

Mollusc World

Issue 29

July 2012

Solariellidae:

snails from the deep sea

Assiminea grayana in Scotland

A year in conservation and recording

Mollusc games at 'Big Nature Day'



The Conchological Society of Great Britain and Ireland

Helping to understand, identify, record and conserve molluscs

From the Hon. Editor

The AGM is always a time of some change as hopefully new volunteers take on responsibilities to help with the work of the Conchological Society. This year there were rather more changes than usual. Sebastian Payne ended his stint of three very active and fruitful years as our Hon. President and we welcomed Mike Allen (photo), one of the country's



leading environmental archaeologists, as his successor and wish him well for his tenure. Bas has taken over from Ron Boyce as Hon. Programme Secretary and many thanks are due to Ron for the years of dedication he has put in to arranging our interesting programme of meetings. In addition we congratulate Jan Light (see MW issue 28) who was awarded an honorary membership in recognition for her many years of service to the Society as Hon. Marine Recorder.

Further news is the creation of an exciting new category of membership. Junior membership is open to those under 18 years of age who only want to receive Mollusc World (i.e. not the Journal of Conchology) and costs just £5.00 anywhere in the world. Judging by the interest shown by young people in molluscs at our stand at the recent 'Big Nature Day' at the Natural History Museum (see page 3 and front cover), this will be a welcome addition to the membership categories offered by the Society.

I will end with my usual plea for contributions to your magazine and thanks to all who have contributed such interesting content to this issue. As we may have some junior members, anything that may appeal to that age range would be welcomed. Also, if you are running a field meeting, don't forget to photograph anything interesting and write something for MW.

Peter Topley

Mollusc World

This magazine is intended as a medium for communication between Conchological Society members (and subscribers) on all aspects of molluscs. We include articles, field meeting reports, research news, results from the mapping schemes and identification aids. We welcome all contributions in whatever form they arrive (see back cover for further details).

© 2012 The Conchological Society of Great Britain & Ireland ISSN 1740-1070

All photographs and drawings featured in articles are by the author unless otherwise indicated.

No representation is made about the accuracy of information included in any articles, which solely constitute the authors' personal views on the subjects covered, and are not necessarily those of the Hon. Editor or the Conchological Society.

Many thanks go to Vicki Harley for copyediting.

Printed by The Lion Press, 19 Market Square, Sandy, Bedfordshire, SG19 1EH.

Front cover: Visitors to the Conchological Society's stand at the London Natural History Museum's 'Big Nature Day' try out some garden snail identification (see page 3) (photo: John Llewellyn-Jones)

Contents

- 3 Conchological Society at the NHM 'Big Nature Day'
- 4 Palaeo-mollusc assemblages at Greystones nature reserve, Gloucestershire *Briony Eastabrook*
- 6 Cuttlebone strandings on the coasts of Cornwall and the Isles of Scilly in 2011 *Pamela Tompsett*
- 8 Conservation Officer's Report 2011 *Martin Willing*
- 10 Gastropod anatomy from photographs of live animals *Aydin Örstan*
- 12 'On the spot' questionnaire: Christine Street
- 13 Indoor meeting at Bath Royal Literary and Scientific Institution 12 November 2011 *Ron Boyce*
- 14 The first mollusc on a coin *Giambattista Bello*
- 15 Shocking Poetry *Jim Logan*
- 16 Solariellidae: deep-sea gastropods *Suzanne Williams*
- 17 *Assiminea grayana* in Scotland *Ron Boyce and Rosemary Hill*
- 18 Non-Marine Recording 2011 *Adrian Norris*
- 19 Treasurer's report 2011 *Nick Light*
- 20 Marine Recorder's report 2011 *Sebastian Payne*
Do snails & slugs eat butterfly eggs? *Graham Long*
- 21 Dr Robert Townend Pemberton *Adrian Norris*
Book Review: Snails on rocky shores *Peter Topley*
- 22 *Posidonia* 'Seagrass' Habitats *Graham Saunders*
- 24 British Shell Collector's Club events
- 25 Bedfordshire *Testacella haliotidea* *Peter Topley*
- 26 Swan Mussels from a Hampshire pond *June Chatfield*
- 27 Electricity from 'bionic' snails *from Derek Worth*
- 28 North Yorkshire Dales molluscs *Michael Murphy*
- 29 Oyster mouse trap *Jan Light*
- 30 Book review: Martin Lister *Peter Topley*
Diary of events
- 31 Membership update



Mixed Sources

Product group from well-managed forests and other controlled sources
www.fsc.org Cert no. SA-COC-001860
© 1996 Forest Stewardship Council

The Conchological Society at the Natural History Museum's Big Nature Day

27th May 2012, South Kensington, London

'Big Nature Day' at the Natural History Museum is the largest free event of its kind in the UK, and this year more than 50 nature groups from across the country (including the Conchological Society) were invited to attend. The day included workshops and activities for children and families centred around the Museum's wildlife garden. Big Nature Day celebrated the UN International Day of Biological Diversity.

Conch. Soc. had a stand in a prime position in a marquee near to the main entrance from the museum's Darwin Centre. We had activities to involve all ages, including: 'Feelies' (a lucky dip of shells buried in sand so you had to identify them from examples by feel); using a microscope to look at shell sand and naming unlabelled garden snail shells from a free illustrated sheet (see front cover). Other points of interest were a large live *Achatina reticulata* snail, display boards, colouring sheets and of course our own experts on board! Great interest was taken in our stand by many of the 5000 visitors, as evidenced by the pictures on this page. Most of the photos are taken by John Llewellyn Jones who played a large part in organising the stand, and produced interesting 'goody bags' consisting of shells and identification leaflets as prizes.

Peter Topley



Conch. Soc. volunteers at the Society's stand.
Left to right: John Fisher, Celia Pain, Peter Topley, John Llewellyn Jones and Bas Payne.



A foray into the palaeo-mollusc assemblages at Greystones nature reserve, Gloucestershire

Briony Eastabrook

My interest in molluscs stems from the desire to investigate the palaeoecology of a nature reserve in the Cotswolds for my university dissertation project. However, due to the limestone bedrock that the Cotswolds is so famous for, I was unable to use the immensely popular method of palynology, so my dissertation advisor suggested using mollusc assemblages instead and I am so glad that he did! I am also interested in the concept of the use of palaeoecological information for contemporary conservation strategies, so-called 'applied palaeoecology' (Birks, 1996), and wished to incorporate this in my project by considering the effectiveness of the current management technique (grazing by cattle) implemented at the site with the findings of the investigation. I hypothesised that the area around the river (figure 1) was previously wooded and that the decline in woodland was due to agricultural processes, including grazing by cattle. Linking this to the concept of applied palaeoecology, I wished to determine whether this was the case and if so to contemplate the effectiveness of the current management technique.



figure 1: The River Eye, and my dog Lola!

To investigate the change in mollusc assemblages over time I needed to extract a number of core samples from the site. Due to my lack of knowledge in the field of mollusc analysis at the time, and the deficiency in mollusc specialists at Plymouth University, I had to use trial and error methods to get appropriate samples both in size and location. I undertook a pilot survey to test the effectiveness of a standard Russian corer as a method of extracting soil cores from the site (figure 2). I removed a number of cores from either side of the River Eye and transported them back to the University to analyse. I quickly found out that the sample sizes were not big enough as they yielded low numbers of molluscs; I also noted that the east side of the River did not present any mollusc shells. After careful consideration about how best to tackle these problems I decided to use a Root Corer which would extract larger cores and to only take three cores from the west side of the River, starting 0.5 m away from the river bank.

I then took these three core samples (figure 3) back to the laboratory and followed the standard method outlined by Evans (1972) and Davies (2008).



figure 2: Conducting the pilot survey in my wellies, with my ever-patient father.



figure 3: The core samples taken from the west side of the River Eye.

Some of the main species which I identified in my core samples were: *Succinea putris*, *Lymnaea truncatula*, *Punctum pygmaeum* and *Vallonia excentrica*. These species cover a large environmental gradient, from wetlands to grasslands. This is what would be expected of the modern assemblages due to the close proximity of the core samples to both the river and the open wet meadow. I did find it immensely difficult to identify the molluscs due to my lack of knowledge when it came to classification! However, I am hopeful that most of my identifications are correct and that even if they are not this would not affect the overall outcome of the study.

I expected the results of the study to reveal a more wooded landscape in the past; however the mollusc assemblages found suggested that, in general, the site has been a water meadow with areas of adjacent woodland in the time period represented by the core samples (Figure 4). I conclude that this is because the time covered by the core samples is too short to cover the more wooded period in the site's history. This conclusion suggests that the current management technique in place is maintaining the site in its plagioclimax state, and that the site may well have been wooded previous to the commencing of this practice. However, a more in-depth study is required to decisively state whether or not the site was previously wooded.

I believe that it would also be of interest to employ archaeomalacology at the large number of archaeological sites present in the nature reserve and surrounding area, as it may then be possible to reconstruct a picture of what anthropogenic landscape change has occurred at the site, for example was there clearance of woodland during the Neolithic? I would also be interested to know why the numbers of mollusc shells which I found in the core samples were so low, and even non-existent in the case of the samples taken from the east of the river. This could be due to the effects of cattle grazing (see Ausden *et al.*, 2005) or the contemporary absence of molluscs, therefore indicating that the general abundance of molluscs at the site has always been low (see Enquist *et al.*, 1995).

I feel that, although the reliability of the results is questionable, this investigation was successful. It showed that molluscan assemblages can be effectively used as a palaeoenvironmental proxy, and concluded that the current management is maintaining the site in its plagioclimax state. It also introduced me to the world of molluscs, for which I am very grateful! I also believe that the investigation was of great use to Gloucestershire Wildlife Trust as they only procured the site in 2002 and so did not have much

knowledge about the environmental changes which had occurred in the area previously. It was also advantageous to use a different proxy to support the information provided by the previous archaeological investigations undertaken at the site (see Stoten, 2005).

Overall, I thoroughly enjoyed completing the project and wish to pursue a career which involves molluscan studies. I am currently attempting to practise my shell identification as well as gain experience in a variety of fields, including museum and research work. Eventually I would like to complete a PhD and pursue a career which involves conducting research.

References

Ausden, M., Hall, M., Pearson, P. and Strudwick, T. (2005) The effects of cattle grazing on tall-herb fen vegetation and molluscs. *Biological Conservation* **122**: 317–326.

Birks, H.J.B. (1996) Contributions of quaternary palaeoecology to nature conservation. *Journal of Vegetation Science* **7**: 89–98.

Davies, P. (2008) *Snails: Archaeology and Landscape Change* Oxbow Books, Oxford.

Equist, B.J., Jordan, M.A. and Brown, J.H. (1995) Connections between ecology, biogeography, and paleobiology: relationship between local abundance and geographic distribution in fossil and recent molluscs *Evolutionary Ecology* **9**: 586–604.

Evans, J.G. (1972) *Land Snails in Archaeology* Seminar Press Inc. Ltd., London.

Stoten, G. (2005) *Greystones Farm Bourton-on-the-Water Gloucestershire: archaeological surveys for Gloucestershire Wildlife Trust. Cotswold Archaeology*, Cirencester, Gloucestershire, UK.

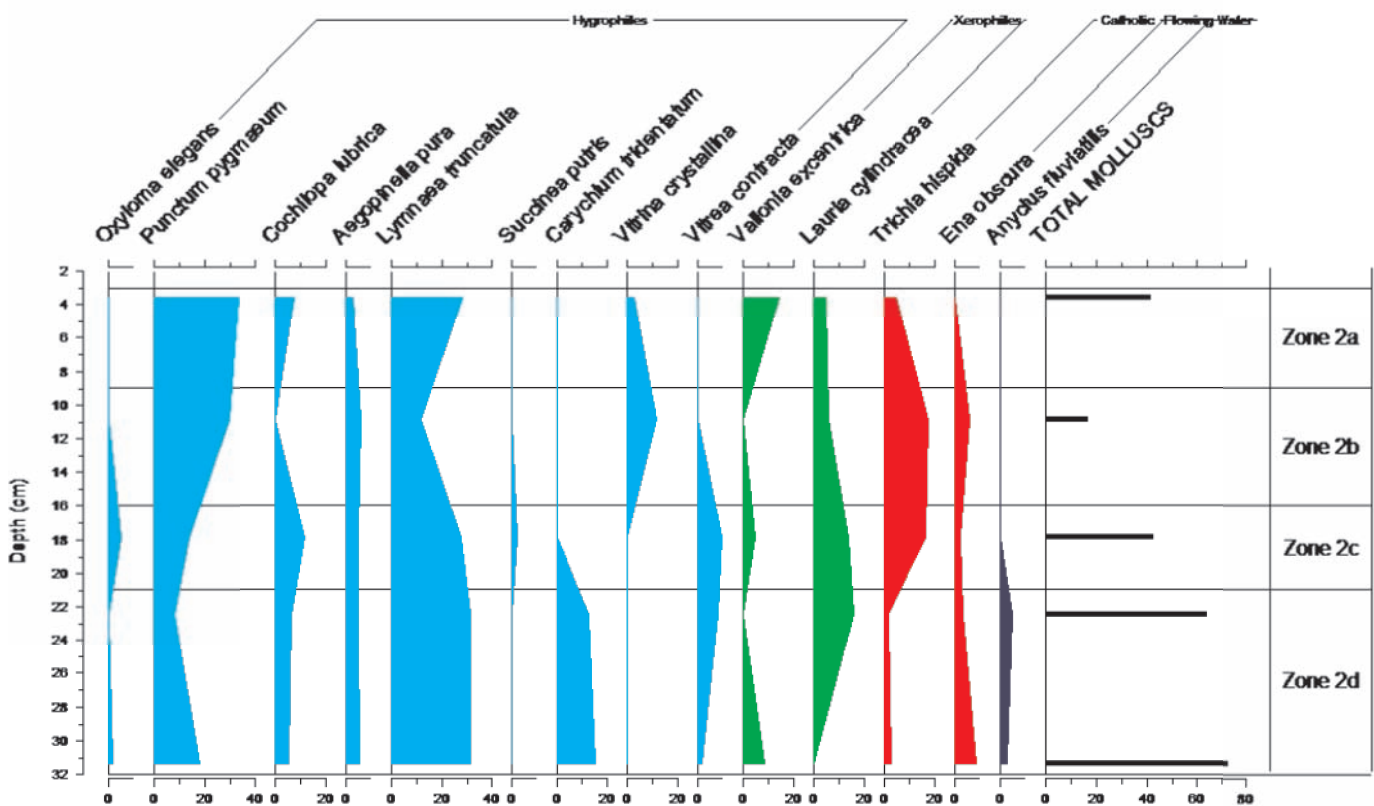


figure 4: A summary graph showing the change in molluscan assemblages found in Core 2.

