

PORCUPINE MARINE NATURAL HISTORY SOCIETY

NEWSLETTER



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Porcupine Marine Natural History Society

Newsletter

No. 20 Jun 2006

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Porcupine MNHS welcomes new members- scientists, students, divers, naturalists and lay people. We are an informal society interested in marine natural history and recording particularly in the North Atlantic and 'Porcupine Bight'. Members receive 3 newsletters a year which include proceedings from scientific meetings.

Individual £10 Student £5

 www.pmnhs.co.uk

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Contents

EDITORIAL	1
AGM MINUTES.....	2
COUNCIL MINUTES	4
ACCOUNTS.....	6
MEETINGS	
Field Trip to the Isle of Wight 10 th -13 th August 2006.....	7
Porcupine 2007	8
OTHER MEETINGS	8
PORCUPINE REPORTS	
Porcupine field trip to Langness, Isle of Man, 26 th March 2006.....	9
Porcupine field trip to Langness, Isle of Man – Mollusc Report.....	11
PORCUPINE PIECES	
<i>Maxmuelleria lankesteri</i> in Tremadog Bay off north Wales <i>E. Ivor S. Rees</i>	14
Identification guides for the NMBAQC Scheme: 1. Scalibregmatidae (Polychaeta) from shallow seas around the British Isles <i>Tim Worsfold</i>	15
<i>Styela clava</i> (Tunicata, Ascidiacea) – a new addition to the fauna of New Zealand <i>Martin H. Davis and Mary E. Davis</i>	19
INFORMATION REQUESTS AND OBSERVATIONS	
The Porcupine Marine Natural History Recording Scheme	23
Hexacorallians of the World.....	23
Snake pipefish – Have you seen them too? <i>Frances Dipper</i>	23
CRAYNET publications on freshwater crayfish <i>Dr David Holdich</i>	24
PORCUPINE 2006	
MARINE NATURAL HISTORY; PAST, PRESENT AND FUTURE	25
The Spirit of the Museum <i>Roberto Miguez</i>	25
“The Jeffreys Association” <i>Frank Evans</i>	28
BOOK REVIEWS	30
Echinoderms	30
Great British Marine Animals. 2 nd Edition.....	31

EDITORIAL

Our annual meeting in March was hosted by the Marine Laboratory in Port Erin, Isle of Man. We were made most welcome and about 35 of us enjoyed a day of excellent talks and lab work followed by an enjoyable if damp day exploring the rocky ledges and pools of the Langness Peninsula near Castletown. At the AGM, Professor Trevor Norton, retired Director of the Laboratory and a founder member of the Society, was appointed a Life Member. In the manner of previous life members, Sir Maurice Yonge (elected 1979) and Sir Frederick Russel (elected 1983), both now sadly deceased, he is a prolific author and spent the coffee breaks happily signing copies of his latest book.

More recently in July, I joined over 350 others at an amazing weekend party held in a marquee outside the Port Erin Marine Laboratory and followed by two days of scientific talks in the Erin Centre. This was the closure party for the Laboratory, which first opened its doors in 1892 and will finally close them for good in September 2006. It is a testament to the esteem and affection that former students and researchers feel for the Laboratory that so many came from all parts of the globe. It was a wonderful reunion tinged with great sadness, which will be felt by many of you who have worked at or visited the laboratory.



COUNCIL EXTRA

Congratulations to Council member Peter Tinsley and his wife Victoria who produced a not so mini Porcupine on 14th May - Zachary George weighed in at a whopping 10lbs 3 oz. So far Council is averaging about one a year.....

ERRATA

In the last issue (Number 19) in the article by Frank Evans 'Naming of the copepod genera Temora and Oithona' the date of publication of 'The Poems of Ossian' was 1762 not 1862 as stated. The name of Dr Johnston should also have been spelt as here.

COPY DEADLINES

September 15th for November issue; December 15th for February issue

Minutes of the Porcupine Marine Natural History Society Annual General Meeting, Saturday, 25th March 2006

Port Erin Marine Laboratory, Isle of Man

Chairman: Julia Nunn

Apologies for absence

Peter Tinsley, Alison Shaw, Sue Chambers, Tammy Horton, Lin Baldock, Andy Mackie, Vicki Howe, Pamela Tompsett

Minutes of the last AGM

The chairman asked the members to approve the minutes of the previous meeting published in the June newsletter 2005. Proposed: Roger Bamber. Seconded: Steve Jarvis. The minutes were approved.

Matters arising

There were no matters arising.

Life member

Frank Evans presented the case for Trevor Norton, Director of Port Erin Marine Station to become a life member of PMNHS. Trevor was one of the original founder members of Porcupine in 1977. Proposed: Frank Evans; seconded: Shelagh Smith, and agreed by acclamation. Trevor Norton accepted the membership with thanks.

Report from the Hon. Treasurer Jon Moore

The un-audited accounts were presented to the meeting by Jon Moore. Audited accounts will be published in the Newsletter and are not expected to differ. Proposed by Peter Barfield; seconded by Ralph Robson and accepted unanimously. There was a question from the floor concerning the interest on the deposit account, querying whether the rate could be improved by moving the account. An electronic account was suggested, but these can only be held as personal accounts. Any advice from members would be gratefully received.

Report from the Hon. Membership Secretary, Seamus White:

The membership secretary Seamus Whyte reported that membership was stable and currently stood at 217, although about 14 of these have not paid for 3 years and may be struck off if not interested in continuing membership or if they do not pay after reminders. Proposed: Shelagh Smith; seconded: Anne Bunker. The report was accepted.

Report from the Hon. Editors Frances Dipper and Peter Tinsley

Frances Dipper reported that three issues of the Newsletter had been produced this year in June 2005, November 2005 and February 2006. There had been some very interesting contributions during the year particularly of 'Porcupine Pieces' – articles and papers submitted by Porcupine members. However, it was still proving difficult to persuade speakers at the annual meeting to write up their papers for publication. Consequently only 6 papers have been published from the 2005 meeting together with abstracts from the remaining speakers. All members are encouraged to submit material for the Newsletter. There was a suggestion from the floor to include a page or a web site entry concerning unknown species – photos or descriptions that members could comment on. The report was accepted, proposed by Judy Foster-Smith, seconded by Séamus Whyte.

Report from the Hon. Record Convenor Roni Robbins:

Roni Robbins reported that all the records she had received are now on *Marine Recorder*, but very few records have been received. All records and species lists from PMNHS field trips are currently being entered onto *Marine Recorder*. There was a question from the floor concerning the context of the recording scheme in relation to those of other groups. The PMNHS scheme is useful in 'mopping up' miscellaneous but often useful records not covered by more formal schemes, and as a depository for our own records which can then be passed on to wider schemes. The report was accepted, proposed by Richard Lord, seconded by Steve Jarvis.

Report from the Hon. Secretary

Frances Dipper reported that there was nothing to record, as the secretary's job at this point is simply to take the minutes of meetings. The report was accepted, proposed by Frank Evans, seconded by Jon Moore.

Report from the Hon. Chairman, Julia Nunn

Julia Nunn reported that there had been two council meetings during the year, the first in November 2005 in London and the second in March 2006 in Port Erin. She thanked Roni Robbins and Roger Bamber and the staff of the Natural History Museum in London for their hard work and hospitality at the annual meeting in March 2005. There were more than 70 delegates at this meeting. The field meeting in July to the Wash, run by Séamus Whyte and Frances Dipper, was also a success.

A free-standing banner has been designed and produced as part of the ongoing policy for promoting the society. The IOM meeting is its first use. The report was accepted, proposed by Roni Robbins and seconded by Jon Moore.

Election of Officers and Council

In accordance with the constitution, at least two Council Members must retire each year, but may make themselves available for immediate re-election. Retiring members this year are Roger Bamber and Sue Chambers. Both were available for re-election. All Officers are also available for re-election. The names of the Council members and Officers were read out. The two retiring members and all the officers were re-elected en-bloc unanimously.

Any Other Business

Web site: Anne Bunker reported that the web site was still active and running, but that she had received very little additional material in the form of articles, notes or photos, so it was rather static. Members should be encouraged to use it much more often. Currently it does not have a 'hit' recorder. However, details of meetings and field trips plus Council Officers contact details were always available on the site.

The chairman announced that the 2007 Conference would be in March 2007 in Newcastle in conjunction with the Dove Marine Laboratory, organised by Judy Foster-Smith.

The 2006 field trip will be to the Isle of Wight on 10th-13th August 2006, led by Jan Light and Roger Herbert. The 2007 field trip will be a joint one with the Conchological Society to the Burren on the west coast of Ireland in September 2007.

The chairman hoped members had enjoyed the meeting and thanked all speakers for their excellent presentations. The chairman also thanked the organisers of this year's conference, Séamus Whyte and Peter Barfield and local staff at the Marine Station, Barbara Brereton and Deryck Ainsworth, and Jim Ludgate for organising the AV equipment.

MINUTES OF THE COUNCIL MEETING

held on Friday 24th March at Port Erin Marine Station, Isle of Man

Present

Julia Nunn, Frances Dipper, Jon Moore, Anne Bunker, Paul Brazier, Peter Barfield, Séamus Whyte, Roni Robbins, Roger Bamber

Apologies

Alison Shaw, Sue Chambers, Tammy Horton, Vicki Howe, Lin Baldock, Peter Tinsley, Andy Mackie

Minutes and Matters Arising

The Minutes of the last meeting were agreed, with the correction that Julia Nunn's name was erroneously omitted from the list of those present.

The PMNHS banner has been completed and brought to the IOM for its first use. Tammy Horton, Peter Barfield and Peter Tinsley were thanked for all their hard work in producing this. There is one error on the banner: the 'O' of the Porcupine name is on top of the logo, instead of beneath. It was agreed to use the banner as it is, but to find out the cost of re-printing it plus the cost of an additional banner.

ACTION: Julia Nunn

Finances

The Hon. Treasurer Jon Moore reported that the financial position was little different from the November council meeting, and was healthy. The accounts for the AGM will be presented as un-audited, but audited accounts will be published in the next Newsletter.

Membership

Seamus Whyte reported that membership remains stable, and that currently there are 217 members, of which about 14 are non-payers for 3 years and so may eventually be removed from the list if payment is not forthcoming. There are 8 new members. It was agreed that membership would be discussed more fully at the November meeting. A package

is needed for new members. Meanwhile, a letter should be drafted that would be sent to new members together with a copy of the last Newsletter issue. Membership renewal should be highlighted on the website.

ACTION: Seamus White, Frances Dipper, Anne Bunker

Recording scheme

Ronni Robbins reported that she had obtained a copy of *Marine Recorder* and has found it difficult and unfriendly! She has done a course on using it via Jon Moore. Records from old issues of the Newsletter are going onto it now. Roni and Jon Moore will liaise concerning entering records from the old scheme. CCW has published a revised leaflet promoting marine recording schemes. Paul Brazier said that CCW staff can help with queries on how to enter data etc.

