

Porcupine Newsletter

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* * * * *

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EDITORIAL

Members unfortunately unable to attend the September field excursion to the Isle-of-Wight will hopefully be impressed (jealous?) by the 150-odd species discovered by our intrepid band of **Porcupines** within the duration of one tide. Apart from the odd new record, some follow-up is continuing - Bill Farnham with the unusual *Vaucheria* and Martin Sheader with the *Caprella* sp., which, whatever it is, is not a species previously recorded in UK! Suspicions of yet another Japanese immigrant have been mooted as one hypothesis.

Apropos meetings, Members are reminded that it is astoundingly more convenient to the organizing and running of such events if proposing attendees are able to inform the organizers in advance. Whilst a pleasant informality has always been an essential part of **Porcupine**, it makes the planning of meetings rather easier if some idea of numbers attending and speaking is available. And most Members enjoy a bit of social communication. Contact addresses and often telephone numbers are given for all future meetings announcements. Most of all, we are always delighted to see people at meetings. The policy of moving meetings around the country has continued (albeit somewhat polar of late) in order to maximise the convenience of meetings to Members, though some Members seem to reach most parts of the country from Skye or Southampton.

Apropos the Annual General Meeting in April, the Council would as ever be delighted to receive any nominations of candidates for Office-bearing and ex-officio posts on the Council. Why not have some influence on your society, if only by delegation. And while your pen is poised, don't forget to submit your articles for the Newsletter, suggestions for future meetings and all other constructive communications (offers for writing an Hon. Editor's report for the AGM would really be appreciated!).

The predicted stock of **Porcupine** sweatshirts is now in (red, pale blue, green, white or black), and still at the bargain rate of £11.00, obtainable from the Hon. Ed.

Finally, it is that time of year to wish all our readers Merry Christmas, and to remind them that the next annual subscription is due on January 1st (£8.00 to most, £5.00 to *bona fide* full-time students. Members with Banker's Orders need only reassure themselves of their validity; Members without may perhaps consider this more efficient payment system (forms are available from the Hon. Treasurer). And Members in arrears from the current year may like to make amends for Christmas.

Roger Bamber, Hon, Editor

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AUTUMN FIELD MEETING AT OSBORNE BAY, ISLE OF WIGHT 8 September 1991

Roger Herbert

Medina Valley Centre, Dodnor Lane, Newport, Isle of Wight PO30 5TE

Her Majesty Queen Victoria, a pioneer and early practitioner of seaside holidays, would surely have given Royal Consent to the eight Porcupines who attended the field meeting at Osborne on the Isle of Wight. Excluding the exceptional enthusiasm and commitment of Frank and Rosie Evans, it was unfortunate that no-one could stay longer than the Sunday afternoon. However, this only served to intensify efforts on surveying Victoria's private beach at Osborne Bay. Having received special permission and visitor passes to drive through Osborne House estate, we arrived to discover the tide still very high (a common Solent phenomenon!). No time wasted: supralittoral studies were quickly underway and the clean unspoilt nature of the shingle bank with its interesting flora admired. Remains of an old sea wall and "bathing carriage railway" provided an opportunity for molluscan enthusiasts to issue a challenge to find *Littorina neritoides*, however to no avail! By 15.45 the by now visibly receding tide revealed large quantities of nudibranch spawn on algae. Three adults, subsequently identified as *Goniodoris castanea* (a new record for I.O.W shores) were found in close association with the tunicate *Botryllus schlosseri*. Four hours after high water, the extensive beds of *Zostera marina* were uncovered, upon which high densities of the gastropod *Rissoa membranacea* were observed. There was copious hydroid growth on the *Zostera* blades, but no *Laomedea* were identified (sorry, Paul!).

Worm pipefish, *Nerophis lumbriciformis*, and deep-snouted pipefish, *Syngnathus typhle*, were collected with a small hand net amongst the *Zostera* just below ELWS. Roger Bamber sampled infauna from upper, middle and lower beach using a 1 mm mesh sieve kindly provided by Jan Light and Ian Killeen (details in Appendix). Bill Farnham pointed out impressive infestations of the fungus *Mycaureola dilseae* on host red alga *Dilsea carnosa*. As we were leaving, three heron, *Ardea cinerea*, came down to feed at the tide's edge, a reminder of the bay's ornithological interest, particularly for over-wintering grebes and divers (Podicipedidae and Gaviidae) which presumably benefit from the eel-grass and associated fauna.

Bill Farnham was sufficiently impressed with the algae that he revisited the Bay on 24 October, confirming the identification of some species and adding a further five to those recorded in September. All are included in the following list (those newly recorded in October marked *).

Site Description and Species List

Osborne Bay, OS SZ526953, 50°46.2'N 01°15'W.

Date: 8 September 1991

Time of Low Water 1713 Height of low water 0.7 m

Survey Began 1500 Survey finished 1800

Weather bright and sunny, light breeze

Substrate - predominantly sand with gravel, some areas of soft sand/mud. Boulders and fallen trees on the upper shore at east of bay and remains of concrete/polished stone "bathing carriage railway" (apparently known as "bathing pier" on old maps).

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Fauna and flora of Osborne Bay, 8 September 1991
(Names as in Howson, 1987)

FAUNA

PORIFERA

Leucosolenia ? variabilis Frequent on algae.

CNIDARIA

Gonothyrea loveni Common on *Zostera*

Clytia hemisphaerica Common on *Zostera*

Anemonia sulcata Frequent in shallow pools on algae and *Zostera*.

Actinia equina Common amongst rocks

Actinia fragacea Common amongst rocks

Chrysaora isosceles 3 observed stranded on the shore.

NEMERTEA

Lineus ruber Beneath bedded stones, upper shore.

ANNELIDA

Tubificoides benedeni Occasional in upper shore muddier sediment.

Scoloplos armiger Abundant in the sediments

Spiophanes bombyx Rare, lower shore beach

Pygospio elegans Frequent to abundant in mid-shore beach

Spio martinensis Occasional in mid-shore beach

Chaetozone setosa Occasional in low shore beach

Cauleriella killariensis One individual in lower shore beach.

Capitella capitata Rare in beach

Notomastus latericeus Common in lower shore beach

Arenicola marina Common in the beach

Glycera alba Occasional in beach (typical predator density)

Nephtys cirrosa Occasional in mid-shore beach

Nephtys caeca Occasional in mid-shore beach

Euclymene oerstedii Common throughout the beach

Ampharete acutifrons Rare in lower shore beach

Lanice conchilega Common across the beach

Sabella pavonina Frequent amongst *Zostera*

Pomatoceros triqueter Common on rocks and wood.