Cuttlebone strandings on the coasts of Cornwall and the Isles of Scilly in 2011

Pamela Tompsett*

Background

The 'cuttlebones' or rigid endo-skeletons of the Cephalopod molluscs, such as the common cuttle (*Sepia officinalis*), are a familiar sight to beachcombers and are widespread in any month in ones and twos amongst the upper shore debris of UK shores. In most years it is not uncommon to find considerable numbers scattered along the strandlines of Cornish and Scillonian beaches and also floating in the water, usually from May onwards coinciding with a spring spawning peak after which many females die.

Those of *S. officinalis*, a large species, are particularly noticeable. Occasionally, in some years, huge numbers are observed not only of the adult cuttlebones of this species, which can reach over 250 mm in length, but nearly as many which are smaller in size, 50–80 mm, suggesting that sub-adult *S. officinalis* are also involved. Spawning in our shallow waters appears to peak in the early spring. The species is understood to be an intermittent spawner and can mature when as little as 60–80 mm (males) long or 110 mm (females) (Arkley *et al.*, 1996). A direct connection with the mass mortality indicated by the scale of the strandings is not known. The smaller, less well-known, pink-flushed species *S. orbigniana* and *S. elegans*, 35–80mm, can be found amongst these smaller cuttlebones but often are not recognised and recorded (figures 1–3).

Past wrecks

Large wrecks have been recorded previously along the coasts of Cornwall and the Isles of Scilly (Turk *et al.*, 2000), SE England (Lane, 1950), the Isle of Man (Moore, 1937), the Channel Isles 1998–1999 (pers. comm. P. E. Tompsett) and Holland (Cadeé, 2002).

2011 cuttlebone strandings

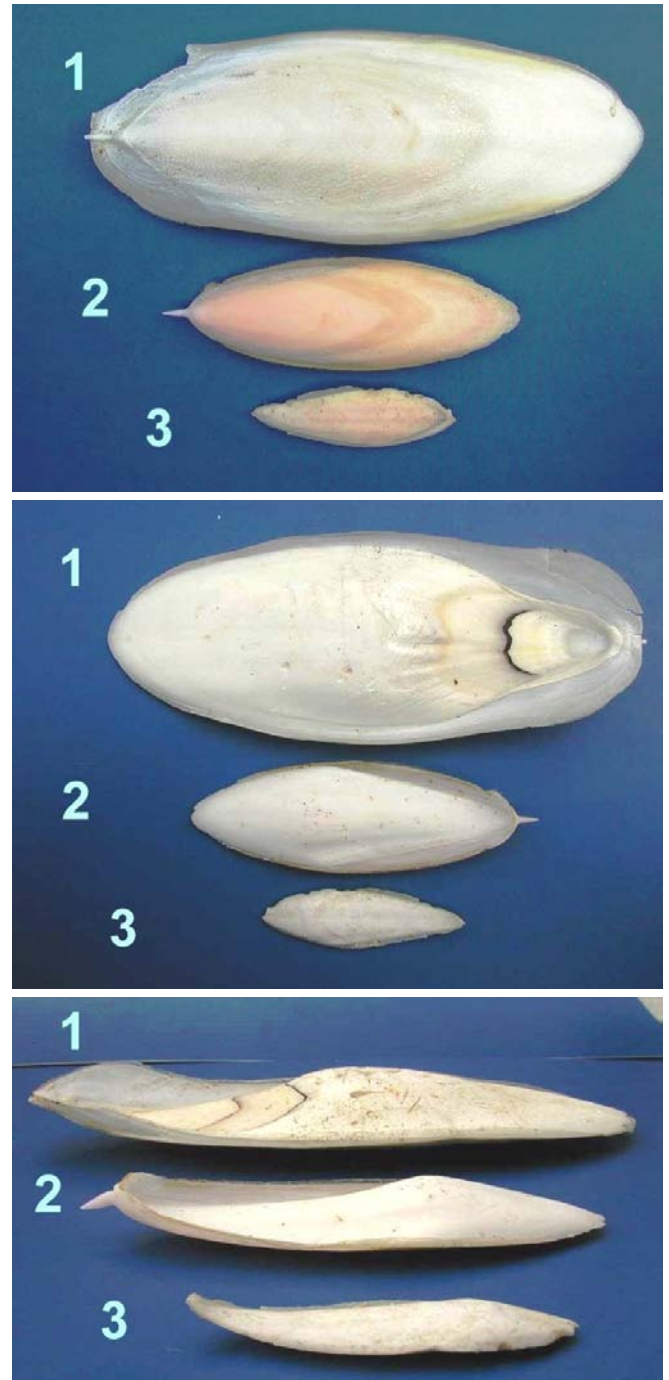
In 2011, the main period of reports came during May and early June, although Douglas Herdson recalled seeing many hundreds floating at sea in Northern Biscay and the Western Approaches in March and a few were still seen floating throughout a ferry journey from Plymouth to Roscoff that he made in early June. Lynda Filmer, a professional fisherman, had also seen large numbers at sea during this same period. Both suggested that it was the larger-sized *S. officinalis* cuttlebones that were so obvious and offered no information on any smaller sizes.

There were obviously substantial numbers of live *S. officinalis* in the vicinity of the Helford River eelgrass, *Zostera marina*, in late May, as Phil Lockley emptied 18 kilos of very large *S. officinalis* from his 120 pots which had over-wintered unbaited. He noted also that the pots were well-covered in bunches of the deep purple eggs.

Three species

The 2011 occurrence mirrored the Millennium year late-spring stranding episode (Turk *et al.*, 2000) when reports centred on the common cuttle with a wide range of sizes/ages from juvenile to adult being present, again suggesting a brief but large-scale mortality (table 1). The presence of large numbers of the younger *S. officinalis* cuttlebones could well have masked the existence

of the smaller pink-flushed species *S. orbigniana* and *S. elegans* except where specifically targeted as can be seen from table 1.



figures 1–3: Cuttle bones of *S. officinalis* (1) *S. orbigniana* (2) and *S. elegans* (3). (photos: Matt Stribley)

Locations

Reports were received from different people and beaches from the Isles of Scilly to Sennen, Godrevy, Portreath, Perranporth, Newquay, Mawgan Porth, Bude, Marazion, Porthleven and Maenporth, Falmouth on mainland Cornwall. Reports have not previously been received of such huge strandings following a spawning period.

Possible causes

There are various suggestions to account for these mass events such as severe weather conditions during migrations from deep to shallower water for spawning or an unsuccessful outcome during an irregular migration (Boucaud-Camou, 1991). It is recognised that spawning occurs further north in warm years and shifts south in cool years, and timing can be influenced by the strength of Atlantic currents. The centre of high abundance in offshore deep water moves north in warm winters and south in cool winters (Wanga *et al.*, 2003). Thus climatic conditions, also including wind direction and tide, can play a significant part in the final location of these wrecks.

Phil Lockley, fisheries correspondent of 'Fishing News' discounts the theory of fishery discards since even the smallest of any catch are used either for the table or bait, mostly in mainland Europe.

More recently and as an interesting observation, acoustic trauma resulting from exposure to low frequency sound from guns on offshore vessels has been demonstrated in squid, octopus and cuttlefish and was associated with strandings of giant squid on Spanish beaches in 2001 and 2003 (Andre, 2011; Everett, 2011) though any connection with mass strandings has not been recognised.

Future recording

The proportions of the two rarer, pink-flushed species *S. orbigniana* and *S. elegans*, are of particular interest and well worth investigations in any future cuttlebone stranding event.

References

table 1: Cuttlebone sightings 2011 and a few 2010.

Contact	Location	Grid ref	Date	Total	Notes
2011					
D.M. Henshaw	Mawgan Porth beach	SW84696	18.03.11	100+	Many along strandline
D. Herdson	Northern Biscay & Western Approaches		??.03.11	100s	Floating in the sea
M. Hewett	Maenporth, Falmouth	SW79086/29623	11.05.11	50+	
D. Dawes	Towan Beach, Newquay	SW81075/62060	14.05.11	50+	
A. Gall	Marazion	?SW50/30	15.05.11		
A. Gall	Godrevy	?SW57/42	15.05.11		
J. Barlow	Godrevy	SW579/417	15.05.11	20	Many along the HWM
J. Mills	Porthleven beach	SW62600/25500	15.05.11	100+	Hundreds on beach
A. Jones	Sennen Cove	SW35700/27350	18.05.11	200+ large 100+ small	No i.d. on smaller cuttlebones
M. Goodall	Godrevy nr Mexico, Hayle	SW5610/3967	19.05.11	50+	
R. Parslow	Isles of Scilly mainly PoplestoneBryher	SV873/152	20.05.11	Many	Included a few <i>S. orbigniana</i> and one <i>S. elegans</i>
R.L. Atkinson P.E. Tompsett	Portreath	SW652/454	24.05.11	150+	Included two <i>S. orbigniana</i>
J. Williams	Summerleaze & Crooklets beaches, Bude	SS20000/07050	27.05.11	150+ large 200+ small	No i.d. on smaller cuttlebones
D.C. Goodwin	Perranporth	SW757/549	28.05.11	38	Included three <i>S. orbigniana</i> , and two <i>S. elegans</i>
L. Filmer	13miles out from Helford River mouth whilst netting monkfish, professional fisherman		Late May to early June		Huge numbers of large individuals at sea during this period.
P. Noonan	Perranporth	SW757/549	03.06.11	62	Damaged; \estimated three <i>S. orbigniana</i> , & nine <i>S. elegans</i>
D. Herdson	Crossing Plymouth to Roscoff		05.06.11	2 to 5 seen floating all the time.	? <i>S. officinalis</i>
D. Fenwick	Sennen	SW355/265	08.06.11	20	Included one <i>S. orbigniana</i>
H. Buttivant	Hannafore, West Looe	SX 253/521	30.07.11	1	
2010					
S.Smith	Perran beach, Perranporth	SW754/546	24.02.10		Strandings database
P.J. Worth	Sunny Cove, Falmouth	SW80/30	10.03.10		
G. Hawkins	Praa Sands	SW58/28	25.03.10	10s	Strandings database
P.J. Worth	Cribba Head, nr Penberth	SW40/22	27.05.10		
P.J. Worth	Caragloose Point, Veryan CP	SW94/39	14.06.10		
N. Watson	Porthkerris reef	SW8068/2288	13-14.08.10	Rare (live)	Seasearch
I. Millar	Drawna rocks, Porthkerris	SW8071/2297	10.09.10	Rare (live)	Seasearch
T. Tambllyn	Appletree Bay, IOS	SV8887/1417	08.09.10		<i>S. orbigniana</i> Porcupine /Conch. Soc. meeting

André, M, Solé, M., Lenoir, M. *et al.* (2011) Low-frequency sounds induce acoustic trauma in cephalopods. *Frontiers in Ecology and the Environment* **9**: 489–493.

Arkley, K., Jacklin, M.S., Boulter, M. and Tower, J. (1996) The Cuttlefish (*Sepia officinalis*): A guide to its exploitation in British waters. *Seafish Report* No.SR467.

Boucaud-Camou E. (1991) The migration of the cuttlefish *Sepia officinalis* L. in the English Channel. The Cuttlefish. (1991). *Acta. 1st International Symposium on the Cuttlefish Sepia Caen, June 1–3, 1989. Centre de publications de l'Université de Caen.* pp. 179–189.

Cadeé, G.C. (2002) Mass strandings of cuttlebones *Sepia orbigniana* Ferussac, 1826, on Texel, The Netherlands in July 2002 (Cephalopoda, Decapoda, Serpiidae). *Basteria* **66**: 113–120.

Everett, S. (2011) Squids squished by ocean noise. Conservation news, marine and coast. *British Wildlife* **22**: 373.

Lane, F.W. (1957) *Kingdom of the Octopus*. Jarrolds, London.

Moore, H.B. (1937) *Marine Fauna of the Isle of Man*. Liverpool University Press.

Turk, S.M., Light, J.M. and Tompsett, P.E. (2000) A large Cornish and Scillonian wreck of cuttlebones *Sepia officinalis* and *S. orbigniana*. *The Conchologists' Newsletter* **155**: 414–419.

Wanga, J., Pierce, G.J., Boyle, P.R., Denis, V., Robin, J.-P. and Bellido, J.M. (2003) Spatial and temporal patterns of cuttlefish (*Sepia officinalis*) abundance and environmental influences – a case study using trawl fishery data in French Atlantic coastal, English Channel, and adjacent waters. *ICES Journal of Marine Science* **60**: 1149–1158.

* Scientific Adviser, Helford Marine Conservation Group, Redruth Cornwall.

The following is an edited summary of my report, the full version of which is available on our web site (<http://www.conchsoc.org/node/5642>), where I have provided additional detail for those who wish to gain further understanding of the important conservation issues in the areas where the Conchological Society is involved.