ACTION: Roni Robbins and Jon Moore

Web Site

Anne Bunker said that she would like to resign as Web site co-ordinator as she does not have sufficient time to be pro-active. Meanwhile, she needs an assistant and closer co-ordination with Frances re. Newsletter material. Frances Dipper said she would get a quote from her sister-in-law (who does her web site) for re-doing and maintaining the site. Julia Nunn will send out an e-mail requesting help for Anne. A brief for the website will be prepared at the November meeting. The Council recorded their thanks to Anne and felt that she had done sterling work on the website.

ACTION: Frances Dipper, Julia Nunn

Newsletter

Frances Dipper reported that she would continue to edit the Newsletter for the time being with Peter Tinsley. However, it was inevitable that sometimes agreed dates of publication would not be met due to the unpredictable nature of her work. The Council accepted this.

Conference 2006

Seamus Whyte reported that 40 delegates were registered, with 28 paying (speakers and organisers are exempt). There were no charges from the Marine Station for the venue apart

from 50p per head for coffee/tea. The Council extended its sincere thanks to Port Erin Marine Station and to the IOM Tourist Board, who amongst other things provided the delegate packs free of charge. Julia Nunn will write letters of thanks.

ACTION: Julia Nunn

There were various factors contributing to the relatively low attendance apart from the location. The theme of the meeting may not have been strong enough; past students were unable to come due to timing, e.g. MBA people busy with financial end of year. It was suggested that early to mid-March was better than late March for the conference/AGM.

AGM 2006

No new council members have been proposed. Roger Bamber and Sue Chambers will be retiring as per the constitution and are available for re-election.

Field trip 2006

The field trip to the Isle of Wight is going ahead in August. It was agreed that if there were insufficient interest to cover the boat costs, then this would be subsidized by Porcupine.

Conference 2007

The Dove marine lab has a capacity for about 50 delegates, and they are also likely to be undergoing alterations during the time of the conference. Therefore a possible alternative venue at Newcastle University will need consideration. It was agreed that Judy Foster-Smith be invited to the London council meeting in November to discuss the possibilities and that her travel costs be reimbursed. Peter Barfield agreed to help with the paperwork as he has for the IOM.

ACTION: Julia Nunn (to invite Judy)

It is still hoped to produce a 'History of Porcupine' for this event.

ACTION: Julia Nunn, Frances Dipper

Field trip 2007

Julia Nunn reported that she is President of the Conchological Society for the next 3 years, and she will be running a field trip to the Burren in late September

2007. It was agreed that a joint field trip would be excellent. Insurance will require investigation.

ACTION: Julia Nunn

AOB

There was no further business.

Date of next meeting

TBA – November in London

ACCOUNTS

PORCUPINE MNHS RECEIPTS AND PAYMENTS ACCOUNT for the year ended 31 December 2005

Year to 31.12.04			Year to 31.12.05	
£	£		£	£
RECEIPTS				
10		2002	0	
30		2003	0	
1333		2004	0	
30		2005	1338*	
0		2006	20	
	1403			1358
	28	Bank Interest (net of tax)		78
	0	Sale of PN Back Number		0
	1431	Total Receipts		1436
PAYMENTS				
760		Newsletter- Printing	1176	
233		Postage	374	
	993	Total Newsletter Costs	1550	
	28	Chairman/Treasurer/Editor expenses (printing/postage)	0	
	24	Web site expenses	35	
	0	Council meeting expenses (travel/catering)	162	
	1045			1747
	386	SURPLUS (DEFICIT) BEFORE MEETINGS		(311)
	479	Annual Conference – Bournemouth (2004)		0
	0	Annual Conference – London (2005)		760**
	(25)	Field Meeting – Lyme Bay (2004)		0
	0	Field Meeting – Wash (2005)		(41)
	840	SURPLUS (DEFICIT) FOR THE YEAR		408
	5073	BALANCE BROUGHT FORWARD		5914
		BALANCE CARRIED FORWARD		
	873	Current Account	1218*	
	5041	Deposit Account	5104	
	<u>5914</u>			<u>6322</u>

Jon Moore, Hon Treasurer
17th March 2006

*N. Wright.
Hon Treasurer.
21st June 2006.*

* excludes £80 in overpaid subscriptions that were repaid in 2006

** additional conference expenses (£127) paid in 2006, so profit was £633

PORCUPINE MARINE NATURAL HISTORY SOCIETY

Field Trip to the Isle of Wight

10th-13th August 2006

Leaders: Jan Light/Roger Herbert

This trip will be based around the Medina Valley Field Centre, Newport, Isle of Wight by arrangement with the Centre's Director, Roger Herbert. There are full lab. facilities and accommodation can be arranged directly with the Centre, details of options and bookings obtainable directly with the Centre. There is likely to be involvement with the Hampshire and Isle of Wight Naturalists' Trust and undergraduates on the residential field course at the Centre whilst our Field Trip is taking place.

Draft programme

10th August Boatwork on the *RV Callista* in the morning, for half a day. Return to Lab to sort material. Possible shore work an option at low tide, subject to boatwork having taken place. See below.

11th August Shore work probably to include Osborne Bay and Newtown Lagoon. Work in lab.

12th August and 13th August. Jan Light will be unavailable to lead this meeting over the weekend owing to prior commitments. However, focussed around the Field Centre, the meeting should be self-propelling and a range of shores can be worked. See below.

Boat work

On the morning of Thursday 10th we will join a group of undergraduates on the *Callista* which accommodates 25 workers. PMNHS has undertaken to split the cost of this with the Field Centre and we have an allocation of 12 passengers for a total cost share of £300. Places will be allocated on a first come first served basis. This meeting will be publicised within the Conchological Society which may also field some participants who may wish to book for the dredging if there are places available. (If the *Callista* becomes unavailable due to long-term contract work over the period in question they will let us

have the smaller *RV Bill Conway* instead which accommodates 12 passengers. In this instance the undergraduates on the field course would have the boat for the morning and Porcupine/Conch Soc in the afternoon. Same charge (£300 each party) would apply. We won't know till nearer the date which boat we are getting.

Shore work

The Isle of Wight benefits from a spring tidal regime which allows some flexibility in working tides. Both early morning and late afternoon tides are options. As a guide, low tides for some sites around the island are given below and note that the 'height' of the ebb is greater in the afternoon. Tidal ranges improve towards Sunday. A range of shores will be worked of which the following are likely: Bembridge Ledges; Black Rock and Culver Cliff; Hamstead Ledge, Newtown including a lagoon for which permission will be sought, Freshwater, Thorness Bay, Ryde Sands, Osborne Bay. Special permission will be required for the latter site, where there are intertidal *Zostera* beds, and it will be an opportunity for Porcupines to reconvene in Queen Victoria's bathing hut for a reprise team photo of some 10 years ago!

Transport and Accommodation

To minimise costs, some Porcupines might consider camping, hiring a caravan or seeking local B&B instead of staying at the Centre. Porcupines may also wish to combine forces and hire transport to the Island to reduce the number of vehicles crossing the Solent for the meeting.

Further information can be obtained from Jan Light, 88 Peperharow Road, Godalming, Surrey, GU7 2PN email: jan@aquamar.demon.co.uk jan@aquamar.demon.co.uk Tel: 01483 417782 mobile: 07973 322681 or Roger Herbert Medina Valley Centre, Dodnor Lane, Newport, IOW, PO30 5TE email: info@medinavalleycentre.org.uk Tel: 01983 522105

Anyone wishing to stay at the Medina Valley Centre should contact the Centre directly at address below where accommodation enquiries will be dealt with by the admin. staff.

MEETINGS

Sample Low Tides

Location	10 th	height	11 th	height	12 th	height	13 th	height
Totland Bay	16.40	0.6	17.20	0.6	05.40	0.2	0620	0.4
Freshwater	16.30	0.4	17.10	0.4	18.00 05.30	0.6 0.1	18.50 06.30	0.8 0.2
Foreland*	17.00	0.8	05.20 17.50	0.4 0.6	06.10 18.30	0.3 0.7	06.50 19.20	0.6 0.5 0.8

*Low tides at Ryde are the same time as those for Foreland (Bembridge Ledges)

PORCUPINE MARINE NATURAL HISTORY SOCIETY Porcupine 2007

The PMNHS Annual Meeting will be held in March 2007 at the Dove Marine Laboratory and Newcastle University. Further details will be circulated to members by e-mail as soon as possible and will be published on the website and in the November newsletter. Meanwhile any offers of help, papers or queries should be addressed to the Chairman, Julia Nunn.

OTHER MEETINGS

4-8 September 2006. EMBS41.

University College, Cork, Ireland. Challenges to Marine Ecosystems. Visit: www.embs41.ucc.ie/index.htm.

15-20 October 2006. ECSA 41.

Measuring and managing Changes in Estuaries and Lagoons. Venice, Italy. Contact: Dr P. Torricelli/Anita Franco. See website at: <http://venus.unive.it/ecsa2006/index.html>

25-27 October 2006.

Beaches, Yachting and Coastal Ecotourism (MCRR2). 2nd International Conference on the Management of Coastal Recreational Resources,

Gozo, Malta. Contact: Antonella Vassallo; ICoD – antonella.vassallo@fis.org.mt

Michelle Cassar; ICoD – michelle.cassar@fis.org.mt

23rd November, 7.00pm Sharks & Seals – at Risk in our Seas.

at the Royal Geographical Society, London. A lecture by Earthwatch scientists Colin Speedie (Britain's Basking Sharks) and Stephen Westcott (Seals of Southwest England). Investigating the impacts of man's encroaching activities on the behaviour, and indeed survival, of two of Britain's largest and most charismatic marine species.

Entrance free, but by ticket only. For tickets and more information, contact Earthwatch on (01865) 318856; events@earthwatch.org.uk www.earthwatch.org/europe

Porcupine field trip to Langness, Isle of Man, 26th March 2006

Report and records collated and edited by Anne Bunker and Jon Moore

(Note: A separate report on mollusc records by Shelagh Smith follows this article)

Introduction (Terry Holt)

Around fifteen or so hardy souls met half way along the Langness peninsula, Isle of Man, on the Castletown Bay side around midday on Sunday 26th March. The shore here is quite flat and extensive with a number of largish rockpools and increasing numbers of small ledges, smaller rockpools and boulders towards the bottom of the shore. It is quite strongly algal dominated, with fairly extensive areas of *Fucus spiralis*, *Fucus vesiculosus*, *AscospHYllum nodosum* and *Fucus serratus* in the appropriate areas. Although this is not a particularly diverse shore, the surrounding area offers a variety of habitats; sandy and muddy areas immediately to the east in Derbyhaven Bay attracted a few of our party (primarily Séamus, with his buckets and sieves), while along the south of Langness peninsula there is a rugged shore of fairly exposed gullies and small cliffs. The less muddy-inclined people elected to forage on the rocky intertidal in the immediate area, however. Threatening weather held off for a couple of hours and allowed some enthusiastic collecting and photography, although the low tide was rather too late in the day to be ideal, given that many people were flying off that afternoon. This locality has the island's only record of *Cystoseira* sp., and a few hundred metres or so away across Castletown Bay was one of only two Manx records (so far) of the exotic brown alga *Sargassum muticum* (which was recently cleared by hand). Neither of these turned up in our survey, however.