Spirorbis spirorbis Occasional on *Fucus*

MOLLUSCA

Lepidochitona cinereus Occasional on "gravel", mid-shore downwards

Patella vulgata Common, upper shore rocks

Gibbula cineraria Occasional, lower shore

Lacuna vincta Rare on lower shore fucoids and *Zostera*

Littorina littorea Frequent, mid-shore downwards

L. saxatilis Common on upper shore rocks

L. obtusata seg. Abundant on fucoids

Hydrobia ulvae Occasional on mud

Rissoa parva parva Common on lower shore weeds

R. parva interrupta Common on lower shore weeds

R. membranacea Common on *Zostera*: the largest colony on the Island!

Crepidula fornicata Common

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<i>Hinia reticulata</i>	Common in sand amongst <i>Zostera</i>
<i>Goniodoris castanea</i>	Common, pairs spawning on algae; the first isle-of Wight record!
<i>Venerupis pullastra</i>	One juvenile amongst <i>Zostera</i> , ELWS
<i>Nucula nitidosa</i>	Very common in <i>Zostera</i> , ELWS; one in mid-shore beach.
<i>Cerastoderma edule</i>	Frequent in beach
<i>Parvicardium exiguum</i>	Uncommon, lower shore downwards, in sand amongst <i>Zostera</i>
<i>Loripes lucinalis</i>	Common in sand amongst <i>Zostera</i>
<u>Dead shells only</u>	
<i>Buccinum undatum</i>	
<i>Ocenebra erinacea</i>	
<i>Gibbula magus</i>	
PYCNOGONIDA	
<i>Nymphon gracile</i>	Rare, amongst filamentous algae
<i>Achelia echinata</i>	Rare in <i>Griffithsia</i>
<i>Endeis spinosa</i>	Abundant amongst filamentous algae
CRUSTACEA	
Harpacticoid indet	Common in upper shore sand
<i>Elminius modestus</i>	Occasional on wood and rocks
<i>Balanus balanoides</i>	Common on rocks and wood
<i>Praunus flexuosus</i>	Occasional amongst weed
<i>Leptochelia savignyi</i>	Occasional in sand at LWM
<i>Tanaopsis graciloides</i>	One in sand at LWM
<i>Socarnes erythrophthalmus</i>	Occasional in sand at LWM
<i>Ampelisca brevicornis</i>	Frequent across the shore
<i>Harpinia pectinata</i>	Frequent at LWM
<i>Perioculoides longimanus</i>	One in sand at LWM
<i>Pontocrates altamarinus</i>	Three in sand at LWM
<i>Corophium crassicorne</i>	Across the shore, commoner at LWM
<i>Siphonoecetes kroyerianus</i>	Common in the sand at LWM
<i>Erichthonius punctatus</i>	Common in tubes on <i>Zostera</i>
<i>Microprotopus maculatus</i>	One in upper shore sand
<i>Dexamine spinosa</i>	Frequent in lower shore sand
<i>Urothoe poseidonis</i>	One in sand at LWM
<i>Talitrus saltator</i>	Abundant under weed, upper shore.
<i>Phthisica marina</i>	Abundant at LWM
<i>Pariambus typicus</i>	Three at LWM
<i>Caprella</i> sp.	Frequent amongst weed
<i>Cumella pygmaea</i>	Rare, upper shore sand
<i>Iphinoe trispinosa</i>	Common in sand at LWM
<i>Diasyllis rugosa</i>	Occasional in sand at LWM
<i>Palaemon serratus</i>	Common
<i>Palaemon</i> sp. juveniles	Frequent in upper shore weed, ?of the above
<i>Hippolyte varians</i>	Common in <i>Zostera</i> bed, including <i>fascigera</i> forms.
<i>Crangon crangon</i>	Common.
<i>Pagurus bernhardus</i>	Frequent.
<i>Porcellana platycheles</i>	Occasional under rocks
<i>Pisidia longicornis</i>	Frequent under rocks
<i>Carcinus maenas</i>	Common.



<i>Macropodia rostrata</i>	Frequent amongst algae
BRYOZOA	
<i>Amathia lendigera</i>	Common amongst weed
<i>Electra pilosa</i>	On <i>Fucus</i>
TUNICATA	
<i>Botryllus schlosseri</i>	Frequent on algae and <i>Zostera</i>
<i>Ascidia aspersa</i>	One small individual
? <i>Morchelium argus</i>	One small specimen
Didemnidae sp.	on holdfasts
PISCES	
<i>Spinachia spinachia</i>	One collected amongst <i>Zostera</i>
<i>Syngnathus typhle</i>	Two collected amongst <i>Zostera</i>
<i>Nerophis lumbriciformis</i>	Three collected amongst <i>Zostera</i>
<i>Crenilabrus melops</i>	Several young amongst <i>Zostera</i>
<i>Liza</i> sp. indet. juveniles	Common in shoals inshore
<i>Pomatoschistus minutus</i>	Common throughout the shore
AVES	
<i>Ardea cinerea</i>	(Heron)
<i>Larus ridibundus</i>	(Black-headed gull)

FLORA

ALGAE

CYANOPHYCEAE

Lyngbya sp. Rare, epiphytic

XANTHOPHYCEAE

Vaucheria ? *dichotoma* Occasional, with male and female reproductive structures; only a few overwintering vegetative filaments were present in October, in the mid-littoral on top of muddy-sand hummocks (possibly created by bait-diggers). This most interesting record could prove to be an unusual variant of *V. velutina*; the material is being investigated by Dr T. Christensen of Copenhagen (*vide* Br. phycol. J., 21 (1986); p.20).

CHLOROPHYCEAE

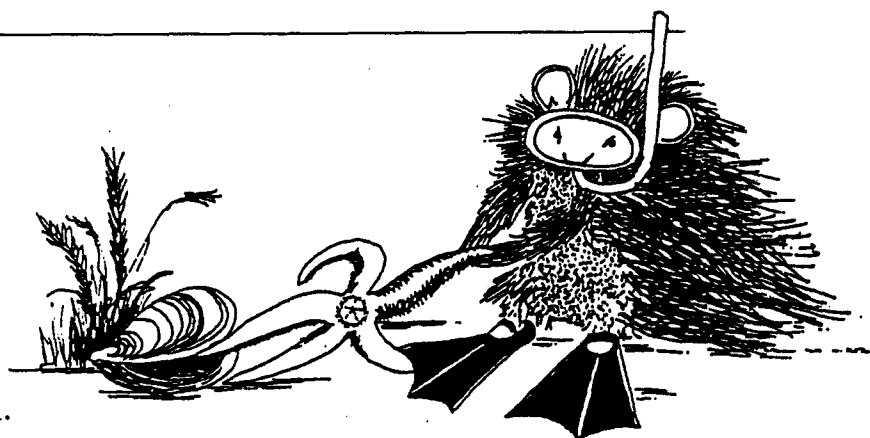
Cladophora ? *sericea* Occasional
C. rupestris Occasional
Enteromorpha intestinalis Frequent
*E. prolifera** Occasional
Rhizoclonium tortuosum Occasional
Ulva lactuca Common (perhaps also including other species)

PHAEOPHYCEAE

Ascophyllum nodosum With receptacles; abundant.
Chorda filum Occasional
Cladostephus verticillatus Occasional
Dictyota dichotoma Occasional
Ectocarpus siliculosus Occasional; with plurilocular sporangia
Fucus serratus With receptacles; abundant
F. spiralis With receptacles; abundant
F. vesiculosus With receptacles; abundant

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<i>Laminaria saccharina</i>	Common
<i>Pilayella littoralis</i>	Frequent
<i>Ralfsia clavata</i>	Occasional, on stones.
<i>Sargassum muticum</i>	Abundant, with receptacles
RHODOPHYCEAE	
<i>Audouinella daviesii</i> *	Occasional, on <i>Zostera</i> .
<i>A. floridula</i>	Frequent, binding mats of sand
<i>Callithamnion? corymbosum</i>	Rare
<i>Catenella caespitosa</i>	Occasional
<i>Ceramium diaphanum/ strictum</i> *	Rare, on <i>Zostera</i>
<i>C. rubrum</i>	Epiphytic
<i>Chondria tenuissima</i>	Occasional
<i>Chondrus crispus</i>	Frequent; with ♀ reproductive structures
<i>Chylocladia verticillata</i>	Occasional
<i>Cystoclonium purpureum</i>	Frequent
<i>Cryptopleura ramosa</i>	Occasional
<i>Erythrotrichia carnea</i>	Frequent, on <i>Zostera</i>
<i>Dilsea carnosa</i>	Occasional, some with fungus (see below)
<i>Gelidium pusillum</i>	Occasional
<i>Gracilaria verrucosa</i>	Occasional
<i>Gracilariopsis</i> sp.*	Occasional
<i>Grateloupia doryphora</i>	Rare (drift)
<i>Griffithsia flosculosa</i>	Frequent
<i>Laurencia obtusa</i>	Occasional
<i>Monosporus pedicellatus</i>	Occasional in <i>Zostera</i> bed; with sporangia
<i>Plocamium cartilagineum</i>	Occasional
<i>Polyides rotundus</i>	Occasional
<i>Porphyra purpurea</i>	Frequent
<i>Rhodophyllis divaricata</i>	Rare; with ♀ reproductive structures
<i>Sphondylothamnion multifidum</i>	Rare in <i>Zostera</i> bed; with ♀ reproductive structures
<i>Scinaia forcellata</i> subsp. <i>forcellata</i> *	Rare in <i>Zostera</i> bed; with ♀ reproductive structures
ANGIOSPERMAE	
<i>Zostera marina</i>	Abundant
FUNGI	
<i>Mycaureola dilseae</i>	Occasional, on <i>Dilsea</i> ; with basidiocarps
LICHENS	
<i>Verrucaria maura</i>	Common



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APPENDIX: Distribution of infaunal species across the shore (1 mm sieve).