In 2011 the Conchological Society (CS) was involved in a number of widely publicised events as well as a wide range of other activities.

a) Advice and help has been given to individuals and organisations including identification of specimens, conservation advice and habitat management. In particular advice was given: on populations of *Helicella itala* and *Abida secale* living on southerly facing grassland on the edge of Nailsworth, Glos; a *Helix pomatia* population near Harpenden; inclusion of *Balea biplicata* and *Mercuria similis* in a presentation by London Wildlife to the Port of London Authority; the consequences of suspected metaldehyde pollution of the Llangollen Canal and the Invertebrate Conservation Trust (Buglife) in the production of a series of grazing marsh ditch leaflets (see <http://www.buglife.org.uk/AboutBuglife/publications>).

b) Proposed sale of England's National Forests. In October 2010 the intentions of the coalition government to sell off many of England's state-owned woodlands was hotly debated in the media. The CS Council decided to study the matter and drafted a letter highlighting our particular concerns, which included reduction in access to woodlands, a possible change in focus away from developing biodiversity, the possibility of more woodlands ending up in private ownership for commercial exploitation and that the proposals were not in the manifestos of either political party. Only ten days after our letter was sent to all relevant parties, as part of a record number of objections from the public and concerned organisations, the Government halted the consultation process. The outlook for English publicly owned forests now seems brighter than at the start of 2011, but while final reports are still awaited we are 'not out of the woods' yet!

c) The 5th Quinquennial Review of the Wildlife and Countryside Act, 1981. In August 2011, 39 months since the consultation on this ended, in which CS included our recommendations in the larger Buglife submission, Defra and the Welsh Government (the review process did not apply to Scotland) published their review responses. Recommended changes following the review for Mollusca are outlined in table 1 and include the removal of *Paludinella littorina* (figure 1) from Schedule 5.



figure 1: *Paludinella littorina* (c. 2 × 2 mm).
(Photo: Paul Sterry, Nature Photographers)

table 1 (see text) Species	5 th Quinquennial Review recommendation	Outcome of the review
1. Little whirlpool ram's-horn snail <i>Anisus vorticulus</i>	Add to Schedule 5 and the ditches that snail lives in be protected under Section 9(4)(a)	Recommendation not forwarded to Defra by JNCC. <i>A. vorticulus</i> was not included in the JNCC shortlist as they considered that the snail had adequate protection by its listing on EU Habitat and Species Directives IIa and IV.
2. De Folin's lagoon snail <i>Caecum armoricum</i>	Downgrade from full protection to Section 9(4)(a) only	Recommendation not forwarded to Defra by JNCC
3. Lagoon sea slug <i>Tenellia adspersa</i>	Downgrade from full protection to Section 9(4)(a) only	Recommendation not forwarded to Defra by JNCC
4. Lagoon Snail <i>Paludinella littorina</i>	Removal from Schedule 5	Recommendation agreed: removed from Schedule 5 of the WCA
5. Northern hatchet shell <i>Thyasira gouldi</i>	Removal from Schedule 5	No action taken by JNCC as only present in Scottish waters. Recommendation to be considered by the Scottish Government in 2012.

d) *Anisus vorticulus* (Little whirlpool ram's-horn snail) – candidate Special Areas of Conservation (cSACs); Natural England (NE) Consultation 2010. The outcome of this process (see *Mollusc World* 27:30) confirmed that four main areas would become SACs for the snail. These were the Arun Valley cSAC (including all of Amberley Wild Brooks and Pulborough Brooks), the Pevensy Levels cSAC (figure 2) and the addition of the snail as a feature of the existing Broads SAC (chiefly lying in Norfolk together with small areas of north Suffolk). A number of small isolated populations were omitted from this list, which is a worry since significant genetic differences have been demonstrated to exist between populations of the snail both between different areas and also within some regional blocks. Later in 2011 NE commissioned a series of small surveys to assess the status of a number of small populations and historical sites (such as a small pond in the Thames valley) of the snail not lying within SACs, with a view to considering them in the future.



figure 2: *Anisus vorticulus* ditch on Pevensy Levels.

e) British Wildlife. Reports in this publication in 2011 included the supposed find of new populations of *Cochlicella barbara* on the Isles of Scilly (later found to be a form of *C. acuta* by Ben Rowson of the National Museum of Wales (NMW)) (figure 3), Scottish Natural Heritage records of *Vertigo angustior* and *Cecilioides acicula* in western Scotland and the launch by the NMW, of the web-based Marine Bivalve Shells of the British Isles (see <http://naturalhistory.museumwales.ac.uk/britishbivalves/>).

f) Conservation Information Leaflets: I assisted in the publication of further leaflets aimed at providing information and/or site management advice for molluscs of conservation importance; also ensuring that the CS web link and logo were included. (i) Suffolk Wildlife Trust species leaflet 8 on *A. vorticulus* viewable at <http://www.suffolkwildlifetrust.org/species-and-habitats/wildlife-advice/50-species/species-8> ; (ii) NE's technical information note on the protected roman snail *Helix pomatia*, 'Roman snails and development' see <http://publications.naturalengland.org.uk/publication/91033>.

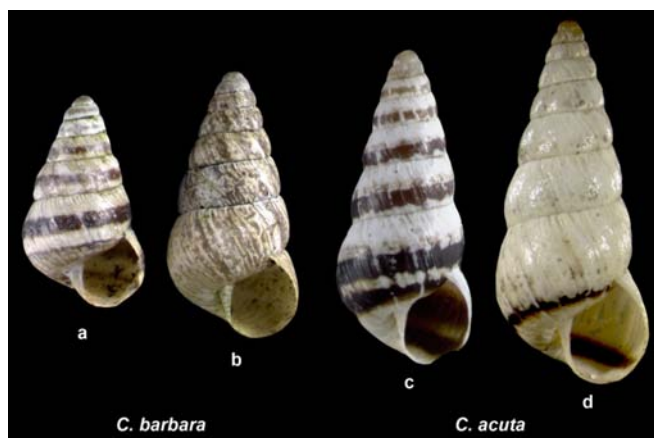


figure 3: (a) *C. barbara*, Kenfig NNR, Glamorgan; (b) *C. barbara*, near Llangemith, Glamorgan; (c) *C. acuta*, Port St. Mary, Isle of Man; (d) *C. acuta*, Tenby, Pembrokeshire. Specimen (c) is of the darker, shorter variety of *C. acuta* similar to the Scottish and Scilly specimens. (photo: Ben Rowson, NMW)

g) Pond Conservation Network Project (DEFRA/NE part funded): On 8th December 2011 I attended a meeting led by Pond Conservation, NE and The Amphibian and Reptile Conservation. It is increasingly recognised that the best-established biodiversity surveillance programmes need to be widened and the spread of resources improved, to adequately protect biodiversity. This initial meeting discussed whether benefits would arise from creating a project using a network of pond sites as pilot habitats to investigate volunteer-based biodiversity surveillance. Details are to be further firmed out at subsequent meetings. There are clear opportunities here for CS, should it so wish, to organise and encourage volunteer effort to contribute to a wider surveillance programme involving many other similar organisations (e.g. figure 4).

h) Biodiversity 2020: developing indicators to measure success. Defra has published 'England Biodiversity Indicators' annually since 2003. DEFRA state that, following a recent review, they have revised the list to 26 'robust indicators'. CS was invited to comment upon the indicators in the newly launched 'Strategy for England's Wildlife and Ecosystem Services, Biodiversity 2020'. The framework document was complex and, in my opinion, ambiguous in many sections. There were, however, a small number of areas where CS expertise might be of use. These



figure 6: Surveying a pond site of *Omphiscola glabra* in the New Forest on a CS field meeting.

related to the use of selected Mollusca to act as (1) indicators of certain UK Priority Habitats, (2) as possible indicators of habitat connectivity and (3) species indicators of the status of the UK BAP priority process. I will report back to CS with further details when the outcomes of this strategy are released.

i) Adequacy of biodiversity monitoring to meet EU policy objectives In October 2011 CS were invited by The Institute for European Environmental Policy to respond to a rather daunting and partially ambiguous list of questions linked to EU FP7 Project – SCALES: 'Securing the Conservation of biodiversity across Administrative Levels and spatial, temporal and Ecological Scales' which was trying to undertake a review for the EU on the adequacy of biodiversity monitoring to meet EU 2020 biodiversity targets. CS's Conservation and Recording Committee have previously made significant contributions by considering survey data (gathered by work undertaken outside of the Society) relating to species listed on the EU's Habitat and Species Directive.

j) Red Lists Buglife are leading on proposals to consider how to advance red listing in the UK. CS, together with a substantial number of other invertebrate-focused organisations, has expressed an interest in working to progress the Red List process and this will proceed in 2012. In her feedback Margaret Palmer, Director of Buglife, included five tables summarising Red Lists in a variety of current contexts. For the full version of my report, (see CS web site) I have extracted (and slightly adapted) the molluscan entry details from the four relevant tables.

k) Biodiversity Action Plan (BAP) priority species conservation delivered by 'species types' In early December 2011 Buglife sent the Society draft consultation documents produced by NE detailing how they saw BAP species conservation being delivered (see table in full report). In particular they had categorised species depending on whether they can be delivered by habitat conservation alone or whether they need more 'individualised' work. There are many questions which need to be asked on this policy and CS will give the proposals more scrutiny prior to feeding back to the NE EBS (England Biodiversity Strategy) plan to be released in 2012.

l) Associations with other organisations include the Sussex Wildlife Trust, where reports on notable finds in the county have been submitted, the Arun and Rothers Rivers Trust, and Buglife, whose support on a number of issues have been much appreciated.

Ian Smith's article on observing the anatomy of gastropods without dissection in the March 2012 issue of *Mollusc World* (Smith, 2012) was the impetus for the present article. One can indeed learn much about gastropod anatomy by watching live animals and studying their photographs. In fact, there are certain aspects of gastropod anatomy that are hard to appreciate in preserved specimens. I will present some examples.

In pulmonates, the front edge of the mantle is fused with the top of the neck. The enclosure that forms underneath the mantle is the lung. The network of blood vessels covering the roof of the lung is best revealed by backlighting a relatively large and thin-shelled snail, such as a succineid, while it is crawling on a glass plate (figure 1). It would be difficult to obtain a comparable image with a preserved specimen.



figure 1: The succineid snail *Oxytoma retusa* backlit on a glass plate. The snail's densely vascularized lung shows through the body whorl of its shell. Also visible in the head are the retractor muscles of the ocular tentacles.

Backlighting may also reveal other organs. One can often see the intestine and the rectum bordering the lung and sometimes even the ureter alongside the intestine. Both are visible in a backlit photograph I took of an *Oxychilus* species (figure 2). When I photographed the same snail from below but lit from above, additional pulmonary and excretory organs of the mantle cavity were revealed, including the two chambers of the heart, the atrium and the ventricle, as well as the pericardium surrounding them (figure 3).

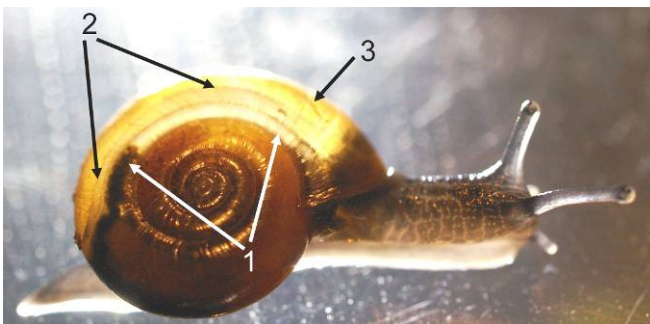


figure 2: An *Oxychilus* species, also backlit on a glass plate, reveals its intestine (1), ureter (2) and lung (3).

The pulmonate lung communicates with the outside through the pneumostome, the breathing hole located behind the head on the right side of a dextral species. Situated below and

anterior to the pneumostome is the genital pore through which the genitalia are everted during mating. Eggs are deposited from the same opening. The functional anatomies of the pneumostome and the genital pore are best studied in living animals (figure 4).

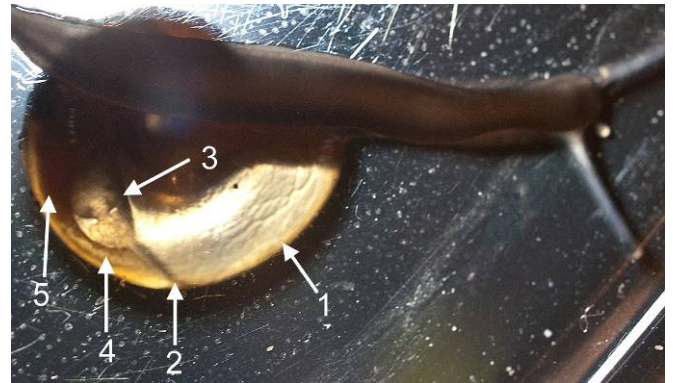


figure 3: The snail in figure 2 lit from above. The organs in the mantle cavity are the lung (1), the main pulmonary vessel (2), the heart (3), the ureter (4) and the kidney (5).



figure 4: The slug *Arion subfuscus* with an egg partially out of its genital pore. The breathing hole (pneumostome) is visible above.

In non-pulmonate gastropods, traditionally grouped as prosobranchs, the front edge of the mantle is unattached and the pocket underneath houses the gill. Some aquatic gastropods have a siphon that extends out from the edge of the mantle. The snail uses it to draw water into the mantle cavity where the gill extracts oxygen from the water. From above, the siphon looks like a tube; it is actually an outgrowth of tissue rolled into a tubular form (Fretter & Graham, 1994). I once kept a *Melongena corona*, a conch species common along the shores of Florida, in a makeshift aquarium overnight in a hotel room. While observing the snail I had a chance to photograph its siphon from below (figure 5). Abbott (1948) described the anterior anatomy of *M. corona* as follows: 'A true head is lacking. The proboscis is prominent and cylindrical in shape with the small round mouth at the anterior end. Above the mouth, and on the anterior end of the proboscis are two short, round tentacles. The small black eyes are each located just behind the base of the tentacle... The siphon is moderately long and smooth.' All of the organs Abbott listed are visible in the photograph of my captive snail (figure 5).



figure 5: Reaching for the meniscus, the marine snail *Melongena corona* reveals the underside of its siphon and the longitudinal slit (1) where the two opposite ends of the mantle extension meet. Also visible are the tip of the partially withdrawn proboscis (2), tentacles (3), one of the eyes (4) and the front of the foot (5).

In gastropods, an organ called the buccal mass houses the radula, a membranous structure covered with numerous tiny teeth, and several muscles and cartilages that move the radula during feeding. The functioning of the buccal mass during the feeding of a snail is a complex process; the description of it takes up more than 10 pages in Fretter & Graham (1994). But it is not too difficult to observe the radula in action. All it takes is a hungry snail or a slug and a glass plate covered with a thin layer of something palatable to the animal. If a high-resolution video camera is available, filming the mouth is preferable to taking photographs and stills may later be obtained from the film (figure 6). Carriker (1946) summarised the concerted actions of the radula and the jaw (mandible) of the freshwater snail *Lymnaea stagnalis* as follows: ‘On the protractor stroke the radula cups to an elongated spoon-shaped trowel about one-half the width of the upper mandible, and working against this, cuts out long narrow bits of food.’ The frame I selected from my video of the feeding *Deroceras laeve* shows the wide open mouth a moment before the U-shaped radula starts its forward strike against the jaw bordering the front of the mouth (figure 6).