Addendum from Paul Brazier: As I arrived that afternoon, everyone else cleared off home, so, since my lift was not for another hour and a half, I went back down to the lower shore, further west of where we had originally gathered. There were some excellent overhangs and deep crevices, as well as an interesting

runoff stream full of *Asterina gibbosa*. I was on a mission to find *Balanus perforatus*, but found none after a considerable search in the ideal habitat.

Addendum from Anne Bunker: I searched for *Patella depressa* (black footed limpet) for ten minutes but did not find any.

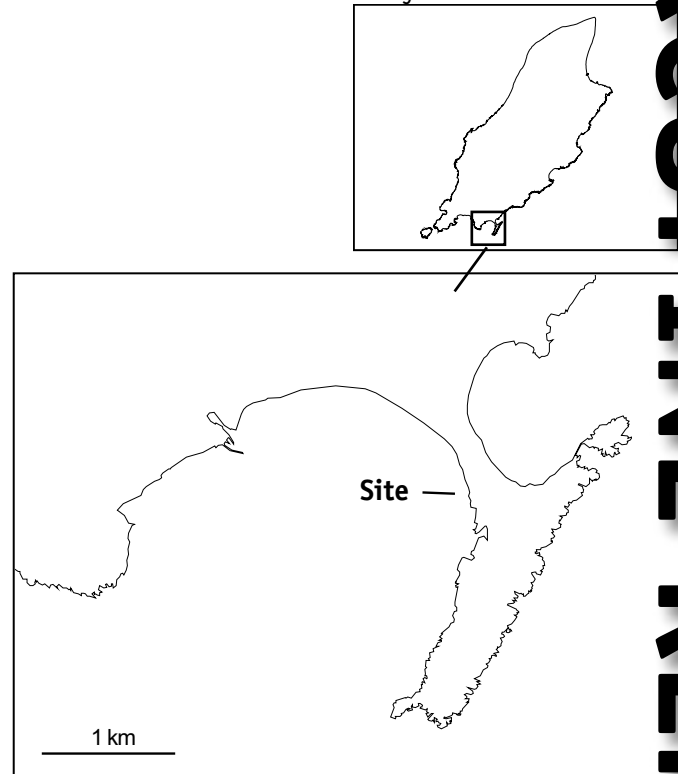


Figure 1 Location of rocky shore site. OS grid ref. SC 28305 66961.

Acknowledgments

Seamus Whyte (conference and field trip organiser)

Records from: Anne Bunker, Peter Barfield, Paul Brazier, Richard Lord, Jon Moore, Seamus Whyte, Kathryn Birch, Terry Holt, Roger Bamber.

Many thanks to Jon Moore for sharing his inspired "door-step" local cheese sandwiches with the less well-prepared of us!



Species List - in taxonomic order

Most recording time was spent at Langness in the mid shore. A mosaic of three main biotopes describe this gently sloping, ridged middle shore:

SLR.Fves (*Fucus vesiculosus* on sheltered mid eulittoral rock), **MLR.FvesB** (*Fucus vesiculosus* and barnacle mosaics on moderately exposed mid eulittoral rock) and **SLR.Asc.Asc** (*Ascophyllum nodosum* on full salinity mid eulittoral rock).

'Algae'

Palmaria palmata
Ahnfeltia plicata
Gelidium pusillum
Gelidium latifolium
Gracilaria sp.
Hildenbrandia rubra
Corallina officinalis
Coralline crusts
Mesophyllum lichenoides
Catenella caespitosa
Calliblepharis jubata
Dumontia contorta
Chondrus crispus
Mastocarpus stellatus
Phyllophora pseudoceranoides
Polyides rotundus
Plocamium cartilagineum
Gastroclonium ovatum
Lomentaria articulata
Rhodymenia pseudopalmata
Plumaria plumosa
Ptilota gunneri
Ceramium secundatum
Halurus equisetifolius
Membranoptera alata
Hypoglossum hypoglossoides
Nitophyllum punctatum
Cryptopleura ramosa
Polysiphonia elongata
Polysiphonia lanosa
Rhodomela confervoides

Ulva lactuca
Ulva spp. (tubular species)
Chaetomorpha linum
Cladophora spp.
Verrucaria maura

Scytosiphon lomentaria

Laminaria digitata
Laminaria saccharina
Laminaria hyperborea
Halidrys siliquosa
Ascophyllum nodosum
Fucus serratus
Fucus spiralis
Fucus vesiculosus
Pelvetia canaliculata

Porifera

Grantia compressa
Leucosolenia sp.
Hymeniacidon perleve
Halichondria panicea

Cnidaria

Obelia dichotoma
Dynamena pumila
Actinia equina
Actinia fragacea
Anemonia viridis
Aulactinia verrucosa
Urticina felina

'Worms'

Spirorbis spp.
Spirorbis tridentate
Eulalia viridis
 Scale worm

Arthropoda

Anurida maritima

Arthropoda -Crustacea

Verruca stroemia
Chthamalus montagui
Semibalanus balanoides
Elminius modestus
Gammaridae indet.
Cancer pagurus
Necora puber
Carcinus maenas
Pilumnus hirtellus
Xantho pilipes
Phoxichilidium femoratum

Mollusca

(see also following article)
Acanthochitona crinitus
Polyplocophora indet.

Diodora graeca
Patella vulgata
Gibbula cineraria
Gibbula umbilicalis
Littorina littorea
Littorina obtusata
Littorina fabulis
Littorina saxatilis aggregate
Nucella lapillus
Heteranomia squamula
Mytilus edulis

Bryozoa

Frustrellidra hispida
 Bryozoan crusts

Echinodermata

Asterina gibbosa
Ophiopholis aculeata
 Amphiuridae indet.
Ocnus lacteus

Tunicata

Morchellium argus
Botrylloides leachi
Botrillus schollosseri
Dendrodoa grossularia

'Pisces'

Lipophrys pholis

Porcupine field trip to Langness, Isle of Man—Mollusc Report

Shelagh Smith

Introduction

A group of us went on the shore at Langness, near Castletown, on Sunday 26 March 2006. The weather was just and so fine. Langness is a short peninsula pointing south. The higher ground is composed of slate and shale, which has been folded and is now vertical. On the west side the shore below it is composed of red conglomerate which, being younger than the slate, indicates an ancient unconformity. Beyond the conglomerate is limestone, which is now a wide intertidal platform. The area is exposed to the south but



still sheltered enough for growth of *Ascophyllum nodosum*. The platform has a maze of shallow rock pools and rills with largely gravel floors, and the rock has a good cover of fucoids. Although most people went to the seas' edge I stayed on the upper and middle shore paying particular attention to crevices and the contents of the pools and algae. This exercise was a bit disappointing as a number of common species were conspicuous by their absence (see list below). I would have liked to go to the end of the peninsula but much of it was private and closed to traffic and I didn't have time to walk down.

As I was staying on for a few days, I was able to visit other sites around the island. On 29 March on a good low tide I explored Derbyhaven (muddy sand and boulders, sheltered) which was extremely empty (why did I bother?!) as can be seen from the list of molluscs.

Point of Ayre (27 March) was much more interesting although again there was not as much around as I had expected. This extreme northern tip of the Isle of Man is composed of gravel and large pebble beds, the latter forming a stepped series of storm beaches, which are clearly unstable on the small scale but stable in total. Off the Point I could see a strong tide rip which passed around the very shallow offshore banks. At various levels on the storm beach there were strandlines of shells and *Laminaria*, mostly *L. digitata* or very small *L. hyperborea* and *Sacchoriza polyschides*. Many of the shells were *Pecten maximus* to which were attached small *Laminaria* holdfasts while they were still alive, but as *Pecten maximus* aren't particularly active beasts no doubt they were quite happy. The *Pecten maximus* were up to 150mm across with many over 120mm, which

indicates that the bed off here is thriving. As several of the shells still had (rotting) animals inside this showed that they weren't from far away. I had hoped for signs of the *Modiolus modiolus* bed but there were very few bits and pieces about, although one small broken shell did have a complete *Capulus ungaricus* on it. I concluded the foraging by obtaining a baulk of timber, which contained a number of the boring Teredinid *Xylophaga dorsalis*.

Shore descriptions and species list

Isle of Man: Langness: 54°04.0'N
04°47.3'W: 26 March 2006

Open rock platform extending gently from top of shore to below low water. In some places cliffs behind composed of old folded metamorphosed sediments, some slates, and below them (but of later origin) red conglomerate. Below this is limestone. The platform is exposed to the south, and comprises shallow pools and runnels at all levels and rock well covered with fucoids.

In upper shore crevices:

Leeches, Nematodes, Isopods including *Ligia oceanica*, Gammarids

Lower on shore in pools under stones:

Actinia equina, *Carcinus maenas*, *Cancer pagurus*, *Asterias rubens*, *Asterina gibbosa*, *Halichondria*

Molluscs

<i>Lepidochitona cinerea</i>	1 specimen, under boulder in pool, middle shore
<i>Patella vulgata</i>	on bedrock, upper shore
<i>Helcion pellucidum</i>	1 specimen, dead
<i>Calliostoma zizyphinum</i>	dead
<i>Gibbula cineraria</i>	5 specimens, under boulders and amongst algae in pools middle shore
<i>Gibbula umbilicalis</i>	7 specimens amongst boulders, upper-middle shore
<i>Littorina littorea</i>	2 specimens on bedrock, middle shore

<i>Littorina fabalis</i>	on <i>Fucus serratus</i>
<i>Littorina obtusata</i>	on <i>Ascophyllum nodosum</i>
<i>Littorina saxatilis</i>	22 specimens amongst boulders and on bedrock, upper shore
<i>Lacuna pallidula</i>	3 specimens on <i>Fucus serratus</i> , middle shore
<i>Eatonina fulgida</i>	1 specimen, dead
<i>Onoba semicostata</i>	3 specimens on small algae, middle shore
<i>Cingula trifasciata</i>	17 in crevices, middle shore
<i>Ocenebra erinacea</i>	dead
<i>Nucella lapillus</i>	2 specimens on bedrock, middle shore
<i>Limapontia capitata</i>	on green algae, upper shore pool
<i>Berthella plumula</i>	under boulder in pool, middle shore
Nudibranch eggs	3 species, under boulders in pools, middle shore
<i>Auriculinella bidentata</i>	14 specimens in crevices, middle shore
<i>Mytilus edulis</i>	2 specimens under boulders, upper shore
<i>Venerupis pullastra</i>	under boulder, middle shore

Mollusc species not found although searched for:

Calliostoma zizyphinum, *Trivia* spp, *Buccinum undatum*, *Ovatella myosotis*, *Musculus discors*, *Lasaea rubra*, *Turtonia minuta*, *Hiatella arctica*

Isle of Man: Point of Ayre: 54°25.0'N
04°21.6'W: 27 March 2006

Exposed pebble storm beach at several levels with shells and algae (chiefly *Laminaria*) at several strandlines. Tide rip off shore.