	Upper shore above <i>Zostera</i>	Mid shore in <i>Zostera</i>	ELWS in <i>Zostera</i>
<i>Tubificoides benedeni</i>	o		
<i>Scoloplos armiger</i>	a	a	a
<i>Spiophanes bombyx</i>			r
<i>Pygospio elegans</i>	c	a	
<i>Spio martinensis</i>		o	
<i>Chaetozone setosa</i>			o
<i>Cauleriella killariensis</i>			r
<i>Capitella capitata</i>	o		r
<i>Notomastus latericeus</i>			c
<i>Glycera alba</i>	r	r	f
<i>Nephtys cirrosa</i>		o	
<i>Nephtys caeca</i>		o	
<i>Euclymene oerstedii</i>	c	c	c
<i>Ampharete acutifrons</i>			o
<i>Lanice conchilega</i>	c	a	c
<i>Venerupis pullastra</i>			r
<i>Nucula turgida</i>		r	
<i>Cerastoderma edule</i>			o
<i>Lepidochitona cinereus</i>			o
<i>Harpacticoid sp. indet</i>	c		
<i>Leptochelia savignyi</i>			o
<i>Tanaopsis graciloides</i>			r
<i>Socarnes erythrophthalmus</i>			o
<i>Ampelisca brevicornis</i>	f	o	f
<i>Harpinia pectinata</i>			f
<i>Perioculoides longimanus</i>			r
<i>Pontocrates altamarinus</i>			o
<i>Corophium crassicorne</i>	r		c
<i>Siphonoecetes kroyerianus</i>			c
<i>Microprotopus maculatus</i>	r		
<i>Dexamine spinosa</i>		o	c
<i>Urothoe poseidonis</i>			r
<i>Phtisica marina</i>			a
<i>Pariambus typicus</i>			o
<i>Cumella pygmaea</i>	r		
<i>Iphinoe trispinosa</i>			c
<i>Diastylis rugosa</i>			o

Reference: Howson C.M. (Ed.), 1987. Directory of the British Marine Fauna and Flora. A coded checklist of the marine fauna and flora of the British Isles and its surrounding seas. Marine Conservation Society, 471pp.

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PORCUPINE AIMS BUT FAILS TO RECORD A HIT?

Dennis Seaward, Hon. Records Coordinator

Barn Court, Hamlet, Chetnole, Sherborne, Dorset DT9 6NY

"The chief aims of PORCUPINE are: 1. to promote interest in aspects of marine biology involved in the distribution and recording of marine organisms...." (PN 1; 1)

"PORCUPINE will produce a guide to Faunal Lists and Systematic Keys ..." (PN 1; 39)

"In my [Recorder's] Report to the 1978 AGM I stated that I had no records of any kind lodged with me during 1977. I cannot, however, make this claim for 1978 as I have had some records of Crustacea from the north coast of Spain. I regard this as the start of a data bank that will eventually become very large ..." (PN 1; 130)

"PORCUPINE had a Records Convenor from the outset; since PN 3 (4) the newsletter has had a specific 'New Records' column However, over the years, the Hon Records co-whatevers have received very few records directly through their Porcupine role, while in 5 years the Newsletter's New Records bit has received only 5 direct submissions." (PN 4; 214)

"...Porcupine did not feature at that [the Irish Sea] conference at all. It should have done, it should also have provided a mass of Irish Sea records collected since its inception." (PN 5; 15)

Has Porcupine failed in one of its chief aims? If success is taken to mean the systematic accumulation of large numbers of records in ordered and accessible form in order to determine and portray the distribution of all marine species, as implied by Norman Hammond in the final extract above, then it has failed and, in my opinion, is bound to fail. Do Members envisage Porcupine fulfilling the role which he suggests?

I became Hon. Records Coordinator to Porcupine at the 1991 AGM, having just resigned after 11 years as Marine Recorder for the Conchological Society recording scheme, so I have some knowledge of the practicality of dealing with large numbers of records. Handling, assembling and preparing material for publication, and the associated correspondence, occupied a large proportion of my time and a significant space in my house - with a one-phylum scheme largely concerned only with presence/absence data.

Hammond draws a comparison with the advanced state of recording in the ornithological and botanical worlds, but is this valid? The 500 or so bird species and, say, 5000 plants can be readily seen and identified in the field (alright, there may be a few difficult ones!), using the many excellent field guides readily available, by the thousands of recorders who are members of large societies, in some cases employing paid staff and owning dedicated computing equipment.

Now contrast Porcupine, with 10,000 ? or 100,000 ? species under its flipper, most of them only accessible with considerable effort and identifiable with difficulty. What resources have we to help us record their distribution? Honorary Officers, no data-handling equipment and a mere 200 or so Members, most of whom are not interested in recording (i.e. DIY recording!), and probably all with different ideas of what they mean and want.

The theme of the 1990 AGM at Dundee was marine recording, provoking vigorous discussion

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but little else. Bamber's stimulating and controversial (i.e. rude comments about my map!) examination of the whole question of recording (PN 4; 214-220) gives some indication of the size and complexity of the task, and commends it to others as a valuable exercise, although PN is recommended as a repository.

Need I labour the point more? Members are apparently not interested in taking part in any formalised recording scheme, amassing dots for maps. It is not realistic for Porcupine to adopt any such scheme, since much greater resources than this Society has are required.

But this does not mean that Porcupine has failed in its stated aim of "promoting interest", for it does this in most of its meetings and Newsletters. I consider that the role of the Society, its meetings and Newsletter in this respect, lies in providing repository, forum and publicity for relevant articles, faunal lists and systematic keys, and in encouraging wider dissemination of unpublished data (e.g. Costello re Spooner material, PN 5; 44), greater use of acquired material (e.g. Harvey & Gage re SMBA collections, PN 5; 27), and production of identification aids (e.g. Cornelius on hydroids, PN 2; 126).

This promotion of interest already happens without the involvement or need for an Honorary Records Coordinator, so I shall resign that post at the 1992 AGM and propose that the Society does not need such an officer. However, I should welcome debate upon the argument. (Argument? It takes two to make an argument; has anyone read this?).

* * * * *



Letters to the Editor

From David Lampard
Keeper of Natural Sciences
Ipswich Museums & Galleries
High Street, Ipswich IP1 3QH

I have a small request for information: I have acquired a small collection of invertebrates about which I am seeking enlightenment. The only information that I have is from the labels on the jars which typically read: Ernest Holt V / 1949 st.22 and the initials M.B. The dates range from 1949 to 1952 and locality is given as Greenland or East Greenland.

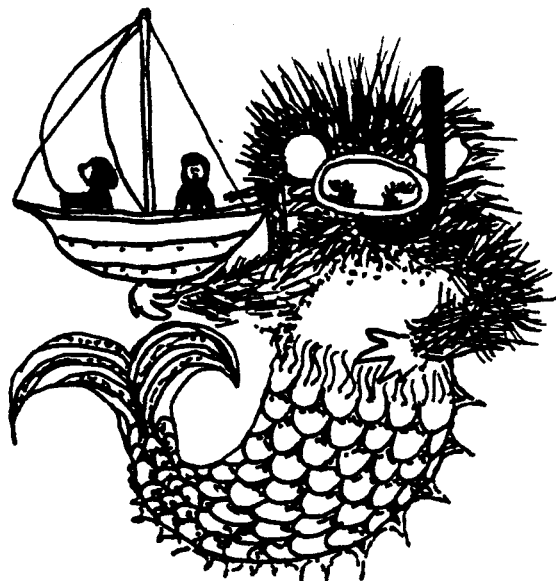
I assume that the specimens were collected on a survey or expedition. I would be most interested to find out if any Porcupines have further details about the samples.

Yours sincerely,

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From Frank Evans
Dove Marine Laboratory
Cullercoats NE30 4PZ

Re Mermaids (PN 5 (2); 42), this one was sketched while sunning herself in Cullercoats Bay, no doubt attracted by the Blue Flag of Water Purity and Lotsaloes awarded by the EC. On second thoughts, seeing what she was contemplating for those sailors, perhaps she was not a Mermaid but a Siren!



[Further to Merporcupines, and obviously following on from our own article, Members may have noticed the mass national newspaper coverage obtained by David Hepple, including the memorable photograph of his attempt to inhale a particularly emaciated specimen: alas it will not reproduce well herein, but copies are available from myself for blackmail purposes. Hon.Ed.]

From J. Varnavas
AHK-B-64, Dhekelia,
Larnaca, Cyprus

Dear Sir,

I am a conchologist interested in making contacts with other conchologists with a view to exchanging specimens. I would be very grateful if any of your Society members would be interested in cooperating with me. Thanking you in advance, yours faithfully...

[I am sure that there are some conchologists out there still - H.E.]

NOTICES

ROYAL IRISH ACADEMY, PRAEGER COMMITTEE FOR FIELD NATURAL HISTORY - GRANT INFORMATION. Grants, not normally exceeding IR£300 in any one year, are available for fieldwork relevant to the natural history of Ireland. Grantees need not be based in Ireland. Applications are particularly welcomed from amateur natural historians, but awards cannot be made in support of undergraduate or postgraduate student projects. Preference will be given to projects which concern sites of special scientific interest and/or endangered species.