A terrestrial pulmonate snail everts its penis only during mating; otherwise, like the radula hidden in the mouth when a snail is not feeding, the penis is kept inside the body. A careful dissection is necessary to locate the penis and the rest of the genitalia in the body and then free them from the surrounding

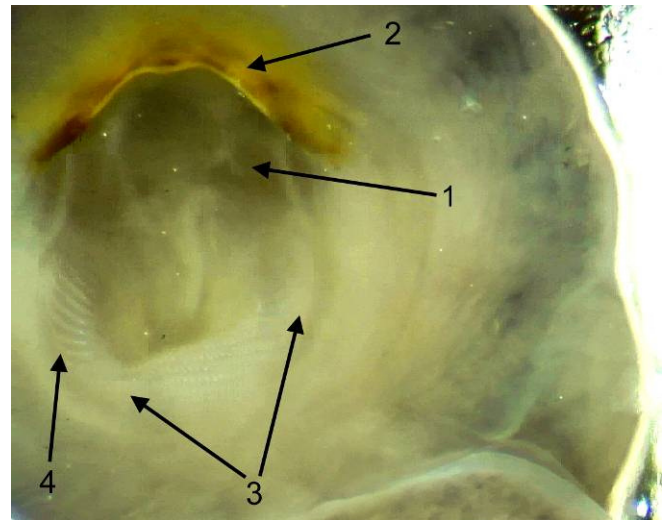


figure 6: The open mouth (1) of the slug *Deroceras laeve* showing the jaw (2), the radula (3), and the rows of teeth on it (4). This is a frame from a high-resolution video of an individual that was feeding upside down on corn starch paste smeared on a glass plate.

tissues. An even more delicate operation is needed to slice open the penis to expose its inside, which becomes its outside when the penis is everted. Dissection of the genitalia is often a decisive step in the discriminations of many snail species. Still, the functional anatomy is difficult to deduce from lifeless, mutilated organs. But with some diligence and luck, one can observe the genitalia of snails in action. I was lucky to chance upon a mating pair of *Chondrus tournefortianus* one early morning on a hillside in Turkey a few years ago. After I took several photographs of the pair, I separated them gently with one hand, while holding and operating my camera with the other. One snail withdrew its penis from its partner’s vagina and revealed its morphology (figure 7). I was probably the first person to witness the mating of that species for whatever it was worth (Örstan, 2009).



figure 7: A recently mated pair of the land snail *Chondrus tournefortianus*. After I interrupted their mating, one snail withdrew its penis (1) covered with short spines (2). As this is a sinistral species, the everted penis is on the left side of the snail’s head.

As Ian Smith explained in his article, a good time to photograph the head and the foot of a snail is when it is emerging from its shell that has been positioned with its aperture up. An individual trying to right itself invariably

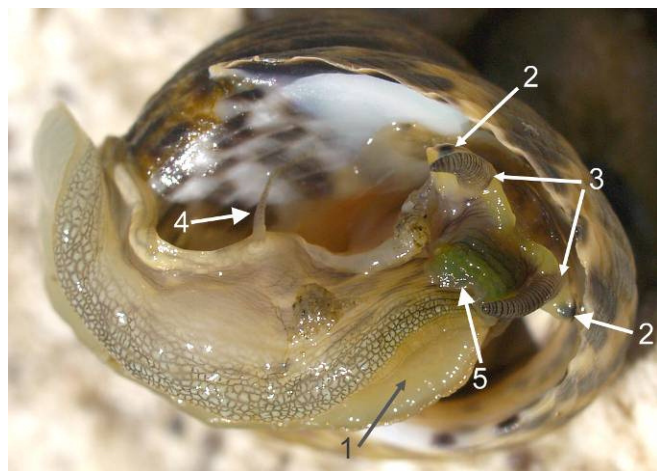


figure 8: The intertidal *Osilinus turbinatus* emerging from its shell. Visible are the foot (1), the eyes (2), the cephalic (3) and one of the epipodial tentacles (4) and what appears to be the green tip of the snout (5).

References

- Abbott, R.T. (1948) Notes on the anatomy of a giant subspecies [of] *Melongena corona* from Florida. *Shell Notes* 2: 21–24.
- Carriker, M.R. (1946) Observations on the functioning of the alimentary system of the snail *Lymnaea stagnalis appressa* Say. *Biological Bulletin* 91: 88–111.
- Fretter, V. & Graham, A. (1994) *British Prosobranch Molluscs. Their functional anatomy and ecology*. Ray Society, London.
- Örstan, A. (2009) An observation of the mating of *Chondrus tournefortianus* (Pulmonata: Enidae). *Zoology in the Middle East* 48: 117–118.
- Smith, I. (2012) Anatomy of marine gastropods without dissection. *Mollusc World* 28: 13–15.

*Section of Mollusks, Carnegie Museum of Natural History, 4400 Forbes Ave., Pittsburgh, Pennsylvania 15213-4080, U.S.A.

‘On the spot’ questionnaire: Christine Street

What do you do for a living? I live in outer London/Essex and am retired.

What are your areas of particular interest? Shellsand, small shells and old shell books.

How did your interest in molluscs begin? In 1982 we had a holiday in Eriskay with a three year old child. We found a beach heavily littered with shells. To keep him occupied we had competitions – find the largest, prettiest etc. I brought some home to see if I could identify them, with the aid of Norah McMillan’s book (*British Shells*, Warne, 1968), and the rest followed!

When and how did you become a member of the Conchological Society (CS)? In 1984 I plucked up courage to apply to the address given in said Norah McMillan.

In what ways have you been involved in the Society and its activities? I have served on CS Council several times. I have been on several memorable field trips including several dredging expeditions; the first Northampton Workshop and later the workshops held in Judith Nelson’s home. I have helped to organise shellsand workshops and have written articles for CS Newsletter and Mollusc World.

Do you have a “memorable Conchological moment”?

Finding a juvenile *Simnia patula* in shellsand; I have never found an adult!

Is there a shell or mollusc that eludes you? I have one valve of *Devonia perrieri* and would like a matching pair. It is rather rare and rather small.

Where are your favourite locations for shell hunting? Small islands around Britain. Mainly Scottish of late.

What words of advice would you give to a budding conchologist? Look hard at possible shellsand with a times ten lens before gathering any, as some can just be boring broken shells.



Christine at a CS meeting in 2010. (photo: Peter Topley)

Indoor meeting at Bath Royal Literary and Scientific Institution (BRLSI)

12 November 2011

Ron Boyce

The aim of this meeting was to view the wide range of rare North American freshwater mussels held in the shell collection at the Institution and to present some illustrated talks on related topics.

The meeting was held upstairs in the Duncan Room at 18 Queen Square, Bath. The curator of the collections, Matt Williams, very kindly arranged a well-labelled array of the relevant shells in the Institution's display cabinets, and Rob Randall gave us an introductory talk on the origins of the collections. These include British material presented by the Rev. Leonard Jenyns (1800–1893) and containing several type specimens and illustrating the growth stages of many species of land molluscs. There are over 3700 specimens in the collection, the bulk of which came from Samuel Walker (1771–1848), other contributors being Rev. Francis Lockey (1796–1869) and George Tugwell (1828–1910).

Ron Boyce gave a talk on the life of Leonard Jenyns, who founded the Bath Natural History and Antiquarian Field Club and was a pioneer of hands-on field work. His family was from Cambridgeshire, where he spent the first half of his life. At Cambridge, he went on many local field trips with Rev. John Stevens Henslow (1796–1861) and helped to found the museum of the Cambridge Philosophical Society. Both men were interested in freshwater mollusca, and Henslow invented an ingenious device for collecting these. It is now universally available and is known as a kitchen strainer. When fastened on the end of a pole it enables the user to sample freshwater mussels with great ease, and resulted in the discovery of the shell that bears his name, *Pisidium henslowanum*. Jenyns found and described two others, *P. nitidum* and *P. pulchellum*.

Jenyns and Henslow both declined an invitation to study the world's weather with Captain Fitzroy on the *Beagle*, and managed to persuade a young graduate by the name of Charles Darwin to travel instead, and continued to study the wildlife of Cambridgeshire.

Jenyns' wife became ill, and they moved to the Bath area in 1851. The local natural history society he founded there in 1855 held its indoor meetings at BRLSI and operated on similar lines to the Tyneside Naturalists' Field Club run by fellow conchologist Joshua Alder.

John Llewellyn-Jones gave a presentation on North American pearl mussels. Many species were heavily collected for button-making, but the worst threat to them has been the construction of dams across the major rivers. River mussels live in the upper reaches of rivers and rely on fish to convey their young stages upstream, so many species are dying out because population recruitment is no longer possible.

Julian Vincent, Chair of the Board of Directors of BRLSI and recently retired as Professor of Biomimetic Engineering at the University of Bath, gave us some interesting insights into the mechanics of mussel byssus and mussel shell. Byssus thread is much more elastic in its proximal than its distal half, and this helps to mitigate the effects of wave action. We were shown data on the stress-strain relationships of the two parts of the thread in

relation to their structure, and on the properties of the plaque attaching the byssus thread to the substrate.

Mother-of-pearl consists of a protein matrix which nucleates the growth of aragonite crystals which form platelets of irregular length and width. The matrix glues the platelets together and transfers stress, but also controls the fracture process and continues to carry a load even when the material is fractured. The material produced is stronger than either of its components.

Grateful thanks are due to Matt Williams, Rob Randall and Julian Vincent of BRLSI for their contributions to the success of this meeting.

Shells of some endangered North American pearl mussels in the BRLSI collection

back cover: Ring Pink, *Obovaria retusa* (Lamarck 1819). Length c. 5.1 cm. Known today from only two stretches of the Tennessee River, and one stretch each of the Cumberland and Green rivers.



figure 1: Northern riffleshell, *Epioblasma torulosa* (Rafinesque, 1820). Length c. 5.5 cm. Population now fragmented into only three viable groups in the Ohio River basin.



figure 2: *Megaloniais nervosa* (Rafinesque 1820). Length c. 12.7 cm. Has a widespread and stable distribution throughout the Mississippi River drainage.



figure 2: White Wartyback, *Plethobasus cicatricosus* (Say, 1829). Length c. 7.5 cm. Once widely distributed, it is now probably limited to the Tennessee River.



figure 3: Rabbitsfoot, *Quadrula cylindrica* (Say 1817). Length c. 6 cm. Distribution in the Ohio River System, including the Tennessee and Cumberland rivers and the Mississippi River System from Northern Louisiana north to Missouri and western Oklahoma.

Octopus: the first mollusc on a coin

Giambattista Bello

The present note was prompted by the article ‘Molluscs on the money’ by Peter Topley that appeared in the March 2012 issue of *Mollusc World*. I do not know whether there is an earlier British coin featuring a mollusc, but I can give an account of the probable first mollusc to be ever figured on a coin.

While investigating the imagery of the common octopus, *Octopus vulgaris*, I came across what is seemingly the first coin to have ever portrayed a mollusc (Bello, 2011). It was struck in the mint of the Ionian city of Phokaia (present day Foça, on the Aegean Turkish coast), sometime around the turn of the seventh century BC, and depicts a seal clasping an octopus in its mouth (figure 1). It is quite certain that this is the first representation of a mollusc on a coin because of the material the coin is made of, that is, electrum, a pale-yellow alloy of gold and silver, which indicates its origin in time and geographically.



figure 1: The Phocaean electrum stater featuring a monk seal clasping an octopus in its mouth. (Source: *The New York Sale XIV*, lot 110, 2007; reproduced with permission.)

Coinage started in Lydia (Asia Minor) ca. 650 BC with coins made of electrum, the metal for which was collected from the basins of local rivers. Electrum coins were soon found to be a very useful device in commerce and so spread out to Ionian cities as well, so that each city from this geographical area struck its own coins. This alloy was in use for about a hundred years, until the middle of the sixth century BC when the famed King Croesus, the last and the wealthiest king of Lydia, brought forth a remarkable monetary innovation that had a profound impact on the spread of coinage throughout the ancient world: electrum coinage was replaced by a currency system of pure gold and pure silver coins, struck at Sardis, the capital of Lydia (Konuk, 2012). Hence, we now know both the temporal and geographic origin of coins made of electrum. Since no other mollusc was seemingly portrayed on electrum coins, one can safely state that the Phokaia coin with the octopus in a seal's mouth was the first ever to depict any mollusc.

Coins from the first century of coinage most frequently represented wild and domestic animals, whole or in part (e.g. heads), such as lions, rams, goats, stags, boars, bulls, horses, hares, foxes, dogs, seals, dolphins, birds, tortoises, fish, crabs and insects such as bees and beetles, as well as fantastic animals and monsters, such as winged horses, griffins, the Chimaera, gorgons, sirens, winged men. In all, some one hundred different effigies have been discovered to the present. The electrum bestiary is in many cases related to the manufacturing mint, for example, the lion, a symbol of the powerful Lydian king, occurs in the coins produced in large quantities by the mint of Sardis, the capital city, the most prolific mint for early electrum coins (Konuk, 2012). The seal, *phoke* in ancient Greek, was the onomastic

creature of Phokaia (or Phocaea), so its many depictions on coins represent the *speaking symbol* of this Ionian city. On the obverse (the front face) of all Phocaean coins, there is a seal, either the whole body or just its head, either occupying most of the coin's front surface or just as a small symbol by the main item (e.g. a god's head or another animal). The seal is, of course, the monk seal, *Monachus monachus*, the only Mediterranean pinniped, which was very abundant in this basin in the past and is now on the verge of extinction – incidentally, most of the few surviving monk seals inhabit the coastal caves of the Aegean Sea, on both the Turkish and Greek shores (Johnson *et al.*, 2006–2011). It appears that the Phocaeans, the best Mediterranean seafarers in the sixth century BC, knew their emblem animal well enough to depict it in natural stances on coins, for example, while preying on an octopus, one of the seal prey items, which is exactly the image on the coin that I am writing about here. This is, in my humble opinion, the most beautiful electrum coin, but I may possibly be biased! This coin, variously dated back to 620–600 or 625–575 or 600–550 BC, is a stater, the monetary unit of the time weighing 16.4 g (the Lydian stater was slightly lighter). On the obverse there are, in addition to the seal with its prey, three incuse squares in positive; on the reverse, two incuse squares. In fact all the first period electrum coins bore incuses on the reverse, that is, the negative prints produced when the pre-weighed piece of metal was struck with a punch (a simple rod) and a hammer. Thus the main side received the type engraved in positive, while the other side was just left with one or several punch marks, namely the incuse(s). Seemingly only two specimens of the seal-clasping-an-octopus stater have been found to the present day.

It must be noted that indeed the octopus featured on the Phocaean stater is not the star but just the co-star of the representation. As a matter of fact its presence on this coin has no emblematic value, since the seal itself is the actual symbol. A completely different emblematic connotation is retained by the octopus printed in many later coins of Hellenistic state-cities and Hellenistic culture-influenced states, including the Magna Grecia and several subsequent peri-Mediterranean nations, from the end of the sixth to the end of the second century BC, such as Poseidonia (the Latin Paestum, Basilicata, Italy), Kroton (present day Croton, Calabria, Italy), Taras (present day Taranto, Apulia, Italy), Syracuse, Adranon, and Messana (present day Messina, Sicily, Italy); Dicea, Eretria (Greece) and Cyprus; Populonia (Etruria, Tuscany, Italy); cities of the Euboic League (Puglisi, 2004; Bello, 2011).



figure 2: A tetras (= 1/4 of the standard *litra*) bronze coin from Syracuse (Sicily), ca. 425 BC, featuring the head of Arethusa with a dolphin on the obverse and an octopus on the reverse. (Source: image from Goltbeek Ancient Coins; <http://www.ma-shops.com/goltbeek/>; reproduced with permission.)