<i>Patella vulgata</i>	2 specimens, dead
<i>Gibbula cineraria</i>	dead
<i>Littorina littorea</i>	dead

<i>Capulus ungaricus</i>	1 specimen on dead and broken small <i>Modiolus modiolus</i> , cast-up	<i>Gibbula umbilicalis</i>	2 specimens, on <i>Fucus serratus</i>
<i>Nucella lapillus</i>	dead	<i>Littorina littorea</i>	5 specimens, amongst boulders, lower shore
<i>Buccinum undatum</i>	dead	<i>Littorina fabalis</i>	5 specimens, on <i>Fucus serratus</i>
<i>Glycymeris glycymeris</i>	1 specimen, dead	<i>Lacuna pallidula</i>	4 specimens, on <i>Fucus serratus</i>
<i>Mytilus edulis</i>	11 specimens, cast-up	<i>Nucella lapillus</i>	7 specimens, amongst boulders, lower shore
<i>Modiolus modiolus</i>	2 small valves	<i>Lucinoma borealis</i>	1 small specimen, dead
<i>Pecten maximus</i>	2 cast-up	<i>Cerastoderma edule</i>	5 specimens, in sand, low water
<i>Aequipecten opercularis</i>	2 cast-up	<i>Venerupis pullastra</i>	8 specimens, dead
<i>Ostrea edulis</i>	dead		
<i>Crassostrea gigas</i>	1 fresh dead valve		
<i>Heteranomia squamula</i>	3 specimens, cast-up		
<i>Pododesmus patelliformis</i>	2 specimens, cast-up		
<i>Acanthocardia echinata</i>	dead		
<i>Laevicardium crassum</i>	1 valve		
<i>Spisula solida</i>	dead		
<i>Lutraria lutraria</i>	4 valves		
<i>Ensis arcuatus</i>	3 specimens, dead		
<i>Ensis siliqua</i>	dead		
<i>Arcopagia crassa</i>	1 valve		
<i>Arctica islandica</i>	dead		
<i>Chamelea striatula</i>	dead		
<i>Clausinella fasciata</i>	dead		
<i>Paphia rhomboides</i>	2 specimens & 2 valves, dead		
<i>Venerupis pullastra</i>	1 specimen, dead		
<i>Dosinia exoleta</i>	dead		
<i>Mya truncata</i>	dead		
<i>Zylophaga dorsalis</i>	1 specimen & 8 valves, dead, cast-up in timber		

Isle of Man: Derbyhaven: 54°04.7'N

04°37.0'W: 29 March 2006

Muddy sand shore with boulders on gravel at low water, sheltered.

<i>Lepidochitona cinerea</i>	1 specimen, on <i>Fucus serratus</i>
<i>Patella vulgata</i>	1 specimen, on boulder, lower shore
<i>Onoba semicostata</i>	1 specimen, on <i>Fucus serratus</i> , not kept
<i>Gibbula cineraria</i>	2 specimens, on <i>Fucus serratus</i>



PORCUPINE PIECES

Maxmuelleria lankesteri in Tremadog Bay off north Wales

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The echiuran worm *Maxmuelleria lankesteri* (Herdman) forms a significant component of the burrowing megafauna in the mud of Scottish sea lochs (Hughes et al. 1996). It also occurs in the muddy *Nephrops* grounds of the Irish Sea, off Cumbria (Swift, 1993) and in the western basin. They appeared not to have been recorded off Wales until the chance find of them in a localised mud patch on 4th September 2005. The absence of confirmed records off Wales had previously been assumed to be due mainly to a shortage of suitable areas with cohesive mud at appropriate depths. In the last 30 years the seabed around Wales had been sampled extensively by grab surveys such as the National Museum of Wales Biomor surveys (Mackie et al, 1995). Data from this survey, from the MNCR, from subsequent CCW surveys as well as the Pembrokeshire Marine Atlas all yielded no records of *M. lankesteri* from around Wales to be included in the NBN database.

While collecting a few specimens of the very long-lived bivalve *Arctica islandica* for sclerochronology comparison studies, significant numbers of large *Maxmuelleria lankesteri* were unexpectedly brought up tangled in the meshes and teeth of a heavy dredge. The location where the *M. lankesteri* were found is known as 'Muddy Hollow'. It is at the outer edge of Tremadog Bay and off the southern tip of the Llyn Peninsula. The locality is thus sheltered from the strong tidal currents of the southern Irish Sea by the hooked shape of the Llyn Peninsula while the moraine reef of Sarn Badrig, extending out into Cardigan Bay also deflects currents and gives some shelter from swell waves. A

frontal interface occurs here between the semi-enclosed waters of Tremadog Bay and the strongly mixed waters offshore, which may lead to some local enhancement of settling organic matter in the depression. The particular combination of circumstances seems to create a habitat that is unusual off the Welsh coast. *M. lankesteri* is a surface detritivore using a proboscis extended from a permanent burrow so enhanced organic deposition would favour it (Hughes et al, 1999).

Two tows of the dredge in Muddy Hollow brought up 20-30 individuals each. DGPS positions showed the tows were only about 0.5 km (central position Lat. 52° 44.53' N; Long. 04° 26.06' W; depths 26-30m). As dredges are notoriously inefficient, it is likely that a substantial population was present in this small patch of mud. In spite of the crude means of capture, the worms had sufficiently strong and elastic body walls that many came up intact. Several of the specimens were over 30 cm long even in their contracted state after handling to disentangle them from the dredge (Fig 1).

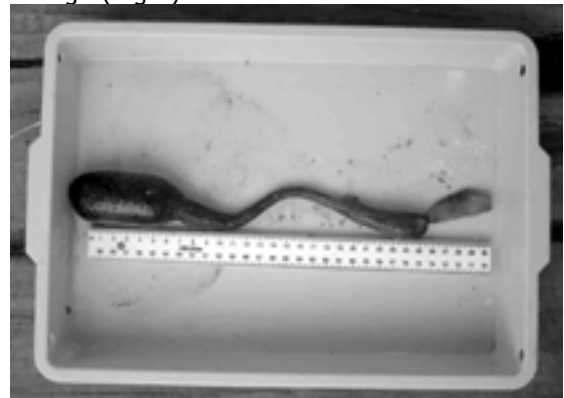


Fig.1. *Maxmuelleria* from Muddy Hollow contracted after disentangling from dredge. Photo Ivor Rees.

While reluctant to advocate the widespread use of toothed dredges, it does appear that the deployment of a different type of sampling gear that dug in deeper may have been the reason the worms were found when grab and small mesh trawl sampling had failed to detect them. *Maxmuelleria lankesteri* is reported to have a horizontal section to its burrow (Nickell et al, 1995) which would increase the likelihood of dredge teeth encountering them. There is an anecdote about attempts to sample *M. lankesteri* off Sellafield at the time when deep bioturbation by the worms was causing

re-assessment of the likely fate of radioactive particles in the seabed. Multiple deployments with the usual samplers used by the biologists failed to collect them. Yet when the research vessel's anchor was brought up worms were seen on the flukes.

The 2005 find may not really have been the first find in Muddy Hollow. The Biomor survey in July 1989 recorded a fragment of an unidentified echiuran here in a grab (Mackie et al, 1995). When looked at again, seabed photographs taken on the same cruise showed the entrances to burrows with marks apparently made by an extended proboscis (Fig 2). It is thus unlikely that the large echiurans found in 2005 were recent colonists.

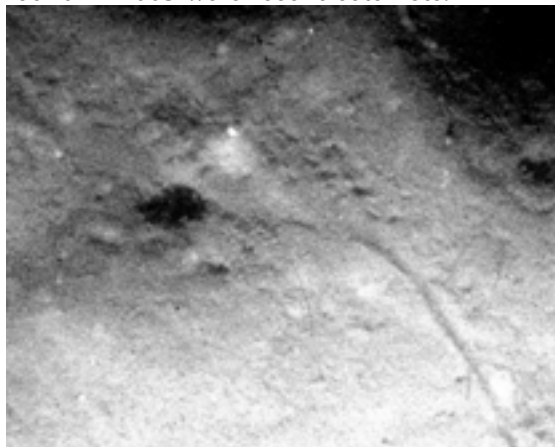


Fig.2. Part of a seabed photo taken in Muddy Hollow in 1989 showing burrows and a probable proboscis mark. Photo Ivor Rees.

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Identification guides for the NMBAQC Scheme: 1. Scalibregmatidae (Polychaeta) from shallow seas around the British Isles

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The National Marine Biological Analytical Quality Control (NMBAQC) Scheme aims to ensure the quality of marine biological data and has had an emphasis on the processing of benthic macrofaunal samples, particularly for the U.K. National Marine Monitoring Programme (NMMP). The Scheme has highlighted differences in recording practice between laboratories (Worsfold & Hall, 2001) and differences in identification skills for various groups. One of the problems is the lack of a standard guide to marine fauna, such that each laboratory has a different literature collection, often including in-house identification guides.

As an attempt to help the situation, the NMBAQC Co-ordinating Committee has commissioned a literature database for distribution to its members and organises workshops on difficult taxa, for which identification keys are generally produced. In the past, such keys have remained unpublished and often difficult to obtain or even trace their

origins. We now intend to publish workshop and in-house laboratory keys to help with data standardisation.

Identification keys are compilations of features found to be useful in the recognition of different taxa. Additional features may exist and some will always be subjective or difficult to find; no key is perfect. It is important to refer to original descriptions and reference material when in doubt. Keys are also subject to revision and it is hoped that this and possible future publications will stimulate corrections and new observations for future circulation. We would also like to request that taxonomists tell us about their new publications so that they can be included in the Scheme's literature database.

Scalibregmatidae

The Scalibregmatidae (or Scalibregmidae), sometimes called maggot worms (Rouse & Pleijel, 2000) are sedentary polychaete worms for which there is no single guide suitable for British species. Most have short bodies with biramous parapodia and no mobile appendages; some have branched gills. They are mostly found in marine subtidal sediments, though the epitokes have been reported swarming in the plankton (Clark, 1954). The Species Directory (Howson & Picton, 1997) lists five species in four genera for shallow water (<200m depth) around the British Isles. Four of these are included in Fauvel (1927) and three in Hartmann-Schroder (1996), which both include *Lipobranchius jeffreysii*, as an additional species; a new species, *Scalibregma celticum*, was described by Mackie (1991).

The following key is adapted from one made at Unicomarine in 2003, which was compiled from the literature detailed above, with the addition of observations made at Unicomarine and feedback through the NMBAQC Scheme. The literature covering each species is indicated by a list of single initials following the authority. Colours refer to alcohol preserved specimens.