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It is preferred that publication of results should be in the Irish Naturalists' Journal; Irish Birds; or (if appropriate) the Academy's Proceedings. A representative set of any material collected must be deposited in the National Museum, Dublin; the National Herbarium, Dublin; or the Ulster Museum, Belfast; or any other recognised institution in Ireland.

Application forms, which must be returned by 15th February, are now available from: The Secretary, Praeger Committee, Royal Irish Academy, 19 Dawson Street, Dublin 2.

CHANGES IN MARINE COMMUNITIES : A scientific meeting to mark the retirement of **Dr Frank Evans and Dr Jack Buchanan**. In order to honour the contribution that Jack Buchanan and Frank Evans have made to marine ecology, it is proposed to hold a scientific meeting on the occasion of their retirement from the Dove Marine Laboratory of the University of Newcastle upon Tyne. In view of their research interests this will be structured around the following themes: changes in benthic communities, changes in planktonic communities, plankton-benthos interactions, and long-term changes (historical perspectives). The meeting will be open to all. **Date & venue:** 8-9 July 1992 at the University of Newcastle upon Tyne. A celebratory dinner will be held on the evening of July 8th.

Call for Papers: priority will be given to original papers on any of the above themes. It is planned to publish as many as possible of the fully refereed contributions in a numbered issue of a major international journal. Although verbal presentations will be limited to 20 minutes, more substantial papers will be considered for printing. Short abstracts should be sent to **Dr R.M. Warwick at Plymouth Marine Laboratory, Prospect Place, Plymouth PL1 3DH, U.K.** before the end of January 1992. Space will be available for the display of posters (abstracts to the same address). Accommodation will be available in a hall of residence.

For further details, application forms, etc., contact **M.A. Kendall** at the above address.

A WEEKEND DISCUSSION-WORKSHOP on Molluscan marine recording will be held by the Conchological Society on 16-17 May 1992 at Glasgow Museum & Art Gallery. Particular emphasis will be given to the future of molluscan marine recording - "The Way Forward". All **Porcupines** are especially welcome to attend. For further information contact **Ian Killeen**, 163 High Road West, Felixstowe IP11 9BD, U.K.

ESTUARINE AND COASTAL SCIENCES ASSOCIATION UK Local Meeting: SOUTHAMPTON WATER AND THE SOLENT, 3-4 April 1992. The Department of Oceanography, University of Southampton, will be hosting the above meeting on Friday 3 April 1992, with trips arranged to parts of the estuary on the Saturday for those who may be interested. This is the second ECSA meeting devoted to Southampton Water and the Solent and provides an opportunity to bring together information covering recent research and developments in the area.

Would those interested in giving a paper, or producing a poster for the meeting please contact **Dr Martin Shearer**, Department of Oceanography, University of Southampton, Southampton, Hampshire SO9 5NH (Tel: 0703 593639), with details. Abstracts of contributions will be published in the ECSA Bulletin, but, if contributors are agreeable, it is intended to put together the contributions as a Report on Southampton Water and the Solent.

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A GUIDE TO POLYCHAETE-INFESTING COPEPODS FROM BRITISH WATERS

Myles O'Reilly

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Copepods infesting invertebrates are relatively poorly known in comparison with their piscicolous counterparts which, on account of the economic importance of their hosts, have been extensively studied in British waters (see Kabata, 1979). However, in his review of the association of copepods with marine invertebrates, Gotto (1979) discusses over 30 copepod families which associate with almost the complete spectrum of marine invertebrate groups. Being a dominant component of many marine ecosystems, polychaetes are not surprisingly hosts to several different copepod families; about thirty species representing thirteen families are present in British waters.

Many of these species appear to be rather rare, but they are probably overlooked by most biologists and hence merely underrecorded. Some species remain unrecorded since their original, and often inadequate, descriptions from the 1800s and yet diligent examination of appropriate hosts is often all that is required to rediscover these. Moreover, completely new species are still being found around British coasts. Identification of parasitic or commensal copepods in this area will be aided with the recent publication of a Linnean Society synopsis of this group (Kabata & Gotto, 1991). Those species known from British polychaetes are briefly reviewed here. Further details are available in the references listed.

The level of association of copepods with their hosts ranges from loosely associated commensals which share their host's tubes to highly adapted ecto- and endoparasites. The former may possess a morphology little different from their free-living relatives, while the latter are variously transformed with a general tendency towards reduction and simplification of anatomy. The grossly modified forms may consist of little more than spherical bodies without any discernable appendages except for a pair of ovisacs betraying the true nature of the parasite.

Family Sabelliphilidae

This and the following two families are included in the superfamily Lichomolgoidea erected by Humes and Stock (1973). Altogether it contains 76 genera and over 300 species, most of which are commensals of a wide range of marine invertebrates. Morphology is relatively unmodified. In the Sabelliphilidae the leg rami are either all three-segmented or with all endopods two-segmented. Three genera are known to occur on British polychaetes.

Sabelliphilus (Fig.1): *S. elongatus* M.Sars 1862 attaches itself to the branchial plumes of *Sabella pavonina* and *Spirographis spallanzani*, while *Sabelliphilus sarsi* Claparède 1870 attaches to the body of *Spirographis spallanzani*. Both species are widely distributed where their hosts occur (see Gotto, 1960; Bocquet, Stock & Kleeton, 1963; Bocquet & Stock, 1964).

Myxomolgus (Fig.2): *M. myxicolae* (Bocquet & Stock 1958) occurs with *Myxicola infundibulum* from Plymouth and Roscoff, and *Myxomolgus proximus* Humes & Stock 1973 with *Myxicola aesthetica* off the Channel coast of France. Both species inhabit the layers of the mucus tube of their hosts.

Scambicornis (Fig.3): *S. armoricanus* (Bocquet, Stock & Kleeton 1963) collected from *Eupolymnia nebulosa* at Roscoff. As only the male has been described the generic identity remains provisional (see Bocquet *et al.*, 1963).

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Family Lichomolgidae

Similar to Sabelliphilids, but legs 1 to 3 endopods usually always three-segmented, leg 4 endopod two- or one-segmented or reduced to a small knob or absent. There are three species associated with polychaetes in British waters.

Acaenomolgus (Fig.4): *A. protulae* (Stock, 1959) attaches to the branchial plumes of *Protula tubularia*. Recorded from Strangford Lough, Northern Ireland (Gotto, 1961) and from Great Cumbrae, Firth of Clyde (M. O'Reilly, unpublished data, 1988).

Doridicola (genus as redefined by Humes & Stock, 1983). *D. hirsutipes* (T. Scott 1893) collected in or on tubes of *Sabella* from the Firth of Forth and also from *Zostera* beds in Liverpool Bay (see Scott, 1905). *D. agilis* Leydig 1853 is normally associated with nudibranchs but has been recorded from *Polynoe* sp. (see Bocquet *et al.*, 1963).

Family Pseudanthessidae

Similar to Lichomolgids but leg 4 endopod with one segment at most and leg 5 without a free segment. There is only one species, rather loosely associated with both polychaetes and the bivalve *Spisula subtruncata*.

Pseudanthessus (Fig.5): *P. gracilis* Claus 1889: widely recorded from washings of various algae and invertebrates including *Filograna* sp. and *Pomatoceros triqueter*. These associations may be circumstantial (see Bocquet *et al.*, 1963).

Family Clausidiidae

Body cyclopiform to elongate. Terminal joint of antenna eccentrically implanted; mandible with accessory pieces; legs 1 to 4 unreduced. A wide host spectrum but only one polychaete associate in Britain.

Hersilioides (Fig.6): *H. latericia* (Grube 1869) is found within the tubes of the maldanid polychaete *Clymenura clypeata*. Recorded from Norfolk (Hamond, 1973), Southampton (R. Bamber & M. O'Reilly, unpublished, 1987-1991) and from Ireland (Holmes, 1986).

Family Clausiidae

Similar to the previous family but antenna with prehensile claws, mandible reduced in size and legs 1 to 4 often reduced. A wide host spectrum with several species from polychaetes.

Mesnilia (Fig.7): two similar species, both associated with *Polydora flava*. *M. cluthae* (T & A Scott 1896) recorded from the Firth of Clyde and from Plymouth (see Gotto, 1965) and *M. martinensis* Canu 1898 recorded from Normandy (Bocquet & Stock, 1959). A single female, probably of the latter species, was recently collected from *Polydora* sp. off Devon (M. O'Reilly & P. Garwood, unpublished, 1990). *M. cluthae* is also associated with *Polydora ciliata* from Norfolk (Hamond, 1973).