In most coins, the octopus image is on the reverse, while on the obverse there is a god or a goddess or a mythological figure or some other symbolic animal (figure 2). It is quite evident that in all these cases the octopus does not symbolise the sea alone; hence its presence has to be interpreted in association with the figure on the obverse, within the wide emblem–language of the Greek iconographic panorama. In this respect, therefore, the eight-armed mollusc, because of its arm-regenerating capacity, maintains the positive significance of a creature symbolising the human capability of getting ahead of difficulties. This interpretation is further corroborated by some pieces of contemporary literature that prized the wisdom and cunning of the octopus (Puglisi, 2004). Moreover, the octopus, in addition to being regarded as an aphrodisiac food, was a proper present for the mother during the amphidromia, the ceremonial feast celebrated on the fifth or seventh day after the birth of a child. The octopus was consecrated in Troizen (Argolis), where fishing it was prohibited.

References

- Bello, G. (2011) Il polpo comune o *di scoglio* nell'immaginario collettivo. *Riflessioni*, Umanesimo della Pietra, Martina Franca; 2011 year-book: pp. 143–157.
- Johnson, W.M., Karamanlidis, A.A., Dendrinis, P. *et. al.* (2006–2011). Mediterranean Monk Seal (*Monachus monachus*). The Monachus Guardian. <http://www.monachus-guardian.org/factfiles/medit01.htm> [site accessed 12.4.2012]
- Konuk, K. (2012) *Asia Minor to the Ionian revolt*. In W.H. Metcalf (ed.): *The Oxford Handbook of Greek and Roman Coinage*. Oxford University Press, Oxford.
- Puglisi, M. (2004) *Il simbolismo del polpo*. In M. Caccamo Caltabiano, D. Castrizio & M. Puglisi (eds.): *La tradizione iconica come fonte storica – Il ruolo della numismatica negli studi di iconografia*. Falzea Editore, Reggio Calabria: pp. 159–172.
- Topley, P. (2012) Molluscs on the money – 50p celebrating fifty years of WWF. *Mollusc World* **28**: 21.

Shocking Poetry

It started simply enough and at the time seemed to have no connection with molluscs. Dumfries and Galloway Council was organising a poetry workshop and I was asked to take part. Nine aspiring poets attended an initial session with a professional poet, Jean Atkin, who explained the project. We were to write poems which would be included in a pamphlet to advertise a local viewpoint. First we should visit the viewpoint to get inspiration.



figure 1: Burn beside viewpoint where the snails were found.

I spent about half an hour looking at the view, listening to the sounds and inhaling the scent (mostly sheep dung). Then I noticed a tiny stream running close to the viewpoint (figure 1). Shifting from poet mode to biologist mode, I started looking closely into this and found two small water snails which I later identified as *Galba truncatula*, the host of sheep liver fluke (figure 2).

Jim Logan



figure 2: *G. truncatula* from the burn.

When we assembled with Ms Atkin to complete the project she explained that she wanted us to write a 'Cinquain', a poem with two syllables in the first line then four in the next, six in the next, eight in the next and finally two syllables in the last.

I wrote:

Small stream
Runs down the hill
Looks harmless but is home
To small brown snails which carry within
Liver fluke.

Ms Atkin worked her way round the group, checking the layout of the poems, making suggestions and praising the images they portrayed. Then she came to mine! She read through it slowly, counting the syllables until she came to the last line. 'That's disgusting' she shouted causing everybody to stop and look in my direction. She made me write another less contentious poem about the view, more suitable for publication. The other members of the group are still wondering what I wrote that so shocked the poet.

Solariellidae – a poorly known group of deep-sea gastropods

Suzanne Williams*

The deep-sea is the largest, most enigmatic ecosystem left to explore. Covering almost two-thirds of the earth's surface it was once thought to be devoid of life, but in 1868 Norwegian zoologist Michael Sars was able to produce a list of 427 animal species he had collected from more than 400 m deep in Norwegian fjords. His findings were of great academic interest at the time and prompted the HMS Challenger Expedition. This expedition circumnavigated the globe and resulted in the discovery of 4717 new species, of which many were from the deep sea. These and more recent studies over the last few decades have shown that the deep sea is in fact rich in species, some of which show remarkable adaptations to the challenges of the deep sea (especially low temperature, lack of light, high pressure and low nutrient levels). However, despite more than one hundred years since our first insight into the richness of deep-sea biodiversity, little is known about these communities.

Solariellidae are a poorly known group of deep-sea gastropods. They are vetigastropods with small, nacreous shells. The animals have short, straight radulae and digitate palps around the snout. They have sensory papillae, like all trochoideans, but these tend to be smaller and less obvious than those in other groups. They have a worldwide distribution, occurring in all oceans at all latitudes on unconsolidated sediment. They can be found in water as shallow as 5 m in polar oceans, but also occur at depths of well over 2000 m. Most occur in the mesopelagic zone, which extends from a depth of 200 to 1000 m below the ocean surface. Little is known about their biology and observations of living animals are limited. It is known that species are dioecious and presumably have external fertilisation. At least two South African species are known to brood young within the mantle cavity (Herbert, 1987) and some species from New Zealand brood their young in the shell umbilicus (Marshall, 1999).

Solariellids were previously included in Trochoidea as a subfamily of Trochidae (e.g. Hickman and McLean, 1990; Bouchet *et al.*, 2005), but recent molecular phylogenetic studies have shown that they form a distinct radiation and deserve familial rank (Williams *et al.*, 2008; Williams, 2012). Solariellids have sometimes been confused with other trochoidean taxa like the genus *Margarites* or members of the trochid subfamily Umboniinae, which have similar shells. Umboniines also have digitate palps around the snout. However both *Margarites* and Umboniinae differ from solariellids in protoconch morphology (Herbert, 1987). Both occur rarely in deep water, unlike solariellids.

There is no subfamilial classification within Solariellidae and assignment of species to genera is often poor. In particular, the nominotypical genus *Solariella* is commonly used as a 'waste basket' genus to hold species that cannot be assigned elsewhere with confidence. The definition of *Solariella*, and therefore the family, is further complicated by the fact that the type species (*S. maculata*) is a fossil described from the Upper Pliocene from the Coralline Crag at Sutton, Suffolk, England.

Recently, Muséum national d'Histoire naturelle (MNHN) deep-sea expeditions have obtained unprecedented collections of solariellid samples. MNHN samples come from around New Caledonia, Vanuatu, Solomon Islands, Philippines, Norfolk Ridge, Chesterfield Bank, Madagascar, Papua New Guinea and Mozambique Channel. Additional samples collected by my collaborators or from museum collections, are from Japan, Antarctica, Norway, New Zealand, South Africa and Australia.

With the help of collaborators at the Natural History Museum, London and the University of Tokyo I have obtained sequences from four genes for about 200 solariellid specimens. I plan to use molecular methods to build a phylogeny for the group, in part to establish whether shell characters are useful for defining genera. Preliminary analyses have confirmed that shell characters are indeed useful at generic and specific level and this will be discussed further in an upcoming publication.

References

- Bouchet, P., Rocroi, J.P., Frýda, J. *et al.* (2005) Classification and nomenclator of gastropod families. *Malacologia*, **47**, 1–397.
- Herbert, D.G. (1987) Revision of the Solariellinae (Mollusca: Prosobranchia: Trochidae) in southern Africa. *Annals of the Natal Museum*, **28**, 283–382.
- Hickman, C.S. and McLean, J.H. (1990) Systematic revision and suprageneric classification of trochacean gastropods. *Natural History Museum Los Angeles County Science Series*, **35**, 1–169.
- Marshall, B.A. (1999) A revision of the Recent Solariellinae (Gastropoda: Trochoidea) of the New Zealand region. *Nautilus* **113**, 4–42.
- Vilvens, C. and Williams, S. T. (2012) New genus and new species of Solariellidae (Gastropoda: Trochoidea) from New Caledonia, Fiji, Vanuatu, Solomon Islands, Philippines, Papua New Guinea and French Polynesia. *Tropical Deep-Sea Benthos* **27** (submitted)
- Williams, S.T., Karube, S. & Ozawa, T. (2008) Molecular systematics of Vetigastropoda: Trochidae, Turbinidae and Trochoidea redefined. *Zoologica Scripta*, **37**, 483–506.
- Williams, S.T. (2012) Advances in systematics of the vetigastropod superfamily Trochoidea. *Zoologica Scripta* (submitted)

Figures (above opposite)

figure 1: *Spectamen philippensis* (Watson, 1881). NHMUK 20110452. Collected from N Moreton I., Moreton Bay, Queensland Australia, 31 m.

figure 2: "*Solariella*" *varicosa* (Mighels & Adams, 1842). Collected from Finnmark county, Varangerfjorden, SW of Vestre Jakobselv, Norway, 10–174 m.

figure 3: New species and new genus currently being described by Vilvens & Williams (2012) MNHN 20098861. Collected from Loyalty Ridge, New Caledonia, 660–710 m.

figure 4: *Suavatrochus lubricus* (Dall, 1881). USNM 323838. Collected from Gulf of Mexico, Florida, off San Blas, Station 2400, 309 m.

All photos by Harry Taylor, NHM Image Resources, © The Natural History Museum, London.

*Natural History Museum, London SW7 5BD, UK



figure 1



figure 3



figure 2



figure 4

Assimineea grayana in Scotland

After attending the non-marine meeting in Dumfriesshire last year we looked at a few other sites in the area including, on 27th May, the reed beds and salt marsh at Caerlaverock. The reed beds at NY043651 contained *Lymnaea truncatula*, *Physella acuta*, *Anisus vortex* and *Radix balthica*. On the salt marsh at NY038650 we found large numbers of tiny snails at the base of raised clumps of grass just clear of the point of inundation, and collected some for further investigation. These snails were also present further west on the marsh. A log beyond the boundary of the salt marsh had one *Cepaea nemoralis* and four *Discus rotundatus* underneath, while a freshwater drainage channel with *Glyceria fluitans* and *Lemna trisulca* contained several *Physella acuta* and *Anisus vortex*.

Back at base in Carronbridge, we placed one of our collected animals under a digital microscope, where it was none too pleased with the light intensity and crawled rapidly away from the image sensor. However, we did manage to obtain a few photos (figure 1) which showed clearly that it was *Assimineea grayana*, which as far as we know has not been recorded from Scotland before.

Ron Boyce and Rosemary Hill

Empty shells of this species are difficult or impossible to separate reliably from those of *Hydrobia ulvae*, but the animals inside are very different, particularly the length of the tentacles; compare with the photos in Ian Smith's article in *Mollusc World* No. 28, 13–15.



figure 1: *Assimineea grayana* from Caerlaverock.

(photos: Ron Boyce)

Since the last report in April 2011 a further 10,000 records have been added to the non-marine database bringing the total to 250,000, and an updated version of this database has been supplied to allow access to the data via the NBN network. I am concerned, however, that the dataset is becoming heavily biased towards the more active areas of the British Isles whilst other areas are lagging well behind. We need more recording activity, particularly in the Home Counties and the Midlands which appear to be rather neglected. Rare species with known habitat types and distributions, such as some of the rarer *Vertigo* species are well studied and documented but other more erratically distributed species are not. With access to recorders in the field rather limited I would like to encourage those who do record to be more systematic and submit even the most casual records of the most common species. All records, even the Common Garden Snail, can add significantly to our understanding of the distribution of species within the British Isles. Most of the new vice-county (VC) records are as a result of trying to re-establish the VC lists after so many splits within the slugs.

One interesting records of 2011 relates to the introduced *Helix lucorum* which was reported last year. This alien appears to be spreading. It is difficult to know if this is due to the affects of global warming, but we need to monitor this species more closely. If it does spread it may start to overlap with *H. pomatia* which could hinder the conservation of that species. The spread of the introduced *Corbicula fluminea* also appears to be continuing with new records from a further three vice-counties.

The discovery of *Mercuria similis* in the River Thames at Oliver's Ait and Syon Park by Martin J. Willing in 2011 extends its known range in the Thames. Previous records are of this species this far upstream are well over 100 year old, the nearest modern record being from Barking Creek much further down river.

A Bioblitz in Cambridge Botanic Gardens on 23rd July 2010 produced a number of new VC records, mainly of alien species from the greenhouses but also a new VC record of *Pyramidula pusilla* a native species, which is rare in the south-east.

A number of old records have been refound, particularly in Scotland, by various recorders. Adrian Sumner, for example, relocated *Succinea oblonga* near Ayr after a gap of more than 10 years at NS3266320117 (22.06.2011). This find encouraged a further search at Peffer Burn in East Lothian (NT6182 & NT6282) where it was also relocated by Adrian Sumner (08.07.2011).

East Cornwall (VC2): *Arion distinctus*, Truro (SW832450) 29.03.2010 C. du Feu.

South Devon (VC3): *Lehmannia valentiana*, Plymouth Hoe (SX477540) 07.07.2010 C. du Feu.

South Hampshire (VC11): *Limacus maculatus*, Foxlease Estate, Lyndhurst (SU298070) 10.10.2011 June Chatfield (confirmation of an 1884 record by Charles Ashford Conf. M.P. Kerney and based on dissection drawings by C. Ashford).

East Kent (VC15): *Arion distinctus*, Boxley Wood (TQ768599) 11.06.2010; *Arion flagellus*, Harp Farm (TQ774600) 11.06.2010; *Arion silvaticus*, Harpledown (TR132578) 15.06.2010; *Boettgerilla pallens*, Perry Court Farm (TR04114713) 13.06.2010 all C. du Feu; *Corbicula fluminea*, Burham Marshes (TQ609719) 29.02.2012 Eric Philp.

North Essex (VC19): *Arion distinctus*, Wickham Bishops (TL837121) 28.03.2010 Chris du Feu.

Middlesex (VC21): *Mercuria similis*, River Thames at Oliver's Ait (TQ195777) 06.2011 and Syon Park (TQ176765) 08.2011 Coll. & Det. Martin J. Willing.

Berkshire (VC22): *Arion distinctus*, *A. silvaticus*, *A. flagellus* Basildon Park (SU610784) 11.09.2010 all C. du Feu.

East Suffolk (VC25): *Lucilla singleyana*, Thorpe Aldringham (TM466608) (2011) Alistair Cruikshanks det. Richard C. Preece.

Cambridgeshire (VC29): *Physella acuta*, *Ferrissia wautieri*, *Pyramidula pusilla*, *Deroceras panormitanum*, *Allopeas gracile*, *Subulina octona*, *Hawaia minuscula*, *Gulella io*, *Zonitoides arboreus* Cambridge Botanic Gardens (TL455572) 23.07.2011 all Richard C. Preece; *Arion distinctus*, Anglesey Abbey (TL5261) 05.08.2010, *Arion flagellus*, Wicken Fen (TL5570) 08.10.2010 all C. du Feu.