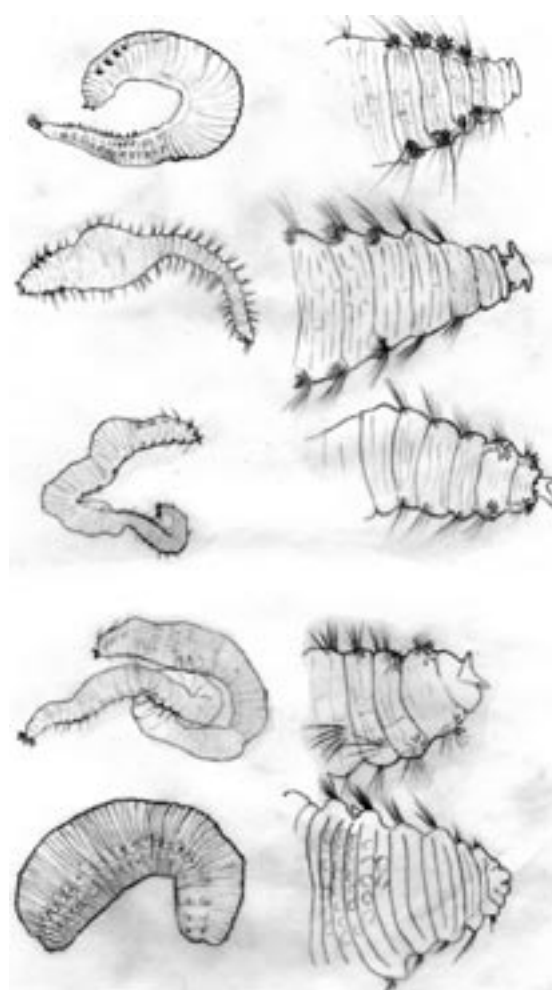


Fig. 1 British shallow-water scalibregmatids. Two views of each of (from top to bottom): *Scalibregma inflatum*, *S. celticum* (3-gill-pair form), *Sclerocheilus minutus*, *Asclerocheilus intermedius* and *Polyphysia crassa*; whole worms on left; dorsal head views on right.

- 1 Body with tapering abdomen; filiform anal cirri; prostomium T-shaped (may appear bilobed in juveniles).....2
Body short and broad with blunt ended abdomen; pygidium without elongated anal cirri; prostomium rounded or bilobed.....5
- 2 Branchiae on anterior segments; abdomen with dorsal and ventral cirri, on flattened parapodia; body strongly expanded anteriorly; acicular chaetae absent or blunt spines on first two chaetigers; white or yellowish (*Scalibregma*)3
No branchiae; no dorsal cirri; bluntly projecting posterior parapodia; body not strongly expanded anteriorly; strong acicular chaetae on up to three anterior chaetigers; usually white4
- 3 Head with eyes, partly covered by hooded peristomium; short, fine blunt chaetae in parapodia of chaetigers 1 and 2; usually white or cream coloured.....*Scalibregma celticum* Mackie, 1991; M (but see below)
Head without eyes or hooded peristomium; no blunt chaetae in anterior parapodia; usually yellowish in colour.....*Scalibregma inflatum* Rathke, 1843; F, H, M
- 4 Eyes present; ventral cirri on posterior segments *Sclerocheilus minutus* Grube, 1863; F
Without eyes; no ventral cirri..... *Asclerocheilus intermedius* (Saint-Joseph, 1894); F, H
4 (to 6) pairs of branched branchiae on chaetigers 2 – 5; no anal papillae; usually yellowish in colour..... *Polyphysia crassa* (Oersted, 1843); F (as *Eumenia*), H
Without branchiae; anus surrounded by short papillae; usually yellowish in colour
Lipobranchius jeffreysi (McIntosh, 1869); F, H

The most well-known scalibregmatid is *Scalibregma inflatum*, which is common all around the coast, mainly in subtidal mud, where it may be dominant. *S. celticum* also appears to be ubiquitous but is found in coarser sediments, including gravels, where it is a small component of the fauna. The two other white scalibregmatids, *Sclerocheilus minutus* and *Asclerocheilus intermedius*, are often found together and with *S. celticum* in gravel, mixed sediment or hard substrata. *S. minutus* appears to be a southern species, absent from the east coast. *Polyphysia crassa* is found in relatively deep, stable muddy sediments and does not seem to be widespread. *Lipobranchius jeffreysi* is treated as a synonym of *P. crassa* in the Species Directory, as it may be the abranchiate juvenile form (Eliason, 1920). However, a small, abranchiate worm found to be morphologically distinct from *L. jeffreysi* was assigned to *P. crassa* by Clark & Dawson (1963), who argued that they were distinct. The taxa are retained as separate in the above key as the issue does not seem to have been resolved but it might be best to combine records for data analysis.

Taxonomic issues remain with the family and other species may be present around the British Isles. Other *Asclerocheilus* species have been suggested (Mackie *et al.*, 1995) and there are discrepancies between published and observed counts of chaetigers with stout chaetae. There may also be other *Scalibregma* species (Mackie, 1991). In particular, animals resembling *S. celticum* but with 3, rather than 4, pairs of gills from the Irish Sea (Mackie *et al.*, 1995) are similar to the American *S. stenocerum* (Bertelsen & Weston, 1980); they are also present in the English Channel, as figured above. The identification of deeper water scalibregmatids requires additional literature (*e.g.* Hartman & Fauchald, 1971; Persson & Pleijel, 2005). The European Register (Costello *et al.*, 2001) lists two additional species: *Pseudoscalibregma parvum* (Hansen, 1878) and *Sclerobregma branchiata* Hartman, 1965, both mapped for deep water in the Celtic Sea on the MarBEF website. The NEAT polychaete list (Hansson, 1998) also includes the genera *Axiokebuita* and *Hyboscolex* and the species *Scalibregma robusta* Zachs, 1925 and *Sclerocheilus deriugeni* Zachs, 1925, both

Arctic. It is also possible that the opheliid genus *Travisia* may be transferred to the Scalibregmatidae (Persson & Pleijel, 2005).

Most NMBAQC Scheme participants are able to recognise *Scalibregma inflatum*, which has been sent on the following five ring tests (numbers of participants in brackets): RT2(23), RT8(16), RT14(16), RT18(13) and RT20(15); only two discrepancies were recorded in total, both as *S. celticum*. *Asclerocheilus intermedius* has appeared in one ring test (RT22) and four discrepancies were recorded for 13 participants; one laboratory recorded each of the following: *Sclerocheilus minutus*, *Polyphysia crassa*, *Lipobranchius jeffreysi* and *Paradoneis eliasoni*. None of the other scalibregmatid species has yet been found in sufficient numbers for a ring test.

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***Styela clava* (Tunicata, Ascidiacea) – a new addition to the fauna of New Zealand**

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Abstract

The solitary ascidian *Styela clava* is recorded for the first time in New Zealand waters. An extensive population was found in the Viaduct Harbour, Auckland on August 11th 2005. This represents the southern limit of its recorded distribution. The New Zealand specimens are described and compared with UK specimens.

Introduction

Styela clava Herdman, 1882 is native to the north-west Pacific, particularly Japanese waters, the sea of Okhotsk and the coasts of Korea and Siberia. In the United States, it appeared in Californian waters in 1932 (Abbot & Johnson, 1972) but was not recorded on the east coast until 1973, when specimens were observed in Long Island Sound, Connecticut (Carlton, 1989). *S. clava* was reported to be present in Prince Edward Island, Canada in 1998 (Locke *et al.*, 2003); it has since become a major pest in the island mussel farms.

It was first recorded in European waters in 1953, as *Styela mammiculata* sp. nov. (Carlisle, 1954), when six specimens were collected in the estuary of the Lynher River, near Plymouth (UK). Millar (1960) demonstrated that this 'new species' was synonymous with *Styela clava* Herdman, 1882. Since its initial discovery, it has spread up the North Sea coast of Europe as far north as Denmark (Lützen, 1999), and south along the Atlantic coast to Portugal (Davis & Davis, 2004: 2005). It is not considered a serious pest in European waters at present. *S. clava* was first recorded in the Southern Hemisphere in 1976 in Hobson's Bay, Victoria, Australia (Holmes, 1976).

S. clava is a large solitary ascidian; adults

usually range from 70 mm to 200 mm total length. The firm body is elongated and club-shaped. It is attached to the substratum by a short narrow stem-like stolon, the base of which forms an expanded membranous plate that adheres the organism to the substratum. It is hermaphroditic and oviparous, producing approximately 5,000 eggs (Davis & Davis, in prep.) that hatch after approximately 12 hours (Davis, 1997). The pelagic lecithotrophic larvae are tadpole shaped, approximately 0.85 mm in length. They swim in short bursts, but rarely travel more than a few centimetres in sustained swimming activity. Larvae are active for approximately 12 h (Davis, 1997).

It is typically found in low energy environments attached to hard substrate, such as stones, walls and piles, from mid-tidal level down to at least 4 m below low water; it is also frequently found on permanently submerged floating surfaces, such as the bottoms of buoys and pontoons. A sheltered high salinity site appears to be necessary for the initial development of a population in any area. New populations can generally be attributed to the inadvertent introduction by man, rather than natural spread by dispersal of the short-lived larvae.

Location of the New Zealand population

Specimens of a solitary ascidian resembling *Styela clava* were found on the pontoons in the Viaduct Harbour, Auckland (36°50.54'S 174°45.73'E) on 11th August, 2005; the salinity at the time of collection was 30.5 psu. A few specimens were preserved in aqueous ethanol solution (40%) for later morphological examination. Unfortunately, the preservative was not totally effective, so only the external characteristics could be verified.

A second sample was collected from a float in the Viaduct Harbour on 27th August, 2005 (36°50.58'S 174°45.79'E) and the adjacent pontoon (salinity 30.2 psu). This sample, which ranged in length from 27 mm to 98 mm, was preserved in methanol (100%), transported to the UK and transferred to a solution of formaldehyde in seawater (~10%). A morphological examination of some specimens was undertaken, and samples sent to other experts for confirmation of the identification.

Morphology of the specimens

The Auckland specimens exhibited the same external morphology as those found in Northern European waters. Each had a firm, elongated club-shaped body, with two anterior four-lobed siphons. A narrow stem-like stolon connected the body to a basal membranous plate. The oral siphon was terminal and the atrial siphon was set close by on the dorsal surface. Both siphons were anterior facing, raised and tapered; they were distally marked with four dark brown stripes alternating with narrower pale stripes. The dark yellow-brown tunic on the stolon and body had longitudinal grooves; the anterior tunic also had lateral grooves, which produced a mammillated pattern.

Three Auckland specimens were examined and compared with specimens previously collected from Hornet Marina, Portsmouth Harbour (50°47.31'N 001°07.18'W (Davis & Davis, 2005), and with descriptions in the literature (Table 1). The individuals were 52 mm, 57 mm and 64 mm total length. Internal examination of the Auckland specimens revealed that, in each specimen, the stomach was in the descending portion of the intestinal tract; after the stomach, the intestine curved upwards towards the atrial siphon. Gonad development was not sufficiently advanced to use the number and distribution of ovaries and the testes as a diagnostic tool.