Rhodinicola (Fig.8): *R. elongata* Levinsen 1878 cohabits the tubes of *Rhodine gracilior*. It has been collected since the 1970's from off Northumberland (R. Bamber/M. Sheader, unpubl.) and more recently from the Firths of Forth (1986) and Clyde (1989) (M. O'Reilly, unpubl.). A modern redescription is given by Bresciani (1964a).

"*Megaclausia mirabilis*" (Fig.9): a large copepod presently being described by M. O'Reilly (in prep.), which has recently been discovered to share the same host as *Rhodinicola elongata* off Northumberland and in the Firth of Forth. Unlike *R. elongata* the legs are variously reduced.

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Family Eunicolidae

Prosome broadly ovate; ventral sucking disc in female; smaller sucking discs on antennal setae; three pairs of legs. One genus only, which parasitizes Eunicid polychaetes.

Eunicicola (Fig.10): *E. insolens* (T. & A. Scott 1898) occurs on the dorsum of or attached to the branchiae of *Eunice harassii*. It has been recorded from the Firth of Clyde and Strangford Lough (Gotto, 1963).

Family Entobiidae

A small, poorly known family. Legs 1 to 4 markedly displaced laterally with simple elongate rami; leg 5 reduced to a seta; maxillipeds well developed. Endoparasitic in the gut of terebellid polychaetes.

Entobius (Fig.11): *E. hamondi* Gotto 1966 is known from the single female type specimen only. Found in the gut of *Polycirrus caliendrum* from off Plymouth. Further specimens of *Entobius* sp. (not yet determined) have more recently been discovered among material collected off Newcastle (M. O'Reilly & M. Sheader, unpubl.) and in the Minches (M. O'Reilly & B. Cleator, 1989, unpubl.).

Family Nereicolidae

Segmentation of metasome indistinct; urosome reduced to one or two segments; legs reduced or absent. Several genera ectoparasitic on polychaetes of three different families.

Nereicola (Fig.12): *N. ovatus* Keferstein 1863 parasitizes several nereid species including *Perinereis cultrifera*, *Platynereis dumerilii*, *Nereis zonata* and *Nereis rava*. Widely recorded along the channel coast of France, The Mediterranean and the Black Sea (Laubier, 1965).

Sigacheres (Fig.13): *S. brittae* Bresciani 1964(b) is an ectoparasite of the phyllodocid *Sige fusigera* recorded from Denmark and Sweden. This species may be identical with "*Nereicola concinna*" described by Scott (1902) from *Eulalia viridis* in Loch Etive, Scotland.

Selioides (Fig.14): *S. bolbroei* Levinsen 1878 attaches dorsally beneath the elytra of various scaleworms. Recorded from Loch Fyne by Scott (1900) and more recently from the Firth of Forth (1986) and off Newcastle (1989) attached to *Gattyana cirrosa* (M. O'Reilly & G. Lewis, unpubl.). A second species, *Selioides bocqueti* Carton 1965, occurs near Roscoff on *Adyte assimilis* and has recently been collected from Sweden on *Gattyana cirrosa* (M. O'Reilly & A. Mackie, 1989, unpubl.).

Family Gastrodelphyidae

Body segmentation partly obscured in the female; dorsal brood pouch formed by enlarged fourth metasome segment; in the female the urosome is reduced and the maxillipeds are absent; leg 5 absent in both sexes. Found on sabellid polychaetes.

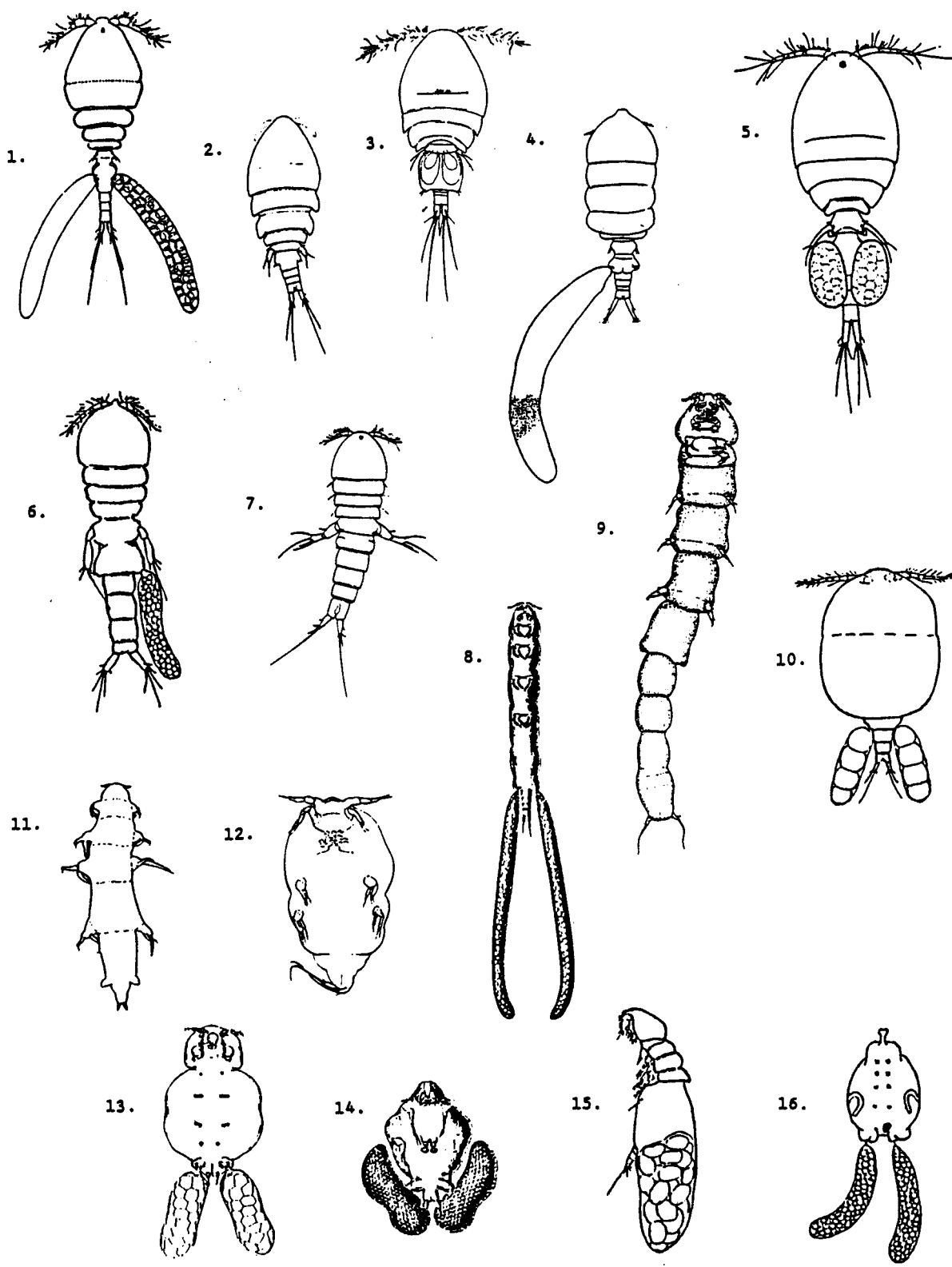
Gastrodelphys (Fig.15): *G. clausii* Graeffe 1883 attaches to the branchial crown of *Bispira volutacornis* and is known from the Channel coast and the Mediterranean (Dudley, 1964).