East Gloucestershire (VC33): *Ferrissia wautieri*, Chesterton, Cirencester (SP022009) 04.08.2011 David Scott-Langley det. A. Norris.

Worcestershire (VC37): *Arion distinctus*, Ribbesford Woods (SO777729) 12.02.2011 R.E.Hill & Ron Boyce; *Physella acuta*, River Severn (SO846533) 11.08.2011 det. R.E.Hill.

Staffordshire (VC39): *Corbicula fluminea*, Trent & Mersey Canal near Burton (SK206188 & SK250254) 06.07.2011 Martin Willing (1993).

Shropshire (VC40): *Arion silvaticus*, *A. flagellus*, Wyre Forest (SO757768) *Euconulus fulvus* ss. Wyre Forest (S0756770) 17.09.2011 Conch. Soc. Det R.E. Hill.

Glamorgan (VC41): *Corbicula fluminea*, Port Talbot (SS7689) 01.01.2006 Paul Taylor det. A. Norris; *Pupilla pratensis*, The Gower (SS21) 1993 Martin Willing.

Pembrokeshire (VC45): *Unio pictorum*, Stackpole Warren (SR9895) 12.06.2010 Eric Philp.

Caernarvonshire (VC49): *Omphiscola glabra*, Llanllawen Fawr (SH148258) 18.09.2009 John Bratton det. A. Norris.

South Lincolnshire (VC53): *Limacus flavus* ss., Baston Fen (TF143176) 04.09.2011 E.J. Redshaw.

North Lincolnshire (VC54): *Deroceras panormitanum*, Grimsby (TA254090) 10.03.2010; *Arion distinctus*, *Limacus flavus* ss., Scartho (TA2605) 10.03.2010; *Boettgerilla pallens*, Walesby (TF1392) 30.09.2011 all C. du Feu.

Leicestershire (VC55): *Arion distinctus*, *A. circumscriptus* ss., *A. flagellus*, *Limacus flavus* ss., New Lount (SK397184) 08.05.2010; *Arion rufus*, Ibstock (SK405098) 08.05.2010, *Lehmannia valentiana*, Primethorpe (SP518930) 12.07.2011 all C. du Feu.

Nottinghamshire (VC56): *Boettgerilla pallens*, Nr Wellingwells (SK574845) 25.11.2008 A. Lazenby; *Arion ater* ss., *A. rufus*, *Limacus maculatus*, Rushcliffe C.P. (SK5732) 19.07.2010; *Limacus flavus* ss., Carlton-in-Lindrick (SK588837) 17.11.2010; *Arion distinctus*, Beccingham (SK762889) *Arion silvaticus*, Beccingham (SK774889) 27.02.2010 all C. du Feu.

Derbyshire (VC57): *Arion distinctus*, Abney Clough (SK209797) 31.10.2009 R.A.D. Cameron; *Limacus flavus* ss, Kirk Hallam (SK448404) 13.09.2011 C. du Feu.

South Lancashire (VC59): *Arion distinctus*, *Limacus flavus* ss, Lancaster (SD489602) 02.05.2010; *Lehmannia valentiana*, Lancaster (SD489682) 03.09.2010 all C. du Feu.

South-west Yorkshire (VC63): *Physella gyrina*, Gargrave (SD9354) 14.05.2011 David Lindley det. Roy Anderson.

Mid-west Yorkshire (VC64): *Physella gyrina*, Gargrave (SD943545) 14.05.2011 David Lindley det. Roy Anderson; *Arion owenii*, Kirkby Malham (SD894609) 29.07.2011 David Lindley & A. Norris.

North-west Yorkshire (VC65): *Arion ater* ss, Strang Lane (NZ001041) 12.08.2011; *Tandonia sowerbyi*, Reeth (SE039991) 15.08.2011 both A. Norris.

Isle of Man (VC71): *Arion silvaticus*, *Euconulus fulvus* ss., Ballure Glen (SC453927) 17.08.2011; *Arion distinctus* ss., Groudle Glen (SC416788) 16.08.2011; *Arion circumscriptus* ss., *Carychium minimum*, Narradle (SC395939) 18.08.2011 all Keith Alexander.

Dumfriesshire (VC72): *Euconulus fulvus*, A702 Dalveen Pass, north of Dalveen (NS903074) 18.06.2011 A. Norris; *Arion distinctus*, Lockerbie (NY138816) 11.05.2010 A. Sumner; *Acicula fusca*, Stenhouse Wood SSSI (NX7932693292) 21.05.2011 B. Colville; *Oxychilus draparnaudi*, Penton Linns (NY432774) 22.05.2011 A.T. Sumner; *Cochlodina laminata*, Penton Linns (NY42997743) 22.05.2011 T.M. Walker det S.P. Dance; *Physella acuta*, Caerlaverock (NY043651) *Assimineia grayana*, Caerlaverock (NY038650) 27.05.2011 R.E. Hill & R. Boyce.

Ayrshire (VC75): *Arion ater* ss., *Arion circumscriptus* ss, *Tandonia sowerbyi*, *Planorbarius corneus*, Drumlamford House Estate (NX2876) 20.06.2011; *Lehmannia valentiana*, Ballantrae (NX0815582904) 22.06.2011 all A.T. Sumner & A. Norris.

Renfrewshire (76) *Euconulus alderi*, *Lymnaea stagnalis*, *Zonitoides nitidus*, BTCV Pond, Dams & Darnley CP, Glasgow (NS526589) 09.04.2011 all A.T. Sumner.

Selkirkshire (VC79): *Arion ater* ss., *Arion distinctus*, Tushielaw (NT30311766) 16.06.2011 A. Norris.

East Lothian (VC82): *Balea perversa* ss, North Berwick (NT539854) 02.10.2011 A.T. Sumner det. A. Norris; *Vertigo pusilla*, Peffer Burn (NT619824) 08.07.2011 A.T. Sumner.

Midlothian (VC83): *Monacha cantiana*, Water of Leith, Slateford, Edinburgh (NT219708) 21.08.2011 A.T. Sumner; *Arion vulgaris*, Melville Castle (NT306667) 19.09.2010 A.T. Sumner det. Roy Anderson; *Oxychilus helveticus*, Millerhill (NT322713) 19.07.2011 A.T. Sumner.

West Lothian (VC84): *Limax cinereoniger*, The Desert, Avon Valley (NS947730) 26.07.2011; *Myosotella myosotis*, E shore of River Avon (NS957811) 28.09.2011; *Cochlicopa lubricella*, Wester Shore Wood

(NT059794) 09.08.2011; *Tandonia sowerbyi*, Dalmeny (NT141775) 21.07.2011 all A.T. Sumner.

Fife (VC85): *Euconulus fulvus* ss, Millennium Cycle Way, Comrie (NT022887) 17.08.2011; *Planorbarius corneus*, Beveridge Park, Kirkcaldy (NT269909) 21.07.2011 both A.T. Sumner.

West Perthshire (87): *Cochlodina laminata*, Millennium Cycle Way, nr Blairhall (NT0088) 17.08.2011 A.T. Sumner.

East Perthshire (VC89): *Arion distinctus*, (NN869653), *Arion ater* ss, (NN872652) Blair Atholl 20.04.2011 A.T. Sumner.

Angus (VC90): *Musculium lacustre*, Barnhill Rock Garden (NO479312) 29.05.2011 A.T. Sumner.

Argyll Main (VC98): *Arion distinctus*, Benmore Botanic Garden (NS135851) 03.09.2011 A.T. Sumner.

North Ebeudes (VC104): *Deroceras panomitanum*, Portree (SN483433) 07.05.2011; *Limacus maculatus*, Portree (NG483437) 26.06.2011; *Balea perversa* ss., Tawny Croft (NG699122) 11.05.2011 all C. du Feu.

West Ross (VC105): *Arion owenii*, Shellaig (NG816542) 01.09.2010 C. du Feu.

Honorary Treasurer's Report (on financial statements to 31st Dec. 2011)

I am pleased to report that the Society made a profit of £1600 this year which compares with £48 in 2010. Subscriptions were up by £800 reflecting a small increase in membership and recovery of old balances. Investment income increased to £5315 from £4071 last year reflecting the investment of £20,000 at the beginning of the year from our cash balances. Sales of back numbers were up at £550 and with further donations, mostly arising from the sales of books we generated a total income of £20,566.

Thanks to good control by our editors, publishing costs in the year were held down at £15,493, which compares with £17,920 in 2010. We saw further significant rises in postage costs. Our new arrangements for meetings in the Natural History Museum, where we are now given free use of a room, resulted in no cost this year against £865 in 2010. Council decided to double the grants awarded this year to £2,000, taking our total outgoings to £18,969.

In difficult market conditions we were pleased to find we had a small revaluation surplus of £1,502 on our investments. This, together with the surplus for the year results in an increase of the Society's funds of £3,102 to £104,264.

The outlook for the future looks secure. The increases in some members' subscriptions will recover some of the extra postage costs we have been bearing, in particular on deliveries outside of the United Kingdom. Initial indications are that members affected understand the reasons for the change and are renewing. We hope that this, with careful control of expenditure will enable us to get through the current difficult economic times without any further increases in subscriptions

I would conclude by thanking, on both Council and our members' behalf, our Honorary Examiner for her valued assistance in ensuring the accounts correctly reflect the Societies activities and financial position.

Nick Light

(for a full version of the financial statements see <http://www.conchsoc.org/node/5573>)



Members discussing exhibits at the January 2012 London meeting. (photo: Peter Topley)

Statement of financial activities

	2011	2010
Incoming resources		
Fees and subscriptions	£14,225	£13,451
Investment income	£5260	£3935
Interest income	£55	£137
Income from activities for generating funds	£567	£279
Other incoming resources	£25	£0
Donations and legacies	£437	£3371
Total incoming resources	£20,569	£21,173
Expenditure		
Publications costs	£15,493	£17,920
Stationery, postage & advertising	£926	£660
Meetings costs	£0	£865
Sundry expenses and fees	£550	£680
Grants	£2000	£1000
Total expenditure	£18,969	£21,125
Net incoming resources	£1600	£48
Gains on revaluation	£1502	£3876
Net movement in funds	£3102	£3924
Fund balances brought forward	£101,162	£97,238
Fund balances carried forward	£104,264	£101,162

Marine Recorder's report 2011

Jan Light, Marine Recorder for the past 20 years, has had to resign as Marine Recorder, on medical advice, and is not able to write this year's report. The Society owes Jan a very large debt for all the energy, enthusiasm and knowledge that she has contributed in her inimitable way to the Society's activities over the past 20 years, and to wish her a quick and full recovery.

Many thanks to everyone who has submitted records during 2011. We will continue to accept records on cards as before; but for those who are comfortable working on-line, we are working to make this possible as this will speed verification of records and their rapid transfer to NBN.

The main marine field meeting this year took place in Connemara in September 2011, to coincide with the extreme spring tides, and was led by Julia Nunn, to whom many thanks. More detailed accounts of this meeting will be given elsewhere in *Mollusc World*.

Julia has also been working through a backlog of sea area records for Ireland, which include a number of new sea area records:

Lutraria angustior SA28: Bernard Picton, Strangford Lough 2007;

Philine pruinosa SA 28: Julia Nunn, Strangford Lough 2004;

Crepidula fornicata SA 28: Gavin McNeill, Belfast Lough 2009;

Palliolium striatum SA 29A: Bernard Picton, Rathlin Island 2005;

Coryphella gracilis SA 29A: Bernard Picton, 2009;

Scaphander lignarius SA 29A: Bernard Picton, Rathlin Island 2009;

Melanella alba SA 37: Aquafact International, Kenmare 2002;

Calyptraea chinensis SA 38: Dan Minchin, Cork Harbour 2000.

Two notable recent finds in Ireland are:

Aeolidiella sanguinea from Doonloughan, Connemara Sep 2011 – the first record from Connemara since the early twentieth century, and only 20 miles or so from the type locality at Inishlacken (Julia Nunn).



A. sanguinea, Doonloughan, Sept 2011. (photo: Julia Nunn)

Pholadidea loscombiana from Strangford Lough Aug 2011 Julia Nunn – only second Irish record since early twentieth century; the other was previously reported from Straidkilly in 2008 (Julia Nunn).

Martin Willing reports new finds of *Truncatella subcylindrica* on the east and west sides of Thorney Island (Chichester Harbour, Sussex). This species is probably often overlooked – it is small, and lives high up the shore, usually under stones; at Thorney Island it was living under concrete and chalk blocks at high water mark, set amongst sea purslane *Atriplex portulacoides* (on the east side) and in association with *Leucophytia bidentata* at SU768032 (on the west side).

We have already started to look for a new Marine Recorder – Jan will be a hard act to follow.

Sebastian Payne

(with many thanks to Julia and Martin)

Do snails and slugs eat butterfly eggs?

Tim Bernhard, the organiser of the New Naturalists Collector's Club, is a colleague of mine in the New Forest Study Group which is a group of 20 local naturalists who meet throughout the year to exchange information and plan research into the forest's wildlife. Tim is currently doing a degree in Conservation and Habitat Management through Sparshalt College. For his field work, he has set up a study project to look at the habitat factors that determine which plants the Duke of Burgundy Fritillary will breed on. On chalk hillsides they choose cowslips, but along woodland rides they use primroses. However, they are very particular about which individual plants to choose. Tim is trying to identify the factors that govern the female's choice

of plants. Many plants are rejected and several females will opt for the same plant, so there must be governing factors.

In the course of all this, he has found an association of snails with egg-bearing plants. Three main species seem to be involved: *Monacha cantiana*, *Cepaea hortensis* and an Oxychilid which he identified as *Oxychilus cf. navarricus*. One species of slug has been found adjacent to plants: *Arion ater* agg. I am not aware of anything in the literature that deals with snails or slugs preying on butterfly eggs. Have any readers found instances of this, specifically snails eating butterfly eggs?

Graham Long



Robert Pemberton examining the shell collections at the Leeds Museum's Discovery Centre, Nov. 2009. (photo: Peter Topley)

All who met Dr Pemberton, a member of this Society since 1969, came away with the same impression. A tall, imposing man with a very pronounced limp, the result of a childhood illness, usually dressed in a long raincoat and flat cap, he came over as the perfect gentleman. His sudden and unexpected passing was a great shock. Robert died in his sleep on the 10th December 2011, just a few days after I had spent a day working with him on the shell collections at the Leeds Museum's Discovery Centre.