Potential introduction routes

The nearest populations are in Australia, approximately 1,500 miles away. Given the short planktonic period, colonization by the natural dispersal of larvae is unrealistic. Therefore, sessile adults must have established the New Zealand population. Although natural dispersal of settled animals attached to floating debris is feasible, the long-distance spread of sessile organisms has generally been attributed to the inadvertent introduction by man. There are two suitable vectors for adult transport: as juveniles transported attached to oysters that are subsequently re-laid (Minchin & Duggan 1988); or as adults attached to ships' hulls (Carlton & Hodder, 1995; Carlton, 1999). There are no commercial oyster fisheries close to the Viaduct Harbour but it is adjacent to a commercial port, so commercial shipping

seems the most probable introduction route.

Organisms may be transported attached to ships' hulls. However, anti-fouling paints are applied to hulls to inhibit the attachment of sessile organisms. If *S. clava* larvae did settle on the hull, the mature adults would protrude from the surface to which they are attached through the boundary layer into turbulent water. Hydrodynamic analysis indicates that they are unlikely to survive sustained high-velocity movement through water when the ship is in service; a force of 20 N, equivalent to the hydrodynamic drag experienced at 8 knots, is typically sufficient to pull a 65 mm individual from an untreated surface within five minutes (Davis & Davis, in prep.).

It would therefore appear that if mature adults are being transported on ships' hulls, they must be attached in areas of reduced flow such as sea-chests, bow-thruster tubes, stabiliser pockets and the cavities around the stern tubes and propellers. We propose the interior surfaces of sea-chests as the most likely vector. Sea-chests are voids built into the bottom of a ship with direct connection to the surrounding seawater. As they are sources of the cooling-water, fire-fighting water and ballast-water pumped aboard, there is a continuous low-flow water exchange in the sea-chest that allows free access to food and dissolved oxygen and provides good conditions for growth and development. A ship's sea-chests can provide in excess of 200 m² surface area for settlement of sessile organisms, which may be transported long distances in benign conditions. Furthermore, the temperature shock experienced on entering the shallow water of a harbour could initiate synchronised spawning, increasing the probability of the successful establishment of a new population in the receiving environment. (Since the discovery in Auckland Harbour, the occurrence of a single *Styela clava* has been confirmed in material taken from the sea-chest of a tug that was surveyed in Lyttleton Dry Dock in May 2002; the specimen had been originally identified as *Styela plicata*.)

Significance of the new record

In Europe, *Styela clava* is perceived as an interesting curiosity. However, in Prince

Edward Island, Canada, it is a major pest to the mussel farming industry; it competes with the mussels for food and costs the industry several million C\$ per year in reduced production. In New Zealand, the green-lipped mussel industry is considered to be at risk; it is worth an estimated NZ\$ 500 million. In the six months since *S. clava* was detected, Biosecurity New Zealand has spent approximately NZ\$1.5 million on determining its geographical spread and undertaking public education and awareness. It searched 24 harbours and marinas and found small populations of *S. clava* at two other sites, in Lyttelton Harbour (South Island) and Tutukaka (North Island).

Conclusions

This is the first record of the presence of *Styela clava* in New Zealand waters, and represents the southern limit of its recorded distribution.

Acknowledgements

We would like to express our thanks to Dr G. Lambert for verifying the identification of the solitary ascidian.

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Annex 1 - Nomenclature

Styela clava is referred to as *Styela clava* Herdman, 1881 and *Styela clava* Herdman, 1882 in the literature. We believe that the correct species name is *Styela clava* Herdman, 1882. According to the rules of the International Code of Zoological Nomenclature (ICZN), the first published name of an organism takes priority, and the date of that publication is to

be adopted as the correct date to use in the absence of evidence to the contrary.

The first mention of the name *Styela clava*, together with a written description, appears in:

Herdman, W.A. Preliminary report on the Tunicata of the Challenger expedition. Ascidiidae. Parts 3 and 4. *Proceedings of the Royal Society of Edinburgh Session 1880-81* **11**: 52-88.

However, the dates referred to (1880 and 1881) are the dates on which the meetings of the Royal Society of Edinburgh were held, at which the various published papers were presented. Professor Herdman presented his paper *at the meeting* on 17th January 1881, but the volume, in which the above paper was published, appeared in 1882. So this is the

first reference, but the date of publication is **1882**.

A slightly fuller description, with two figures, appears in:

Herdman, W.A. 1882. Report on the Tunicata collected during the voyage of H.M.S. Challenger during the years 1873-1876. Pt I, Ascidiidae simplices. *Reports of the Scientific Results of the Voyage of HMS Challenger during the years 1873-76. Zoology* **VI** (17): 1-296 (+ Plates I to XXXVII).

This report also appeared in 1882. Since the month of publication cannot be determined for either publication, neither can take precedence under the ICZN rules. Nevertheless, the correct authority is Herdman, 1882, and the correct name is *Styela clava* Herdman, 1882.

Table 1 Summary of the distinguishing features of *Styela clava* specimens (1=Carlisle (1954))

Feature	Literature descriptions	Portsmouth specimens	Portuguese specimens
Stolon	Longitudinal groves (1).	Longitudinal groves	Longitudinal groves
Tunic	Brown, with paler mammillations (1).	Dark yellow-brown; mammillated pattern on anterior tunic.	Dark yellow-brown; mammillated pattern on anterior tunic.
Siphons	Siphons marked with longitudinal stripes of almost white and a rich chocolate brown ,four of each (1).	Anterior facing, raised and tapered; with four dark brown stripes alternating with narrower, pale stripes.	Anterior facing, raised and tapered; with four dark brown stripes alternating with narrower, pale stripes.



Information Requests and Observations

The Porcupine Marine Natural History Recording Scheme

The PMNHS has run a recording scheme for its members and any other interested parties, since its inception in 1976. The main rationale behind the scheme comes from

- a) the interest of society members in marine biogeography and species ecology;
- b) the recognition that knowledge of species distributions is often very poor; and
- c) that many important records are lost because most existing recording schemes do not cater for the collation of informal records.

Although there are many initiatives that involve the gathering of information on marine wildlife the PMNHS scheme is useful for collecting unstructured records i.e. observations that are unlikely to be submitted to other schemes.

Our recording scheme not only includes informal records, but we are also collating all our data from Porcupine field trips and incorporating these into Marine Recorder. Once they are in Marine Recorder they can be exported onto the NBN Gateway without danger of repetition or loss of data as the source remains labelled as Porcupine. Voucher specimens from field trips will be deposited in one of the four national museums as appropriate. The existence of the voucher specimens will be included in Marine Recorder.

Information from records will be published in the society's journal by way of short notes and articles making the information widely available. Experts in particular taxonomic groups are encouraged to use these records in,

for example, atlases and synopses.

Finally, we take this opportunity to remind and encourage our members to continue to submit their records to the scheme: the success of the scheme depends on as much input from the membership as possible. There are two ways to submit records. Firstly, there is a direct link from our website (www.pmnhs.co.uk) for the direct input of records. Secondly you can simply email the Hon. Records Convenor, Roni Robbins. E-mail: ronr@nhm.ac.uk

Hexacorallians of the World

The latest online version of HEXACORALLIANS OF THE WORLD has just been released and may be of interest to Porcupine members so the web address is given below. This is a huge database and has a continually growing number of occurrence records (~50,000) for sea anemones, scleractinian corals, antipatharians, cerianthids, and zoanthids. New kinds of data and new tools are now available at <http://geoportal.kgs.ku.edu/hexacoral/anemone2/index.cfm>. Any comments can be sent to Daphne Fautin: fautin@ku.edu; Bob Buddemeier: buddrw@kgs.ku.edu.

Snake pipefish – Have you seen them too?

Frances Dipper, fdipper@sustenergy.co.uk

Over the past 18 months or so, I have come across many reports of snake pipefish appearing in unusually large numbers. On our Porcupine field trip to the Wash in July 2005 dredges from weedy ground brought up many beautiful specimens some of them carrying eggs.

Professor Mike Harris from CEH in Scotland is collating records from seabird workers in the NE Atlantic, as it appears that up until 2003 there were no records of snake pipefish being on the menu for seabirds. However, since then in 2004 and especially 2005 there have been many records. He also comments that FRS people at Torrey had made similar remarks to

my Wash comments on pipefish, about their at sea work around Scotland in 2005.

Keith Hiscock told me that SAHFOS have noted much larger numbers of larval pipefish in the continuous plankton recorder surveys from 2003 and that he has records of very large numbers of adults in Harris and off Northumberland at least in last few years.

Paul Kay told me that in recent dives (July this year) he had noticed lots of snake pipefish in Cardigan Bay.

Liza Cole, Marine Reserve Ranger, St Abbs & Eyemouth Voluntary Marine Reserve has told me that snake pipefish are 'super abundant' this year (2006).

So there is obviously something interesting going on and I'm keen to hear from anyone else about similar observations.

CRAYNET publications on freshwater crayfish

Dr David Holdich
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Over the last 3 years many freshwater crayfish biologists in 11 European countries have collaborated over the EU-funded CRAYNET project "*European crayfish as keystone species – linking science, management and economics with sustainable environmental quality.*" This project emphasises knowledge-based management strategies for conservation and socio-economic development of native crayfish species and control/management of alien crayfish species. The project has been headed by Dr Catherine Souty-Grosset at the University of Poitiers, France. The project has now finished and a number of outputs are available:

1. As a result of four workshops (Ireland, Norway, Austria and Italy) four volumes of scientific papers have been published in the *Bulletin Français de la Pêche et de la Pisciculture* (99% of papers are in English): (details on availability from: catherine.souty@univ-poitiers.fr).

2. A detailed atlas '*Atlas of Crayfish in Europe*', produced by the Natural History

Museum in Paris, which deals with the distribution and biology of the five native and ten alien crayfish species (details on availability from: catherine.souty@univ-poitiers.fr).

3. Four educational leaflets: a. *Your health is linked with the survival of our crayfish*. b. *Beware of crayfish plague!* c. *Save our habitat!* d. *Tradition, exploitation and conservation of crayfish* (for availability see below).

4. "*Identifying native and alien crayfish in Europe*" – a 47-page booklet on the biology and identification of crayfish in Europe, including a key and distribution table (for availability see below).

5. A large colour poster "*Crayfish of Europe*" – colour photos of live specimens and brief details of crayfish in Europe (for availability see below).

As the UK CRAYNET coordinator I would be happy to send the publications listed under 3-5 above (leaflets, booklets and posters) to you free of charge **except for postage and packing** – please contact me for prices.