Family Melinnacheridae

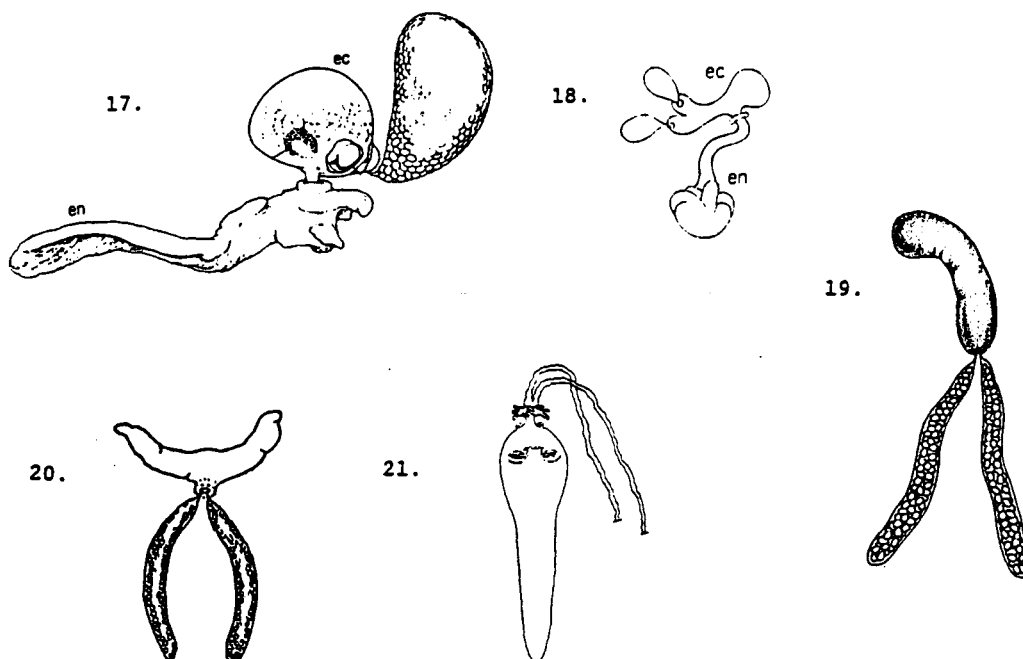
Body ovoid, externally unsegmented; head appendages rudimentary; legs completely absent. Dwarf males are attached between ovisacs. Ectoparasitic on terebellidomorph polychaetes. One genus only.

Melinnacheres (Fig.16): *M. steenstrupi* (Bresciani & Lutzen, 1961) attaches on or near the branchiae of *Terebellides stroemi*. Recorded from western Ireland (Gotto & O'Connor, 1980) and also from the Firth of Clyde (1981) and the North Sea (1989) (M. O'Reilly & B. Cleator, unpubl.). Well known from Sweden, Iceland and Greenland; at the latter location, a second larger species, *M. terebellidis* occurs attached dorsally to the same host. An allied species, *M. ergasiliodes* occurs on *Melinna cristata*

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The figures are supplied as a guide to the appropriate genus or species. For detailed identifications of particular species, consultation of the references given is required. The figures indicate only gross morphology and are not drawn to scale! Unless otherwise stated, they represent adult females.

Figure 1: *Sabelliphilus sarsi*; Fig.2: *Myxomolgus proximus*; Fig.3: *Scambicornus armoricanus* ♂; Fig.4: *Acaenomolgus protulae*; Fig.5: *Pseudanthessius* sp.; Fig.6: *Hersilioides* sp.; Fig.7: *Mesnilia cluthae* (1-7 redrawn from Gotto, 1979); Fig.8: *Rhodinicola elongata* (redrawn from Levinsen, 1878); Fig.9: *Megaclausia mirabilis* (from O'Reilly, in prep.); Fig.10: *Eunicicola clausii* (redrawn from Gotto, 1979); Fig.11: *Entobius hamondi* (redrawn from Gotto, 1966); Fig.12: *Nereicola ovatus* (redrawn from Laubier, 1965); Fig.13: *Sigacheres brittae* (redrawn from Bresciani, 1964b); Fig.14: *Selioides bolbroei* (redrawn from Levinsen, 1878); Fig.15: *Gastrodelphys* sp.; Fig.16: *Melinnacheres steenstrupi* (15-16 redrawn from Gotto, 1979); Fig.17: *Herpyllobius polynoes*; Fig.18: *Phallusiella vera* (17-18 redrawn from Lutzen, 1964); Fig.19: *Xenocoeloma alleni*; Fig.20: *Aphanodromus terebellae* (19-20 redrawn from Bresciani & Lutzen, 1972); Fig.21: *Cyclorhiza megalova* (redrawn from Gotto & Leahy, 1988).

from Sweden and Norway (Bresciani & Lutzen, 1975).

Family Herpyllobiidae

Body consisting of two portions, an ectosoma with ovisacs attached and an endosoma of variable shape which penetrates the host. No oral appendages or legs. Dwarf sac-like males which remain enclosed within their copepodid skin attach between the ovisacs. Parasites of polynoid scaleworms. There are several species, from two genera, recorded from British waters. The family is reviewed in some detail by Lutzen (1964).

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Herpyllobius (Fig.17): *H. polynoes* (Kroyer, 1863) always attaches to the prostomium of its host and has an elongated endosoma. Widely recorded in the North Atlantic on various polynoid genera. In Britain it is known from West Ireland on *Harmothoe lunulata* (Gotto & O'Connor, 1980) and from the Firth of Clyde on *H. andreapolis* (1982) and the Firth of Forth on both *H. andreapolis* and *Gattyana cirrosa* (1986; M. O'Reilly, unpubl.). *Herpyllobius arcticus* Steenstrup & Lutken 1861 is similar to the above species but attaches to a parapodial elytraphore and has an irregularly shaped endosoma. Recorded from Plymouth by Leigh-Sharpe (1926) (under two synonymous generic names) on *Harmothoe impar* and *Gattyana cirrosa*.

Phallusiella (Fig.18): a poorly known genus with only two species, *P. vera* and *P. psalliota*, both described from Plymouth by Leigh-Sharpe (1926). The hosts are *Harmothoe castanea* and *H. extenuata* respectively. They are attached dorsally and have a distinctly bilobed ectosoma. They both remain unrecorded since their original description.

Family Xenocoelomidae

Highly transformed endoparasites of terebellid polychaetes. No appendages except the ovisacs which protrude from the host. Degenerate males are internal parasites of the female. Two genera are recognised.

Xenocoeloma (Fig.19): *X. alleni* (Brumpt 1898) is recorded from *Polycirrus caliendrum* at Plymouth. *X. brumpti* Caullery & Mesnil 1915 parasitizes *Polycirrus arenivorus* on the French coast (Bocquet *et al.*, 1968).

Aphanodromus (Fig.20): *A. terebellae* (Levinsen 1878) is recorded from *Thelepus cincinnatus* and *Nicolea zostericola* in Scandinavia (Bresciani & Lutzen, 1972).

Family Phyllocolididae

Female body reduced with only small vestigial antennae and mouthparts. Ectoparasitic on phyllocolid polychaetes, penetrating their hosts with two long rhizoids. A small family of only three species, one of which has been recently described from the West Coast of Ireland.

Cyclorhiza (Fig.21): *C. megalova* Gotto & Leahy 1988 was discovered in Galway Bay upon *Eteone longa*. A further recent record from Orkney (M. O'Reilly & C. Caldwell, 1991, unpubl.).

ORDER MONSTRILLOIDA

The monstrellids as adults are non-feeding planktonic copepods. They are distinguished by their lack of second antennae, mouthparts or guts. They are, however, parasitic as juveniles inside the bodies of various polychaetes or gastropods. The larvae are enclosed in a spinous sheath, usually with two long absorptive filaments. They become identifiable as copepods just prior to their emergence. Many species are known as adults, but records of their hosts are very scarce (e.g. Isaac, 1975). They have been recorded from polychaetes of different families: *Filograna implexa*, *F. setosa*, *Salmacina dysteri*, *Polydora giardi* and *Syllis gracilis*. There are also unpublished host records in *Spiophanes bombyx* from the Firth of Forth, *Polycirrus norvegicus* off Sweden and *Tharyx* sp. in the North Sea (M. O'Reilly & A. Mackie, unpubl.). At present, host records are too few to indicate how host-specific these copepods might be.

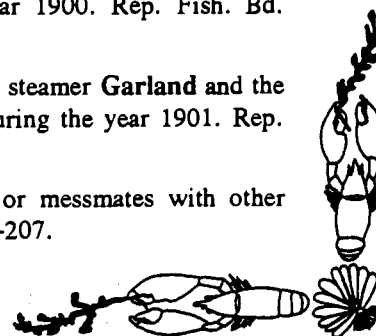
The author is presently collecting new records or new specimens of any copepods parasitic or commensal with polychaetes or other invertebrate groups and would be delighted to receive any material for identification.