Over the past 20 years Robert has worked checking and identifying the tropical marine shells on behalf of the museum. He started working on the shell collections as one of my volunteers after I was able to extract a grant to re-

house the collection after the museum stores moved from the centre of Leeds out to a modern warehouse out at Yeadon. This grant purchased the roller racking and trays in which the collections are now housed. Prior to this most of the tropical material was inaccessible, as it was housed in a mixture of boxes and cabinets, and had remained unidentified and unsorted over the years. Thanks to Robert's expertise this helped correct the situation and now the collection is in scientific order and work is progressing on updating identifications. His dedication to the collection continued after I retired from the museum and he became a well-known and respected figure to the new staff.

Robert was widely travelled. In recent years he visited the Falkland Islands in November 1995 and again in January 1998 and also Ascension Island in January 1998. He collected marine molluscs from these locations and bequeathed them to the Leeds City Museum. He also visited South Africa, Canada and the Galapagos Islands, amongst many others.

Educated at Salts School in Saltaire, from a very early age Robert showed promise, earning 11 O levels at school and progressing to a doctorate from Leeds University. His doctoral thesis 'Studies on the Helminth Parasites of Birds in the North of England with Special Reference to their Distribution and Ecology' was completed in 1958, and a copy is now lodged in the YNU library. Apparently, he examined 625 birds, the majority of which he shot himself, and then dissected to find and identify the various parasites. The examination of each bird would probably have taken several hours! His career choice took him into the West Yorkshire Blood Bank where he became a senior technician, publishing papers on haematology and using his field skills as an aid to the study and identification of blood types using animals commonly found, such as snails. He had a wide variety of interests ranging from gardening and fruit trees through parasites, fungi, molluscs, in particular freshwater mussels, tropical sea shells, to photography and railways.

Book Review: Snails on rocky sea shores (Naturalists' Handbooks 30), by John Crothers

97 pages, 4 colour plates, b/w photos, b/w illus. Pelagic Publishing, Exeter, 2012. ISBN 978-1-907807-15-2, £18.99 (Kindle® edition, £8.04)

The material in this book is partly based upon the author's 2003 paper 'Rocky shore snails as material for projects...' (*Field Studies* 10: 601–634). The author explains in his introduction that 'the present book is concerned with living marine snails, not their empty shells' and as such follows the remit of the 'Naturalists' Handbooks' series which is to assist students as well as amateur naturalists in pursuing their own research projects. Having said this, the identification keys which are provided (both

dichotomous and pictorial) to intertidal snails found commonly in Great Britain and Ireland whose shells grow larger than 6 mm, are largely based upon shell characteristics, but with helpful comments relating to distinguishing biology (e.g. in the case of *Littorina saxatilis* and *L. arcana*, or foot colour in *Patella ulysiponensis* and *P. depressa*). Thus the keys alone (although covering only a proportion of the fauna) will be of assistance to those wishing to identify the shells as well as to those embarking upon a study of the living animals. This book describes an environment within strict limits and therefore excludes some species which are sometimes found alive in areas associated with rocky shores and it may have been helpful to have included these. For example, the

unspotted 'cowrie' *Trivia arctica* is sometimes found alive at low tides but *T. monacha*, is the only *Trivia* included here. It is also surprising not to have *Crepidula fornicata*, the slipper limpet, in the key since this is sometimes found associated with species such as *Ostrea* on southern rocky shores.

The majority of the book comprises useful information covering different areas of biology, behaviour and ecology, with specific chapters focusing on Limpets, Topshells, Dog-whelks, and Winkles. In addition there are chapters, which vary in complexity, on the rocky shore environment and fieldwork and recording techniques (including statistical methods), together with a useful list of references and further reading. There are many small black and white photographs and diagrams included to illustrate points in the text, however the photographs are generally poorly reproduced and small in size, which limits their usefulness. The four colour plates are of higher quality, including two showing the remarkable degree of variation in shell form and colour of *Nucella lapillus*. The relatively high price of this small volume may deter some students (young and old!) from a purchase, although a Kindle® version is an option. Overall this book is a useful introduction to the more frequently encountered gastropod molluscs which live in this fascinating environment and the methods used to study them.

Peter Topley

www.conchsoc.org 21

Two Bays – Antibes and Saint Tropez – late April 2008

These are notes from two accessible French bays. All collecting was from very shallow water – less than a metre–deeper was unproductive.

Public Beach, Antibes

This beach faces east. There is an arc of fine sand with sub-littoral stone and rock at each end. There are *Patella*, *Osilinus* and *Gibbula* on the rocks to the left and not much else. Shell sand does not normally deposit here. The right-hand stones and boulders are much more interesting. My mobility was rather limited as I was working a rough, slippery, sharp and unstable surface with plenty of broken glass with bare feet. If you have old spiked climbing boots it would be much safer. Old trainers have some potential but they do not give the grip.

These days I do not collect everything I see, so statistics would be distorted. I retained seven contrasting examples of *Gibbula varia* and about 20 “*Jujubinus gravinae*”. I cannot be 100% sure of this determination because the Cote d’Azur population refracts red light and the conventional form refracts green. These *Jujubinus* seemed to be associated with habitats where *Hydrozoa* rather than *Algae* are dominant.

Under stones were *Cardita calyculata*, *Striarca lactea*, a juvenile *Acanthocardia aculeata* fragment and a couple of *Ocenebra edwardsi* (small and not typical). There was a *Parvicardium scriptum* in short weed on stone and a very nice *Trifora* (possibly *perversa* but not a confident match with illustrations) plus a few *Bittium* and *Rissoa* (one *Alvania montagui*, two *A. cimex*, a *Rissoa similis* and several *R. guerini*) from the same habitat.

Grainer Beach, Saint Tropez

This beach faces north. Again, the right-hand end of the beach has the most life. I used to assume it was wind direction interacting with shelter that influenced the high population areas. This theory may be wrong and instead, a factor of the “Coriolis effect” on those water masses is involved.

Inter-tidal species such as *Osilinus* and *Patella* seem happier with conditions on the left-hand side of the bays but population densities are lower.

Gravel with some shell content accumulates against the rocks at the extreme right of the beach evidencing a lot of species which were not found in the water. Most were worn as it is an abrasive environment. Fragments of *Conus*, *Bulla striata*, *Vexillum ebenus*, *Giberrula miliaris*, *Mitrella scripta* a Turrid and *Columbella rustica* (rare here), were mixed in with *Patella* and *Gibula*. The highest concentration of life is in very shallow water. I was not the only one who noticed this. In 23 cm of water, I felt an interesting sensation round my ankles. A 90 cm *Octopus* was checking my right leg over for anything edible. Utterly confident and half out of the water, its tentacles were exploring under every stone in the hunt for Crustaceans, and other small prey. Most of its size was tentacles with a body like a rugby ball. Its camouflage system was a little out of sync and it showed red-brown against a grey-green background. The only hermit crab colony was exclusively accommodated in *Thericium vulgatum*. No other large molluscs were seen though there was one respectable *Haliotis* under a large stone in several

centimetres of water. A Nassarid, possibly a slim dark form of *Amyclina corniculum*, was to be found under stones. In a very restricted area there was a concentration of larger Chitons, at least three species. Micro molluscs were larger (for their species) than average with some extra large *Rissoa cimex*. Colour and pattern range of *Gibbula varia* was the broadest I have seen in one locality. There were a couple of sub-adult *Clanculus jusseui*, juvenile *Osilinus*, plus the occasional *Gibbula richardi* and *G. rarilineatus*.

Noticing a patch of *Posidonia* stubble, (green for 12 cm and dead, grey 3 cm tips), in the shallows I ran a sieve through it against the current and was pleasantly surprised by the result. There were two large *Tricolia* species, possibly ten *Rissoa* species, three *Gibbula* species including one large *Gibbula umbilicalis*, and an almost black *Calliostoma laugierii*. The *Rissoa* were particularly nice specimens. Where there was *Posidonia*, a little further out in 60 cm of water, there were more *Gibbula adansoni*, *Jujubinus striatus* and fewer *Rissoa*.

Amongst the variety of emerald green crustaceans were *Hippolyte varians*, which are also found amongst Dorset *Zostera*. On the right-hand side of the carapace of most of them was a tiny parasite or commensal which appeared to be a nudibranch. I was not equipped to preserve specimens for later microscopic examination but there is certainly something interesting going on. Why were none on the left-hand side? Could it be pure coincidence? Nature tends not to produce consistent coincidences

Saint Tropez, early June 2009

Sampling reported here was at 1.5 m or deeper.



figure 1: San Tropez *Posidonia* area from the Life Guard Post.

Just after one arrives via the main road there is a free car park and public bathing beach to the left labelled ACCESS POMPIERS (sign is not always in place), which translates Fire Brigade but actually means Life Guard Post. There is a clean beach and a large area roped off for the exclusive use of bathers (figure 1). The sand gives little evidence of Mollusca but rich deposits of mainly fresh dead shells are only 73 m away. The sand shelves gently and after about 65 m the water is 1.9 m deep. At this stage you see *Posidonia* clumps with sandy gullies and sink holes ahead of you, in slightly deeper water, but inside the rope. On the swim out, there had been a couple of very worn *Thericium* and several bivalve singles, mainly *Loripes*. On sight of a *Venus verrucosa* juvenile in the sand of a sink hole I scooped it. Rising to the surface, the sand sieved out revealing a selection of very fresh micro shells including some I have never collected before.

I launched into an exhilarating cycle of diving, excavating, sieving in mid-water as I rose, then transferring the residue to a plastic bag before breathing and repeating it again till the bag was full. I then swam ashore, got a new bag and continued the process until I was too exhausted to walk up the beach. As one dug deeper, the residue was older and not always in such good condition but there was always something exciting. How many species were here? It is too early to tell as all this material must all be studied in detail so I do not miss the opportunity to re-unite separated rare bivalves. Each sorting reveals different species of Turrid. Few families are not represented (e.g. figure 2). I suspect there are well over 100 species but at this stage I have to confine myself to separating out the recordable and better material.



figure 2: *Hyaliopecten hyalinus* shells from sink holes in the San Tropez *Posidonia*.

Early June 2010

I revisited the same area on three separate days. Collecting was possible on two of them with very large bottom samples taken on the first day. Results were again exciting but the species mix was very different. I could only skim sort the bulk material but it is clear that there are species I have never seen before and cannot trace in the literature. Most unexpected were trapezium shaped bivalves with radial stripes which is possible a *Modiolus*, but not *adriaticus*, and what may be a micro *Ocenebra*, pink with violet teeth. There were several Eleuminid species, *Chauvetia* and *Triphoridae*. It was noticeable that something with very strong teeth has crunched up all the larger material such as Cowries, Cones and Murex, possibly to extract hermit crabs? The colours of the fragments were heartbreaking. There were more *Turridae* but different genera predominated in these samples. *Jujubinus striatus* was abundant as fresh dead material but no live specimens were seen. There is an interesting selection of bivalves, many of them micro, but fewer dead *Venus verrucosa* were found this year

A lot of species were represented by single specimens in a 10 litre sample that may well contain more than 2 million shells.

Saint Tropez, mid June 2011

A week of comparatively un-productive snorkelling on Elba ensured that I arrived fitter than on previous visits to San Tropez and I was able to dive for longer, sieving at least 3 m³ of bottom detritus and filling onion set 1 mm mesh bags. Final sorting is a huge undertaking. There had clearly been some serious winter storms. Only two 'sink-hole' areas were as remembered and virtually all of the material came from these. The faunal mix had changed considerably. *Trochidae* and *Phasianellidae* were substantially reduced and there are certainly fewer *Venus verrucosa* and small *Tellina* spp. There were still a few single *Chlamys* valves but many additional small bivalve species. Instead of a single *Chauvetia* species, there are at least three. I saw a single large live *Hexaplex trunculus*. *Cypraea lurida* were freshly chewed. There is another black *Clathrus* and smaller, mainly white species, one, yet to be confidently identified. First impressions indicate more *Emarginula* species which are not readily identified from available references. There are fewer large *Rissoa* but more species of smaller ones. *Alvania cimex* is now less common but there seems to be comparable quantities of the other *Alvania*. There are very few *Bittium* as their host weeds are in decline. *Triphora* seem to be bigger this year. There were more of the miniature *Ocenebra/Ocenebrina* sp. I do not see how they could be a variant of *accicularis* although I suspect that taxon is already misused for more than one species. There are three examples of a small *Fusinus* sp. These may be the same as those recorded alive at Bandol.

Mid June 2011, Les Issambres



figure 3: The beach in front of the Tourist Office Les Issambres - source of the 'living soup'.

Having tried more promising looking sites in the immediate area with little to record, we spent half a day on the beach opposite the tourist information office (figure 3). There were patches of sickly looking *Posidonia* in about 1 m of water about 30 m from the sandy shore. Between the clumps was a mixture of silt, sand and rotting vegetation. Disturbing it clouded the water. I attempted to sieve some of this horrible mess and brought in some of the residue with breathtaking results. This living soup (figure 4) included *Gibberula* species, magenta-coloured *Gouldia*, *Pitar*, *Tellina*, *Arcopagia*, *Jujubinus*, *Bela*, *Mangelia* and others (figure 5). Between trying to photograph and sketch living animals which I had never seen before and might never see again, and collecting further, I spent less time in the water. The *Epitonium* was especially distracting (figure 6). I used to suspect that *Epitonium/Clathrus turtonis* and *tenuicosta* were the same species. This supposition now seems highly suspect! The *Mangelia* is incredibly beautiful and brightly coloured red and white. When I first saw it I thought *Mitra*!



figure 4: 'Living soup' from Les Issambres.



figure 5: Some small species from the Les Issambres 'living soup'.



figure 6: A *Clathrus* from Les Issambres (possibly *C. tenuicosta* or *C. turtoni*).