PORCUPINE 2006

MARINE NATURAL HISTORY; PAST, PRESENT AND FUTURE

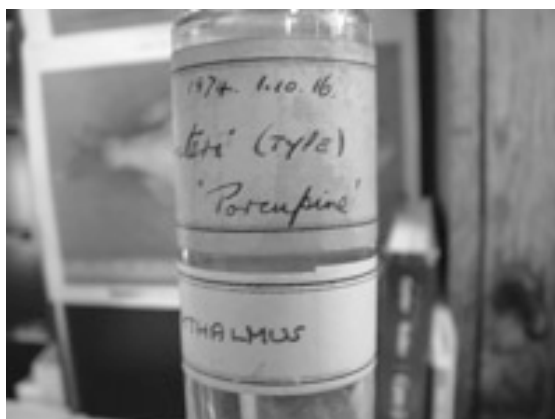
Papers from the PMNHS meeting held at the Marine Laboratory, Port Erin, Isle of Man
24th-26th March 2006

PORCUPINE 2006

The Spirit of the Museum

Roberto Miguez

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The zoological collections preserved in spirit of the Natural History Museum, London have not enjoyed the same accessibility for the general public of other parts of the collections such as stuffed specimens and skeletons due to safety and security considerations. The inaccessibility of this collection has been blamed on the potential risk to the public health due to the hazardous substances used in preservation and the risk of fire. Nevertheless the majority of the specimens in our collections are kept in spirit, so it is important that the history of this particular part of the collections is not kept within its walls with the serious risk of being forgotten. Knowing the history of any collection helps one not only to understand the way we run them but also it should prevent us from making past mistakes again and improve the way we care for them in the future.

From its early days managing the spirit collection has always been a difficult and delicate matter. Finding an appropriate place for the collection has caused many interesting experiences, if not trouble, especially for the curators responsible. Many of the curators that have been involved in taking care of this collection have never made it into the pages of history books or journals, but the fact that

our collection still exists is mostly thanks to the dedication of many of these forgotten characters. If we have a brief look into the history of this particular collection, we will see the hardships that these devoted members of staff had to endure to guarantee the continuity of one the most important national treasures. With this short narrative, I shall try to give a glimpse of the past history of the spirit collection at Natural History Museum and also pay tribute to those who have cared for this unique collection from its very beginning.

The origin of the Natural History Museum Collection lies in Sir Hans Sloane's private collection. He bequeathed his private collection to the King, George II for the nation in return for £20,000 for his heirs. Despite the lack of interest from the King and the opposition of certain members of the Parliament, eventually the gift was accepted and an Act of Parliament establishing the British Museum received the royal assent on 7 June 1753. Once sufficient funds were raised, the collections were moved from Sloane's Manor House at Chelsea to Montague House at Bloomsbury, which became the British Museum. From as early as 1756 all Sloane's specimens were kept in Montague House, but it only opened its doors to the public in 1759. From paintings of the time, Montague House looked like an idyllic place. The galleries of the museum were crammed with specimens, and from accounts of the period it seemed a very popular place, which amazed everybody that managed to gain admission. The natural history cabinets were kept in four rooms on the first floor of the building and were guarded by a stuffed rhinoceros and three giraffes.

But the spirit specimens were kept in a less favourable location. They were hidden away in the very cold, damp and dark basement, called the Spirit Room. One might argue that the conditions were seemingly most suitable for preserving specimens, but they were definitely less so for the comfort and health of the staff that worked there. In fact the unbearable humidity in the basement was caused by

the presence of a spring of water below the floors of the building occasionally flooding the flagstones, causing the woodwork at the bottom of the cases to rot, and destroying many of the labels on the bottles.

If humidity was not enough of a problem, the preservatives at the time included not only popular "spirits of wine" but also more toxic substances like zinc chloride from which horrible fumes would emanate. Problems with fumes and humidity were aggravated by a complete lack of ventilation.

Being in the basement, the lighting conditions were also quite poor and this did not help with the examination of specimens. Only a few shafts of light could penetrate this room in the basement and on account of the volatility of spirit, no other light was allowed, so as soon as the day drew in, work had to be suspended. Soon with the incorporation of specimens from expeditions like the *HMS Challenger*, or *Triton* and the increasing demand for more natural history displays, the need for better facilities and more room became imperative.

But one remarkable figure was to appear on the scene with consequences of the utmost importance for our collections. Sir Richard Owen became Superintendent of the natural history departments in 1856. In that position he boldly decided to make the most important move that this collection ever experienced. He tirelessly fought the bureaucrats of the time to make the magnificent landmark that we enjoy nowadays in South Kensington possible. 1881 marked the culmination of his dream. It was then that our beloved Museum was opened to the public, with huge galleries packed full with specimens for the delight and enjoyment of the Victorians.

Unfortunately, it seemed, though, that a serious oversight in planning the new Museum was the complete lack of storage provision for the spirit collection. Albert Gunther, who was the Keeper of Zoology at the time, promptly dealt with this matter and proposed the erection of a special fireproof building separate from the main Museum. Waterhouse, the architect of the main Museum, and Gunther worked together on the design and the building was completed in 1883. This later became known as the Old Spirit Building

and it was intended to supply 4 or 5 times the capacity of the Spirit Room at Bloomsbury, with three rooms for staff and students and an annex for redistilling old spirit. It was a simple rectangular building, 120 feet long and 47 feet wide with a flat-cemented roof. Most of it comprised storerooms separated from the workrooms by passages. Lighting was provided by a row of sidelights above cabinets and unlike the main museum it was lit by electricity and not gas.

Gunther designed a building that could be flooded from the outside at a moment's notice in the event of a fire. Hydrants with sprinklers were placed on the ceilings. Spirit from bursting bottles would drain into the cast-iron gratings in the cemented floor down to a 4-foot layer of shingle below the ground floor. This was definitely a well-thought out and carefully designed building. Its success was mainly thanks to the careful, painstaking, and rigorous supervision of Gunther from the time that its foundations were laid, until the time in which the specimens were moved down to South Kensington. In fact, Gunther himself insisted on carrying the most important specimens on his own by cab.

Between 1884 and 1885 additions to the collections amounted to 168,900 specimens and this was something that could never have been foreseen. Out of necessity, part of the collection had to be moved into the main building and enlargement of the Spirit Building was urged. Despite the attempts of the Office of Works to reclaim the land and demolish the Old Spirit Building, in 1891 the Treasury agreed on the construction of a 63 feet long extension. Once the extension was finished, the building served its purpose remarkably well and it remained in use until 1953.

Well before the demolition of this building, in the 1920's Charles Tate Regan, who was then Keeper, already wanted to improve the facilities and decided that a New Spirit Building was to be built adjacent to the old one. The building was completed in three stages between 1921-22, 1928-1929, and another extension added between 1934-1935.

This building was about 250 ft. long and 54 ft. wide. It consisted of four floors with mezzanines in each floor on the storeroom side. It was a Ferro-concrete structure with



New Spirit Building 1930

fireproof metal doors and a widespread system of sprinkler valve fire protection devices. It had heating in the offices, and it had hydraulic lifts. This building was occupied till 2001 and many of our curators still have fond memories of it and sigh if it is mentioned.

It was a strong building, purpose built to house the spirit collection. With the passing of time, parts of it started to show that they were not that perfectly conditioned environmentally, especially the top floor. At times this area was subject to adverse temperature fluctuations that made it a serious concern for the wellbeing of the collections and staff. Temperatures would go up to 37° Celsius in summer, which on rare occasions would cause the tops of jars to pop out. In the winter temperatures could drop to 11° Celsius, which made the building notoriously uncomfortable to work in. However, that was not the only problematic issue; there were also complaints from the sensitive noses of the neighbours of South Kensington about the smell of spirits that emanated from this site. Soon enough, the construction of a new building was in mind.

But before we reach the last stage of our journey through time, there is an exceptional place where our collections were housed

temporarily. During the Second World War, due to the fear of this part of the museum being bombed the spirit collection had to be moved again. Between 1940 and 1945 the most important specimens from the spirit collection were taken to the Heathstone mines in Goldstone, Surrey for their protection. At that time several members of staff were on active service, so this removal must have put on a lot of stress on the remaining staff. Despite that, they successfully managed to safeguard the collections until the end of the conflict. After this short relocation, specimens were brought back to site and remained in the New Spirit Building till the new facilities were built. A remembrance of that time is the yellow top on many of jars in the Fish Section. Although it is now used to mark type specimens, originally, it denoted specimens that were to be evacuated.

Now, we come to the most recent episode in the history of the spirit collection. In 2001, curators from the different sections of the Zoology Department were summoned to produce another effort of epic magnitude. More than 450,000 jars containing over 22 million specimens had to be moved from the New Spirit Building to the new storage area, and eventually, after nine months of enervating hard work, this painstaking task was completed.

The new home for the collections is the Darwin Centre (Phase One). This is an amazing building that has no match in the world in many respects. This new building represents a new era in collections management. It provides us with state-of-the-art facilities that make our work easier and far more efficient. It has collection areas that keep our specimens in the best conditions possible. It also gives researchers the most modern facilities available. But perhaps the most important aspect of this new project is that the general public can have access to the spirit collection. Not long ago, only a very small percentage of the collections were on display in the main museum galleries. Now with the Darwin Centre, a great deal of our spirit collection is accessible through guided tours. In addition, there has been a huge increase in the level of interaction between the scientific staff and the general public. Much of this interaction is

down to curators preparing presentations for wide and diverse audiences in addition to their more traditional duties. Anyone interested in nature should come and visit us, because it is indeed a unique experience.

I do not know what the distant future holds for the collections, but I am sure that as long as there are curators that are as committed as their predecessors, this collection will definitely have a future and will keep on contributing to increasing our understanding of the natural world.

Acknowledgements

I am grateful to all the members of staff of the Natural History Museum for putting up with me, my endless questioning and for supporting me on my work. Special thanks to Oliver Crimmen and Polly Tucker for their kind guidance and priceless information offered.

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"The Jeffreys Association"

Frank Evans

15 Thirlmere Avenue, North Shields NE30 3UQ.

Note from editor: The following story was told to us by Frank Evans at the IOM conference. It was not presented as a paper but simply as an interesting and perhaps, cautionary tale and is reproduced here for the interest of newsletter readers.

Some while ago I found myself a director of a multi-million pound company. This may sound somewhat improbable for a simple marine biologist but it happened in this way. An Edinburgh solicitor with an interest in shell collecting joined forces with a property developer of his acquaintance to take part in a business scheme, which would benefit both their interests. It was basically a tax avoidance device whereby certain of the parent company profits would be passed to several other companies registered as charities and some of these untaxed profits would be directed towards research in marine biology. The parent charitable company was formed and received cash from about ten leasing companies formerly owned by such august organisations as Marks and Spencer, Burton's and Girobank.

The tax-free status of the parent charitable company was crucial to the tax scheme, which was designed to remove the multi-million pound deferred corporation tax liabilities of the various companies involved by using a complex series of transactions involving the payment of covenanted donations and annuities, both of which could, in certain circumstances, be offset against tax. It sounds familiar, perhaps. In fact as the arrangement later began to fall apart this was to be described by the Charity Commissioner himself as "the most cynical, the most despicable and the most costly" of charity abuses.