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REFERENCES

- Bocquet C., Bocquet-Vedrine J. & L'Hardy J., 1968. Analyse des rapports du copepods parasite *Xenocoeloma alleni* (Brumpt) et de son hote *Polycirrus caliendrum* Claparède. Cah. Biol. Mar., **9**; 285-296.
- Bocquet C. & Stock J.H., 1958. Copepodes parasites d'invertèbres des cotes de France. VI Description de *Paranthesius myxicolae* nov. sp. copepode semi-parasite du Sabellidae *Myxicola infundibulum* (Renier). Proc. Kon. Ned. Akad. v. Wet. Amsterdam, Ser.C, **61**; 243-253.
- Bocquet C. & Stock J.H., 1959. Copepodes parasites d'invertèbres des cotes de la Manche. V. Redescription de *Mesnilia cluthae* (T. & A. Scott). Archiv. Zool. exp. et gen., **97** (Notes et Revue 1); 1-18.
- Bocquet C. & Stock J.H., 1964. Copepodes parasites d'invertèbres des cotes de France. XVII A-B. Le genre *Sabelliphilus* M. Sars 1862. Proc. Kon. Ned. Akad. v. Wet. Amsterdam, Ser.C, **67**; 157-181.
- Bocquet C., Stock J.H. & Kleeton G., 1963. Copepodes parasites d'invertèbres des cotes de la Manche. X. Cyclopoïdes poecilostomes associés aux annélides polychètes dans la région de Roscoff. Archiv Zool. exp. et gen., **102**; 20-40.
- Bresciani J., 1964a. Redescription of *Rhodinicola elongata* Levinsen and a description of *Rhodinicola gibbosa* sp. nov., parasitic copepods of malidanid polychaetes. Ophelia, **1**; 223-234.
- Bresciani J., 1964b. *Sigecheres brittae* gen. et sp. nov., a parasitic copepod from the polychaete *Sigefusigera* Malmgren. Ophelia, **1**; 295-301.
- Bresciani J. & Lutzen J., 1961. The anatomy of a parasitic copepod *Saccopsis steenstrupi* n. sp. Crustaceana, **3**; 9-23.
- Bresciani J. & Lutzen J., 1972. The sexuality of *Aphanodromus* (parasitic copepod) and the phenomenon of cryptogonochorism. Vid. Medd. f. Dansk Natur. Foren. Kobenhavn, **135**; 7-20.
- Bresciani J. & Lutzen J., 1975. *Melinnacheres ergasiloides* M. Sars, a parasitic copepod on the polychaete *Melinna cristata* with notes on multiple infections caused by annelidicolous copepods. Ophelia, **13**; 31-41.
- Carton Y., 1965. Description de *Selioides bocqueti* n.sp., copepode cyclopoïde parasite de *Scalissetosus assimilis* MacIntosh Aphroditidae commensal d'*Echinus esculentus* L. Archiv. Zool. exp. et gen., **104** (Notes et Revue 2); 83-103.
- Dudley P.L., 1964. Some gastrodelpyid copepods from the Pacific coast of North America. American Museum Novitates, No. **2194**; 1-51.
- Gotto R.V., 1960. Observations on the orientation and feeding of the copepod *Sabelliphilus elongatus* M. Sars on its fan-worm host. Proc. Zool. Soc. Lond., **133**; 619-628.
- Gotto R.V., 1961. A polychaete infesting lichomolgid copepod new to Britain. Irish Nat. J., **13**; 265-267.
- Gotto R.V., 1963. Observations on the structure, affinities and biology of a rare copepod, *Eunicicola* (formerly *Eurynotus*) *insolens* T. & A. Scott. Proc. Zool. Soc. Lond., **140**; 47-56.
- Gotto R.V., 1965. Occurrence of *Mesnilia cluthae* (T. & A. Scott) off the south coast of England. Crustaceana, **9** (1); 111.
- Porcupine Newsletter, **5** (3), 1991.

- Gotto R.V., 1966. *Entobius hamondi* n.sp., a copepod associated with a terebellid worm. *Crustaceana*, 11 (2); 156-162.
- Gotto R.V., 1979. The association of copepods with marine invertebrates. *Adv. Mar. Biol.*, 16; 1-109.
- Gotto R.V. & O'Connor B., 1980. Some annelidicolous copepods from the west coast of Ireland. *Irish Nat. J.*, 20 (3); 109-113.
- Gotto R.V. & Leahy Y., 1988. A new annelidicolous copepod, *Cyclorhiza megalova* n.sp., with comments on its functional biology and possible phylogenetic relationships. *Hydrobiologia*, 167/168; 533-538.
- Hamond R., 1973. The marine and brackish-water copepods of Norfolk: Calanoida, Misophrioida, Cyclopoida, Monstrilloida, Notodelphyoida and *incertae sedis*. *Cah. Biol. Mar.*, 14; 335-360.
- Holmes J.M.C., 1986. Records of some interesting copepods belonging to the family Clausidiidae, a family new to Ireland. *Irish Nat. J.*, 22 (1); 30-32.
- Humes A.G. & Stock J.H., 1973. A revision of the family Lichomolgidae Kossman, 1877, cyclopoid copepods mainly associated with marine invertebrates. *Smithsonian Contrib. Zool.*, No. 127; 1-368.
- Humes A.G. & Stock J.H., 1983. Redefinition of the genus *Doridicola* Leydig, 1853, synonymy of *Metaxymoligus* Humes & Stock, 1972, and establishment of a new genus *Critomoligus*. *Bull. Zool. Mus. Univ. Amsterdam*, 9; 93-96.
- Isaac M.J., 1975. Copepoda, sub-order Monstrilloida. *Fiches Ident. Zooplancton*, 144/145; 10pp.
- Kabata Z., 1979. *British Parasitic Copepoda*. Ray Society Monograph.
- Kabata Z. & Gotto R.V., 1991. Parasitic and commensal copepods. *Linnean Society Synopses of the British Fauna, New Series*, No. 46.
- Laubier L., 1965. Presence de *Nereicola ovatus* Keferstein a Banyuls-sur-Mer donnees morphologiques nouvelles. *Bull. Mus. Nat. Hist. Nat. Paris* (2), 36 (5); 631-640.
- Leigh-Sharp H., 1926. The Herpyllobiidae, a family of Copepoda parasitic on polynoid worms. *Parasitology*, 18; 269-276.
- Levinsen G.M.R., 1878. Om nogle parasitiske Krebsdyr, der snylte hos Annelider. *Vidensk. Medd. naturh. Foren. Kobenhavn*, 1877; 351-380.
- Lutzen J., 1964. A revision of the family Herpyllobiidae (parasitic copepods) with notes on hosts and distribution. *Ophelia*, 1 (2); 241-274.
- O'Reilly M., (in prep). *Megaclausia mirabilis* n.sp., n.g., a new species of copepod commensal with the polychaete *Rhodine gracilior* with a revision of the family Clausiidae. *J. nat. Hist.*
- Scott T., 1901. Note on the gathering of Crustacea for the most part by the fishery steamer *Garland* and the steam trawler *St Andrew* off Aberdeen during the year 1900. *Rep. Fish. Bd. Scotland*, 19 (3); 235-281 + plates xvii-xviii.
- Scott T., 1902. Note on the gathering of Crustacea collected by the fishery steamer *Garland* and the steam trawlers *Star of Peace* and *Star of Hope* off Aberdeen during the year 1901. *Rep. Fish. Bd. Scotland*, 20 (3); 447-485 + plates xxii-xxv.
- Scott T., 1905. An account of the Copepoda that live as parasites on or messmates with other Invertebrata. *Trans. Edinb. Fld Nat. Microscopical Soc.*, 53; 197-207.
- Porcupine Newsletter, 5 (3), 1991.



NOTICE OF ANNUAL GENERAL MEETING

The 15th Annual General Meeting of **PORCUPINE** will be held at Dunstaffnage Marine Laboratory, Oban, on Sunday 26th April 1992 at 9.30 a.m.

The Agenda will include:

1. Minutes of the 14th Annual General Meeting (published in **PORCUPINE NEWSLETTER**, Vol.5 No.1)
2. The Hon. Secretary's Report
3. The Hon. Treasurer's Report
4. The Hon. Editor's Report
5. The Hon. Records Coordinator's Report
6. Election of Office Bearers and Council

In connection with Item 6, attention is drawn to the relevant Rules of Procedure:

- (2) The maximum and minimum numbers of Members on the Council shall be left open.
- (4) The Office-Bearers retire annually and are normally available for immediate re-election.
- (5) Council members shall at present serve for three years, at least two retiring each year, who are not normally available for immediate re-election.
- (6) Voting shall take place at the Annual General Meeting and shall be restricted to Members present.
- (7) Names of persons seeking election to the Council (as chosen by the Council) will appear in a notice prior to the AGM together with an intimation that proposals from ordinary Members of additional candidates are welcome. Candidates must give their assent in person or in writing before voting takes place.

The present Office-Bearers are as follows:

Hon. Secretary	Ian Killeen
Hon. Treasurer	Jon Moore
Hon. Editor	Roger Bamber
Hon. Records Coordinator	Dennis Seaward

The present Council Members are as follows:

Iain Dixon	Christine Howson	Ralph Robson
Frank Evans	Antony Jensen	Martin Sheader
Bill Farnham	David Lampard	Shelagh Smith
Willie Fowler	Jan Light	Brenda Thompson
Robin Harvey	Ivor Rees	Fred Woodward

Proposals from the floor are welcome.

