the British Entoprocta.

Phylum ENTOPROCTA Family PEDICELLINIDAE Pedicellina cernua (Pallas, 1774) [Prenant & Bobin, 1956, p. 99]

Knoll Pins, 10 m, on Amathia lendigera, 24.7.71 (KH); Gannets Bay, 12 to 14 m, 8.8.74 (KH); Lundy Roads, 30 m, common on bryozoans and hydroids, July 1974; Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH); Gannets Rock, 10 m, 15.7.75 (KH/PJH); Tibbetts Point, 15 m, 15.7.75 (KH/PJH); Rat Island N, 3.6 m, 8.7.75 (KH/PJH).

Barentsia gracilis (M. Sars, 1835) [Prenant & Bobin, 1956, p. 107]

Lee Rocks, 17 m, 26.7.72 (KH/PJH); Gannets Bay, 12–14 m, 8.8.74 (KH/PJH); Lundy Roads, 30 m, common on bryozoans and hydroids, July 1974; Tibbetts Point, 15 m, 15.7.75 (KH/PJH); Knoll Pins S, 21.5 m, 10.7.75 (KH/PJH).

REFERENCES

Balavoine, P. (1958). Nouvelle contribution à l'étude des bryozoaires de la région de Dinard et de Saint-Malo. Bull. Lab. marit. Dinard, 43, 52-68.

Cook, P. L. (1964). Polyzoa from west Africa. Notes on the genera Hippoporina Neviani, Hippoporella Canu, Cleidochasma Harmer and Hippoporidra Canu and Bassler (Cheilostomata, Ascophora). Bull. Br. Mus. nat. Hist. (Zool.) 12(1), 1–35. Eggleston, D. (1963). The marine polyzoa of the Isle of Man. Ph.D. Thesis, University of Liverpool.

Gautier, Y. V. (1962). Recherches écologiques sur les Bryozoaires Chilostomes en Mediterranée Occidentale. Thèses présentées à la Faculté des Sciences de l'Université d'Aix Marseille, 91, 434.

Harmelin, J. G. (1970). Les Cribrilaria (Bryozoaires Chilostomes) de Mediterranée; systématique et écologie. Cahiers Biol. mar., 11, 77-98.

Harmer, S. F. (1915). The Polyzoa of the Siboga Expedition. Part 1. Entoprocta, Ctenostomata and Cyclostomata. Siboga Exped., 28A, 1-180.

Harvey, L. A. (1950). The granite shores of Lundy. Rep. Lundy Fld. Soc., 4, 34-44. Harvey, L. A. (1951). The slate shores of Lundy. Ibid., 5, 25-33.

Hastings, A. B. (1944). Notes on Polyzoa (Bryozoa), I. Umbonula verrucosa auctt., U. ovicellata sp. n. and U. littoralis sp. n. Ann. Mag. nat. Hist. Ser. 11, 11, 273-284.

Hastings, A. B. & Ryland, J. S. (1968). The characters of the polyzoan genera Pentapora and Hippodiplosia, with redescriptions of P. foliacea (Ellis and Solander) and H. verrucosa Canu. J. Linn. Soc. (Zool.), 47, 505-514.

Hayward, P. J. (1976). The marine fauna and flora of the Isles of Scilly: Bryozoa II. J. nat. Hist. 10: 319-330.

Heller, C. (1867). Die Bryozoen des adriatischen Meeres. Verh. zool.-bot. Ges. Wien, 17, 77-136.

Herdman, W. A. (1896). Annual Report of the Liverpool marine biologica¹ committee, 6.

Hincks, T. (1862). A catalogue of the zoophytes of south Devon and south Cornwall. Ann. Mag. nat. Hist. Ser. 3, 9, 22-30, 200-207, 303-310, 467-475.

Hincks, T. (1880). A history of the British Marine Polyzoa. London, Van Voorst. 2 vols.

Hiscock, K. (1974). The marine fauna of Lundy. General Introduction Rep. Lundy Fld. Soc., 25, 16-19.

Joliet, L. (1877). Contribution à l'histoire naturelle des Bryozoaires des côtes de France. Archs Zool. exp. gén., 6, 193-304.

Marcus, E. (1940). Mosdyr (Bryozoa eller Polyzoa). Danm. Fauna, 46, 401.

Marine Biological Association (1957). Plymouth Marine Fauna. Third Edition. Marine Biological Association of the United Kingdom, Plymouth, 457 pp.

Norman, A. M. (1903). Notes on the natural history of East Finmark. Polyzoa (continued). Ann. Mag. nat. Hist. Ser. 7, 12, 87-128.

Prenant, M. and Bobin, G. (1956). Bryozoaires, Pt. I. Entoproctes, Phylactolèmes, Ctenostomes. Faune Fr., 60, 1-398.

Prenant, M. and Bobin, G. (1966). Op. cit., Pt. II, Chilostomes Anasca. Ibid., 68, 1 - 647.

Pruvot, G. (1897). Essai sur les fonds et la faune de la Manche occidentale (côtes de Bretagne), comparés à ceux du Golfe de Lion. Archs Zool. exp. gen., (3,5) 510-617.

Ryland, J. S. (1963). The species of Haplopoma (Polyzoa). Sarsia, 10, 9-18.

Ryland, J. S. (1965). Polyzoa. Catalogue of main marine fouling organisms, vol. 2 OECD publications, no. 17915.

Ryland, J. S. (1968). On marine Polyzoa III. Schizoporella ansata auctt. J. nat. Hist., 2, 535-546.

Ryland, J. S. (1969). A nomenclatural index to 'A history of the British Marine Polyzoa' by T. Hincks (1880). Bull. Br. Mus. nat. Hist. (Zool.), 17(6), 205-260.

Ryland, J. S. and Stebbing, A. R. D. (1971). Two little known bryozoans from the west of Ireland. Ir. Nat. J., 17(3), 65-70.