And what part did I play in all these shenanigans. Well, I and my fellow directors, all working scientists, were humble and quite innocent spear-carriers in one of the subsidiary companies. The company of which we were directors was to receive charitable money from the parent company and disburse it to worthy causes in the marine biological world. We were

wholly unaware of the larger situation beyond our horizon. I now know that the Edinburgh property developer was only one of a number of people heading the parent company and that the confidence placed in him by the shell-collecting Edinburgh solicitor and indeed by us was entirely misdirected.

The subsidiary company of which I was a director was inaugurated by the co-founder of the Porcupine Marine Natural History Society, the late David Heppell. David Heppell was a friend of the Edinburgh solicitor. He chose our name, "The Jeffreys Association" in honour of John Gwyn Jeffreys, the naturalist who directed the seminal dredging operations aboard HMS "Porcupine" in 1869. As funds came in we met to make our disbursements to the best of our ability and it was a satisfaction to distribute money to hard-pressed researchers in our field. However, the sums involved were not great, perhaps fifty thousand pounds in a good year. And I hasten to add that throughout its brief existence our little company was conducted entirely honestly and legally.

Unfortunately it was bedevilled by two encumbrances. The first was the Edinburgh property developer himself, who had a heroic disregard for financial rectitude, strengthened by his removal, for tax benefit purposes, to the Channel Islands. He had been known while buying a property to find he had the wrong cheque book with him. Never mind, here was the cheque book of our little subsidiary company to hand and one of his other companies would simply owe it to us. And so the payment and debt appeared on our annual balance sheet. The parent charity was well versed in large figures. With a turnover approaching fifty million a year perhaps a quarter of one per cent would accrue as profit to be applied to charitable donations, the rest being required to run the parent company, doubtless in a suitably opulent manner. The salient facts above including the comments of the Charity Commissioner are confirmed in a report appearing in the "Observer" dated 14 August 1988.

The second incubus was the tax man. When large figures generated by this kind of behaviour appeared in the returns of our own small company, eight million pounds in one year, he began to take an unwanted interest in

us. Every year, although our real turnover was comparatively small we were forced to employ expensive accountants to verify to the tax man the large paper amounts we were carrying forward. Gradually as input fell, our funds were swallowed in costs and our assets dwindled. At last our own company secretary, an upright man, I hasten to say, advised us that in order to bring the demands of the Inland Revenue to an end liquidation was our best option. So liquidate we reluctantly did and the tax man went away.

Apart from the pleasure of helping my fellow scientists financially in their research, you may wonder what benefits accrued to me personally in the few years I was associated with this enterprise. Well, I made an occasional business trip to London, naturally travelling first class as befitting my status as a director of a multi-million pound company. We met in our solicitors' office in Park Lane, a location chosen by the parent company, also for reason of status. As to my director's fees there were of course none. After all we were a charity. We were given a handsome free lunch, though, and through it I learnt a little tip. My first class ticket included dinner on the homeward train but having had a good lunch this was more than I wanted. I discovered I could exchange my dinner voucher for a sandwich and a half bottle of excellent British Rail wine. I reserve this knowledge for the next time I become a company director.

On the day our little company came to an end we were delayed longer upon our deliberations than usual and it was three o'clock before they were over. At that hour the only restaurant in the locality of Park Lane that was still serving lunch was at the Dorchester Hotel and thence we made our way. On liquidation we had succeeded in paying all the company's debts and we had distributed a couple of final sums towards marine research projects. Fortunately a dribble of cash still remained, enough to provide a very good lunch indeed, quite befitting the directors of a multi-million pound company. And here in the grill room of the Dorchester the society, named by David Heppell in honour of John Gwyn Jeffreys of HMS "Porcupine", having added some small but worthy additions to the funding of marine research, quietly ended.

Echinoderms

Eve C. Southward
Andrew C. Campbell



Published for
The Linnean Society of London
and
The Estuarine and Coastal Sciences Association
by
Field Studies Council

Echinoderms

Eve C. Southward and Andrew C. Campbell. Synopses of the British Fauna (New Series), edited by J. H. Crothers and P. J. Hayward.

Published for the Linnean Society of London and the Estuarine and Coastal Sciences Association by Field Studies Council, Shrewsbury. 2006. £39.50.

Reviewed by Graham Ackers

The Linnean Society has a long and creditable history of publishing synopses of the British fauna in collaboration with the Estuarine and Coastal Sciences Association and the Field Studies Council. Today, there are 56 Volumes in the New Series representing a most comprehensive collection of invertebrate identification guides. However, one noticeable and significant omission has been the lack of an Echinoderms volume. This was effectively rectified when, on 16th February 2006, Eve Southward and Andrew Campbell launched the present work to the assembled members and fellows at the Linnean Society's rooms in Burlington House. Eve Southward, who has been working on this book for many years, talked about the background and the species coverage, while Andrew Campbell focused on some particularly interesting aspects of the ecology and physiology of the group. The book was available for sale at the meeting, and my copy was duly signed by each author!

This work follows the well-established formula for this series, with chapters on the general structure of the five echinoderm classes, biology (life histories, movement and locomotion, feeding, growth, size, age and growth rate, associations, predators, economic importance, conservation, distribution and ecology), collection and preservation, and a classification and species list. These sections represent an excellent summary of the current state of echinoderm knowledge.

For each class, the systematic part starts by describing the morphological details

required for identification, followed by a series of keys (where appropriate), and short accounts of each species (including synonyms) under the headings – description, size, colour, distribution, further distribution (i.e. outside the geographical limits of this guide), breeding, and associates. The workmanlike drawings of each species show the whole animal, as well as the structural details required for identification. These of course vary according to the class and species.

The “classic” works covering the British echinoderms are those by Forbes, Bell and Mortensen, 1927, the latter still being regarded as a primary reference source. However, they are all (by definition) dated, none really fitting the requirements of a modern, comprehensive but easy to use guide. More recently, the Marine Conservation Society produced one of their mini-print guides to the group, which was developed further in book form (Picton, 1993). This features excellent underwater photographs of many of the species, supplemented by a concise but relevant narrative.

Although perhaps an over-simplification, it can be argued that echinoderm species fall into two identification categories – those that are large and relatively easily identified by sight in the field, and those that are small, occupying cryptic habitats and being virtually impossible to identify in the field (except by those very experienced). The strength of Picton's work is in providing a fine guide to the former group, whilst the present work addresses the latter group. However, both works have a similar species coverage, and both are useful and relevant for the whole group.

My recommendation therefore is for the general marine naturalist to use both Picton, 1993 and the present work, whilst the specialist will still wish to delve into Mortensen, 1927, whilst also gaining much of value from this new Linnean Society guide, a much welcomed, comprehensive and practical addition to the series.

References

Mortensen, Th., 1927. Echinoderms of the British Isles. Oxford University Press.

Picton, Bernard E., 1993. A Field Guide to the Shallow-water Echinoderms of the British Isles. London: Immel Publishing Limited.

BOOK REVIEWS

Great British Marine Animals. 2nd Edition

Paul Naylor, Sound Diving Publications, 2005

Reviewed by Frances Dipper

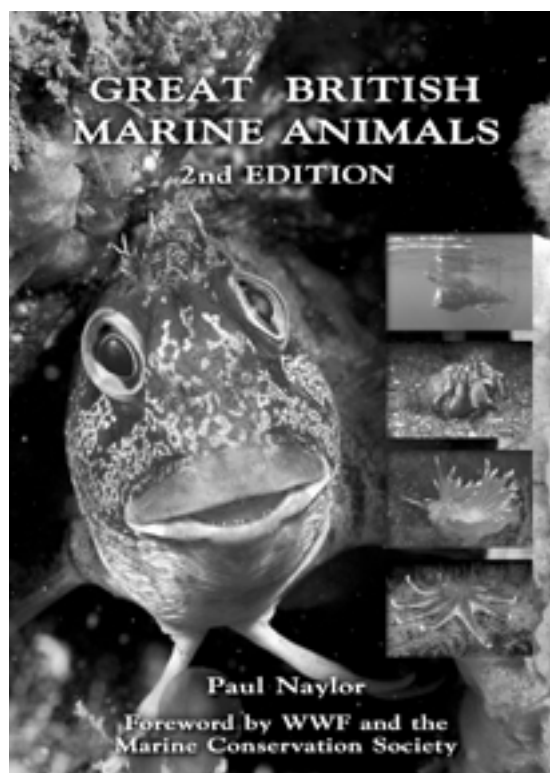
Those of you who have never opened a copy of the first edition of this beautiful book now have a second chance. Take it! For those of you who did buy the first edition, I would certainly recommend buying the second. The book has been expanded to include 30 additional species and there are 90 new photos (out of a total of 420). When you consider that the list price is only £15 (and you can get it for around £10 on Amazon), that's under 4p a photo! You also save yourself the considerable hassle of learning how to take such wonderful photos yourself! The reason behind producing a second edition is that the first sold out. The second deserves to do so as well.

Paul Naylor takes beautiful underwater photographs. But what's far more appealing to me is that he takes them from the perspective of a marine biologist and therefore the photos tell us much more about the animals than merely what they look like. Many of the species covered are illustrated with several photos, showing some interesting aspect of behaviour such as feeding or mating. The photos are the main focus and many are of 'normal' photo size i.e around 6" X 4" or bigger allowing those of us who can no longer read small print to see all the details easily. Inevitably this means that the amount of text for each species is limited. Nevertheless the text provided is pertinent and useful providing a clear description of the animal, its habitat and behaviour and including comments on individual photos

where relevant. In the longer texts key words are highlighted in blue so that even though there are no sub-headings in the text, it is easy to find key information such as **camouflage** in cuttlefish. Latin names are accurate and up to date with current research.

For those of you who want to know the extent of species coverage, I did some counting for you: Anthozoa & similar – 28; hydroids & medusae 9; scyphozoa 6; comb jellies 1; 'worms' 16; crustaceans 25; molluscs 42; bryozoans 5; echinoderms 26; tunicates 11; fish 61. From this I make the obviously scientifically accurate deduction that Fish are best!

If you want detailed descriptions and technical data on marine animals such as that given in Synopses of the British Fauna series, then this book is probably not for you. But if you want to find out about the ways and lives of our most colourful and interesting marine life, or immerse yourself under the water even when you're not, then this is a good buy. I also use it for teaching evening classes and in schools where it is well received.



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Brown, M. T. and Lamare, M. D. 1994. The distribution of *Undaria pinnatifida* (Harvey) Suringar within Timaru Harbour, New Zealand. *Japanese Journal of Phycology* **42**: 63-70.

Dipper, F. A. 2001. *Extraordinary Fish*. BBC Worldwide Ltd. 96pp.

If all this is thoroughly off-putting, just send whatever you have got and we will do our best with it!!