7. Election of auditors. The present auditor is Nick Light.
8. Future Meetings
9. Any Other Business.

If Members have a point which they wish to have discussed, particularly if they are unable to attend the AGM, please will they contact the Hon. Secretary Ian Killeen.

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FADS IN THE DEEP SEA

Ian Horsfall,

Oceanography Laboratories, University of Liverpool.

To start off with, for those not up on their acronyms, what is a FAD? FAD stands for Fish Aggregating Device, which, not unsurprisingly, is a device put in the water to aggregate fish. FADs can be mid-water or surface structures, made from anything that will float to the extreme of dayglo underwater kites. They are used to attract pelagic fish, particularly tunas. Alternatively, they can be benthic structures (what the cognoscente like to call artificial reefs (ARs)) made of trees, old cars, rubble or hi-tech moulded affairs in concrete or plastic. These can be used to increase the fish catch of the poor and starving in the third world, increase over-fishing of already over-fished stocks in the developed world or increase the sport fishing pleasure of fee-paying Americans. But perhaps their greatest function is to attract funding and work for grant-hungry marine scientists. Should these FADs be renamed SADs (Scientist Aggregating Devices)?

Well, where does the deep sea come into all this. Deep-sea fish on the whole don't taste too good and even American anglers haven't the money or tackle to fish the deep sea. Deep-sea FADs would have to come into the SAD category. As you all know, beasts on the deep sea floor are a bit thin on the ground. A well-placed SAD could aggregate deep-sea fish and make them easier to catch and study. The vastness of the ocean and the great depths create their own special problem: once in place how on earth do you relocate a SAD in 5000 m of water, let alone sample from it.

The answer is to lower your sampling gear with your SAD and what better than one of the Institute of Oceanographic Science's (IOS) Bathysnaps. Bathysnap is a remote camera which can be dropped onto the deep-sea floor to take photographs at set intervals and then retrieved at a later date. Using Bathysnap, IOS have obtained many interesting pictures of deep sea fish and other animals.

So how do you turn Bathysnap into a SAD? Well it appears that there is no need for modification: the framework and weights of Bathysnap do a perfectly good job of attracting deep-sea creatures. During one deployment two large crabs took up residence within the framework. Bathysnap can also function as an artificial reef. A fame-seeking barnacle found the answer to its dilemma by settling on a Bathysnap in view of the camera. Could this be evidence of habitat enhancement and increased production (from whose point of view?). Perhaps this also explains why so many Bathysnaps have been abandoned on the sea floor: are IOS trying to create homes for deep-sea barnacles?

But how can the aggregating power of Bathysnap be increased? One answer is to strap onto it a long-dead mackerel on a pole (the result is called a Bathysnack). This attracts large numbers of scavenging fish and amphipods and the mackerel is soon picked clean. But fish and amphipods are not the only beasts on the deep-sea floor. In fact there the most numerous large animals are those delightful creatures known as sea cucumbers or holothurians. But why would anyone want to attract and photograph animals that put the rude vegetables on THAT'S LIFE to shame. Firstly, they consume, process and modify large amounts of the deep-sea floor: a few well-behaved specimens performing in front of a camera might tell how much they eat, and also answer the vexed question of what do sea cucumbers do when they meet each other? Secondly, I am doing my PhD on deep-sea holothurians and a couple of good photographs would look good in my thesis.

So, how do you go about turning a Bathysnap into a HAD (Holothurian Aggregating Device). To start with, what would attract a sea cucumber. I don't think they would take a blind bit of notice of hi-tech HAD in concrete or plastic no matter what the shape or colour. What is needed is a special Bathysnack baited with something that sea cucumbers find tasty, and they just can't resist phytodetritus. Phytodetritus (or fluff to the cognoscente) is the accumulated mass of dead bits of surface-living

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phytoplankton which falls to the deep-sea floor, mainly in the spring. Owing to the effects of bottom currents, it tends to accumulate in hollows. On the one occasion when a Bathysnap deployed in the spring landed with hollows in view, several animals were photographed feeding on the accumulated fluff.

So perhaps what is really needed is a Phytodetritus Aggregating Device (PhAD) which will in turn attract sea cucumbers. A Bathysnap lowered with its own artificial hollow in view of the camera would obviate the risk of it landing in an area of flat sea floor. Or perhaps a Bathysnap fitted with its own deep-sea dibber could make a number of suitable hollows in front of the camera.

Many of the limited number of photographs taken on the deep-sea floor by Bathysnap show little or nothing living. By attracting animals into the view of the camera we can perhaps learn a little more about what these beasts get up to down there.

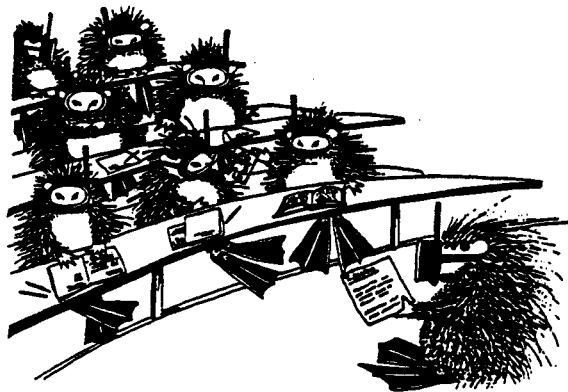


NOTICE

PORCUPINES should be aware that a Cabinet reshuffle took place at the last AGM in Swansea. Jon Moore is now the Keeper of the Society's Purse and the post of Hon. Records Coordinator has been filled by Dennis Seaward, who recently retired from the post of Marine Recorder for the Conchological Society, having achieved the publication of *Distribution of Marine Molluscs in North West Europe* (NCC, 1990). A questionnaire relating to marine recording matters will appear in a future issue of PN. In the meantime, will **Porcupines** please note that the Conchological Society's Marine Census now has a new date class. All post-1950 records become "post-1950 / pre-1991" and the new category will be "post-1990". In other words, we are updating records as from January 1st 1991. I look forward to a deluge! **Jan Light**, Marine Recorder - Conchological Society, 88 Peperharow Road, Godalming, Surrey GU7 2PN, U.K.



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FUTURE MEETINGS

DESCRIBING COMMUNITIES IN THE FIELD - A workshop on the practicalities of recording and analyzing multi-species data. Porcupine is organising a workshop to be held at Trinity College, Dublin on the afternoon of Tuesday 17 December as the final session of the IBS-IMSA-University of Dublin conference on **Biogeography of Ireland: Past, Present and Future** (see last issue). The workshop is designed to see if there is enough "meat on the bones" of this subject to warrant a larger conference in the near future. We hope to attract enough people who have wide experience of field recording and data analysis to discuss such topics as: Are the practicalities of field recording in conflict with current community theory? Are communities as descriptive units necessary for field recording? What are the problems associated with devising a system of descriptive units? What information is necessary to describe sites? What are the best approaches for analysis? We hope that we will be able to persuade people to lead some of these topics in discussion and also hope to have some terrestrial ecologists to reflect on possible lessons which marine ecologists can learn from their experience. For further information contact Dr Bob Foster-Smith at the Dove Marine Laboratory (091 252 4850).

The **SPRING 1992 MEETING AND 15th A.G.M.** will be held at the Dunstaffnage Marine Laboratory, Oban on 25-26 April 1992, on the theme **From Loch to Abyss** (details in previous issue). In addition to the indoor meeting, there may be opportunity for fieldwork (including diving) on the Sunday/Monday. Those wishing to attend are reminded to contact **Robin Harvey** at Dunstaffnage Marine Laboratory, PO Box 3, Oban, Argyll PA34 4AD; Tel: 0631 62244, ideally using the forms issued with the last Number of **Porcupine Newsletter**.

The **AUTUMN 1992 Meeting** will be held on the weekend of 24-25 October 1992 at the Cornish Biological Records Centre, Cambourne, Redruth, Cornwall, where we will be hosted by Stella Turk. The suggested prime theme is **Lusitanian** (biogeography, distribution, migration, evolution, etc.), including recent studies in the Irish/Celtic Sea and hopefully that rare area for Porcupine Meetings - the Mediterranean. The indoor meeting will cover the weekend as normal; the ensuing low tides are extremely good, so there is an option for field excursions on the Sunday afternoon, Monday and Tuesday if there is sufficient demand (Marazion and St Michael's Mount are possibilities, but much of the rich Cornish coastline is available). Those interested should contact the **Hon. Secretary Ian Killeen** in the first instance.

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