Bandol, 23–24 Sept 2009

While most of this area currently has a very limited fauna it appears that some areas are recovering from a local extinction. The ubiquitous grey brown algae which blankets all surfaces exposed to direct sunlight is stunting or eliminating most other plant life, very little of which persists. Most of the *Posidonia* looks in trouble and there is little life in it. Most of the species normally to be expected in this habitat, living or dead, are totally absent. In a very few places, on overhanging edges of some beds, there are pocket populations of *Rissoa* and *Bittium*. The bay to the west, between the Hotel Golf and the Hotel Splendid has fared better and, though very local, there are several pockets with surprisingly large ranges of species. Each pocket has different combinations of species. One pocket had a single *Haliotis* another had tiny juveniles. In this scenario, they must not be collected, however beautiful they may be. There is a big expanse of sand beach with stones after 1 m depth. At the Hotel Splendid end, there are small reefs breaking up the curve of the rocky foreshore. In one of these pockets over an area of about 6 m² each stone has up to five species of *Chiton*. The dominant species looks a bit like a larger *C.*

scabridus, smooth, white and with an orange foot. I am told these may be *cajetanus* and *rissoi*. This same pocket had several current year juveniles of a *Fusinus* sp and about 50 other species which were often represented by only one or two individuals, some by juveniles only. The next pocket had three generations of *Fusinus* which, at first sight I had suspected of being young *syracusanus*, could be the recently described *dimassi*, as the bright red animal seems wrong for *pulchellus*. There was a single *Giberrula*, a very fancy looking Muricid which, while presumably an *Ocenebra*, does not look like any I am familiar with. Organisms adapted to partial darkness where the change to algal mix is reduced, seemed to be doing best though most specimens were still very young. The small but very beautiful Venerupids, (sometimes totally violet when first found), attach to rocks by byssus and were never found free living in sand. Sub-adult *Chama*, *Arca* and *Cardita* were attached under boulders. One of the pockets supported a big *Octopus*. I was able to retrieve a couple of extra species including the only *Bulla striata* from his lair, The ability of these octopuses to change shape and colour in a literal split second never ceases to amaze me. The brown 'rugby ball' seemed to explode into 6 cm red spikes! I saw one hermit crab colony. I suspect that the *Octopus* had eaten others.

'Posidonie' is now officially protected both as living plants and rotting beach deposits. There are notices explaining the ecological reasons why rotting seaweed must not be removed from the beach. How does this actually affect tourist areas? The local business attitude is that the legislators have gone through the motions and have gone away feeling they have done something good. At the start of the tourist season the dead *Posidonia* is bulldozed to one end of the beach, ideally down wind, and in a position near a river mouth where the next flash flood will take their problem out to sea. The local community have complied with the law in that *they* have not removed the rotting vegetation. The beach is then divided up into fenced concessions where beach furniture can be expensively hired to tourists.

Over a relatively short period of time it appears that changing water chemistry in the Mediterranean is eroding botanical biodiversity and this is impacting disastrously on the original habitat. In some recently rich environments, certain genera are now absent. Others are hanging on in very restricted pockets. The WWF is directing a lot of resources to the defence of Mediterranean biodiversity but the Mediterranean is almost a closed system. Given the evident impossibility of controlling our own numbers and behaviour, it is probably too late.

British Shell Collectors' Club

8th September 2012

2nd Chatsworth Shell Fayre

Cavendish Hall, Chatsworth House,
Derbyshire, DE45 1PJ

27th October 2012

Shell Show

Theydon Bois Village Hall
Coppice Row, Theydon Bois, CM16 7ER

Both open 9am to 4pm admission free.

For further information and other events see:

www.britishshellclub.org.uk/



A new Bedfordshire record of *Testacella haliotidea* in context Peter Topley

Back in 2000 I described finding a large number of individuals of the carnivorous slug *Testacella haliotidea* in my garden in Clifton, Bedfordshire (Topley, 2000) (figure 1). At the time I mentioned that this find was only the third record from Bedfordshire. I was, of course, soon corrected, by the late Bernard Verdcourt who wrote to me at the time: 'I was surprised you did not mention H.F. Barnes in your *Testacella* article... Barnes was one of the well known scientists living in Bedford. He worked at Rothamsted [Experimental Station] and is best known for his seven volumes on gall midges of economic importance but also conducted the famous "slugs in gardens" survey at Harpenden [Barnes and Weil, 1944].'



figure 1: Some of the *T. haliotidea* found under paving slabs in a garden in Clifton, Beds., 1 April 2000 (slugs were returned to their habitat after photographing).

Horace Barnes' article (Barnes, 1949) describes recording 20 to 24 individuals in a garden in Bedford. He also writes about work he carried out collecting and observing specimens in several gardens, including an experiment to see whether it was possible to mark *Testacella* by painting their shells and by this method to 'assess the total population in a given area and also follow the activities, natural growth rates and longevity of individuals'. He observed two red marked individuals again after about a year and a half and found that a white marked individual was seen on '4th, 12th and 16th November 1948, in positions that indicated that the slug had not moved more than about fourteen feet during this period and suggested that it came to the surface, possibly to feed, at these intervals.' He also observed the slugs hunting and consuming earthworms.

In the first issue of the Bedfordshire Naturalist, Bernard Verdcourt lists some further records from 1946, again from Barnes who 'collected it in five out of seven gardens [in Bedford] he has visited after dark during September to November 1946' (Verdcourt, 1946). Some of the specimens collected were later confirmed by A.E. Ellis to be the very similar *Testacella scutulium*. The differences between this species and *T. haliotidea* were discussed in this magazine recently (Chatfield, 2011). A living adult of the third species found in the UK (*T. maugei*) was found in a garden in Ampthill in 1948.

A couple of further records are now viewable with the advent of the NBN gateway (<http://data.nbn.org.uk/>), including an early record from Bedford in 1911 and a record of 32 individuals from Old Warden in 1988.

All these records have recently brought us more up to date when, on 21 December 2011 Mark Gurney, Reserves Ecologist at the RSPB headquarters reserve at The Lodge, Sandy, reported encountering this species which he describes as 'one of the highlights of the [recording] year for me. It was on a Clematis-covered wall above flowerbeds in the gardens' (figure 2). Mark had been walking back through the gardens when a colleague asked him whether he was interested in a yellow slug: 'When I saw that it had a shell I was very interested in it: I had only ever seen these misfit molluscs in the book, and I always wondered what they would look like in life.' One of his fellow ecologists at the reserve described seeing it as being 'like a childhood dream come true'. Mark also pointed out that a specimen had also been recorded at the Lodge by Ian Dawson in 2002, however the record has the note 'Dead... Squashed on path by personnel!'



figure 2: *T. haliotidea* at The Lodge, Sandy, Bedfordshire, December 21 2011. (photos: Mark Gurney)

References

- Barnes, H.F. and Weil, J.W. (1944) Slugs in gardens: their numbers, activities and distribution. Part I. *Journal of Animal Ecology* **13**(2): 140–175.
- Barnes, H.F. (1949) Worm eating slugs in Bedford gardens. *The Bedfordshire Naturalist*, **4**: 24–26.
- Chatfield, J. (2011) *Testacella* in the garden. *Mollusc World* No. 26: 15.
- Topley, P. (2000) Occurrence of the shelled slug *Testacella haliotidea* Draparnaud, 1801 in a Bedfordshire garden. *The Conchologists' Newsletter* **9** (3) No. 154: 324–327.
- Verdcourt, B. (1946) Additions to the knowledge of Bedfordshire Mollusca. *The Bedfordshire Naturalist* **1**: 16–22.
- Verdcourt, B. (1947) Further notes on Bedfordshire Mollusca. *The Bedfordshire Naturalist* **2**: 25–28.

Two coincidences prompted a visit to fishing ponds at East Worldham near Alton (SU/753376) on a grey day of 17th February 2011. First, a casual remark from John Glasgow that he would rather like to find some shells of the swan mussel (*Anodonta cygnaea*), having seen fragments of the smaller duck mussel (*A. anatina*) in the northern Wey on the field meeting last summer. The swan mussel lives in lakes and large ponds rather than rivers. Shortly after this, a brief note and a photograph of swan mussel shells on mud were put through my door by Jane Hurst, Alton's local historian. Following a historical interest in a visit to King John's Hill at East Worldham she had seen a dried-up pond with numerous shells on the mud, hence the photograph with location and 'thought you might be interested' on a note from Jane. This was definitely to be investigated and John was to obtain his Swan Mussels in the process, as many as he wanted as it happened. It was as well that two of us went as, trying to get a better camera angle in photographing the scene, I ended up rather deeper in the mud (Gault Clay) than planned and after much twisting of Wellington boots to release suction, had to be hauled out.

East Worldham, a small settlement three miles from Alton on the B3004, is on the top of the Upper Greensand escarpment, a porous rock with many cracks and joints. This rests conformably on the Gault Clay, an impervious deposit, hence the active springline along the foot of the Upper Greensand escarpment. Between Wyck and East Worldham the spring source has been exploited by the digging of a series of fishing ponds. King John's Hill on the other side of the pond is also of Upper Greensand and in geographical terms an outlier or island of younger rock (Upper Greensand) surrounded by older rock (Gault Clay): both are of Cretaceous age. The very humpy nature of the fields below the escarpment is due to post-glacial land-slipping when permafrost melted and the clay acted as a lubricant as well as an aquitard preventing water drainage. It was a similar scenario further along the same escarpment that was the cause of the dramatic landslide at Hawkley in 1774, graphically described by Gilbert White in *The Natural History of Selborne* (White, 1789).

The fishing ponds are reached by a public footpath from East Worldham to Binswood. When we arrived a flock of about 40 Canada Geese were grazing on the grass. It was the small end pond (south) that had been drained exposing black mud with trickles of spring water but no standing water. The Swan Mussels were not difficult to find and from the edge we counted about 200 dead shells (paired valves) on the surface of the mud (figures 1 & 2), fairly freshly dead as they still had the periostracum or varnish layer of shell intact (figure 3). Going in to retrieve some shells, fragments of flesh were found attached to the adductor muscle scars and also soft parts near the umbone, suggesting that they had

died relatively recently. However there was no evidence of predation from damaged shells and the situation seemed to be one of an undisturbed mass death assemblage. February had followed a hard winter with snow on the ground for nearly the whole of December, especially in the hilly country of the Hampshire Hangers. It is curious that grey herons, crows, foxes and badgers living in the area had not investigated this mass kill of potential food with the dead mussels having the valves gaping open.



figure 1: Drained stock pond at East Worldham with shells of swan mussels in the foreground mud.



figure 2: A group of shells of swan mussel (*A. cygnaea*) on the surface of mud.



figure 3: Swan mussel (*Anodonta cygnea*) on surface of mud.

I was told by Alec Baker of the Oakhanger Angling Club that the small stock pond had been drained to remove fish, presumably in summer or autumn of 2010 before snow fell at the end of November. The whole population of mussels in this small fish stock pond was exposed to air, so unable to breathe and they may also have been affected by frost, from which they would normally be protected in deep water where the temperature remains at 4°C without freezing.

A sample of shells taken home was measured and growth rings counted. They ranged from 95–164 mm in length but most were about 150 mm pointing to a more or less single age population of 15–18 years of age judging from the growth rings. There were no really small mussels and only a few smaller ones (95–114mm) of 9–10 years of age. The majority would appear to have been accidentally introduced on a single occasion in their larval parasitic stage attached to the skin or gills of the same batch of fish placed in the stock pond. The few smaller ones could have been from a later addition of fish. Alec Baker informs me that he has seen shells of swan mussels at Hartley Mauditt Pond nearby that is also managed by the Oakhanger Angling Club. Swan mussels in closed bodies of water rely on attaching to fish hosts for transport as well as nourishment in the early stages of the life history and also on human activities in moving infected fish stock from lake to lake. The free-swimming larva is called a glochidium. It is thought that the sperm is brought into the mantle cavity and gills through respiration

of the female mussel. The fertilised eggs (there are many of them) are retained in a brood chamber in the mantle cavity where they are nourished and the embryo secretes a bivalve shell with hooks on the edge and a primitive byssus thread to help attachment. When hatched and expelled, the glochidia attach to fish stirring up the bottom. *Anodonta* attaches on to the skin and fins where they form cysts while glochidia of painter's mussels *Unio* attach to the gills of fish. Some fishermen do not like swan mussels because of scars to the outside of the fish. During attachment to fish the larval stage undergoes developmental changes that enable it to live a free-living existence after about 10 weeks on the fish. The details of life cycle and illustration of glochidium larva are from Parker and Haswell (1897) (figure 4). Once dropped off the fish, swan mussels live a normal free-living sedentary life on the bottom as filter feeders partly buried in the mud, but their only chance to extend their range is through the parasitic larval stage that hitches a lift on fish that swim around, transporting the mussels to new ground away from the parent colony. Fishermen further assist unknowingly when they move fish stock around and also by creating new ponds.

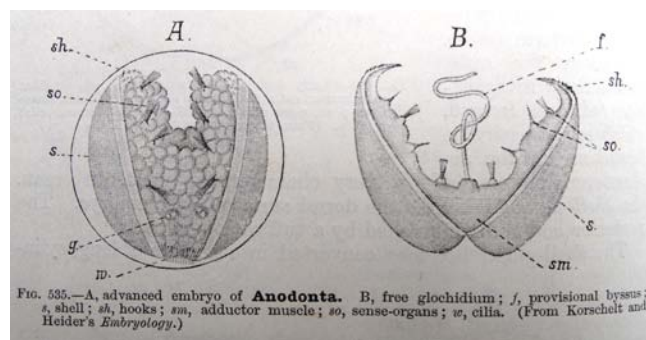


figure 4: Glochidium larva (from Parker and Haswell, 1897).

References

- Parker, T.J. and Haswell, W A. (1897) *A Text-book of Zoology*, Macmillan, London.
- White, G, (1789 and many later editions) *The Natural History and Antiquities of Selborne*. Many publishers.

Bionic snails produce electricity from glucose

from Derek Worth

Derek Worth sent in a cutting from *Metro* (April 5th 2012), one of London's free newspapers, about a team from Clarkson University in New York (Halámková *et al.*, 2012) who have successfully implanted tiny electrodes into snails (*Neohelix bolabris*) through two holes cut in the shell and placed into the haemolymph (mollusc blood) between the body wall and internal organs (visceral mass), using glucose produced by the snails' own metabolism as a fuel to generate very small amounts of electricity when hooked up to an external circuit.

The 'electrified' snails, being biotechnological living 'devices', were able to regenerate glucose consumed by the implanted electrodes after appropriate feeding (on carrots) and resting, after which they produced a new 'portion' of

electrical energy. The snails lived for around 6 months after implantation.

The researchers conclude that the snails with implanted biofuel cells will be able to operate in a natural environment, producing sustainable electrical micropower for activating various bioelectronic devices. The intention is to eventually use invertebrates to gather information about their surroundings for environmental monitoring or for defence purposes.

Reference

- Halámková, L., Haláček, J., Bocharova V., Szczupak, A., Alfonta, L. and Katz, E.. (2012) Implanted biofuel cell operating in a living snail. *Journal of the American Chemical Society* **134**, 5040–5043.

The land snails and slugs of two adjacent one kilometre square sites on the River Greta in the northern Yorkshire Dales

Michael J. Murphy*

The 85 hectare (210 acre) Brignall Banks Site of Special Scientific Interest (SSSI) comprises woodland of wych elm, ash, sessile oak, birch, willow and alder on the steep slopes of the River Greta and tributaries in the northern Yorkshire Dales. It is significant as one of the largest semi-natural woodland remnants in north-east England and has many flora elements indicative of ancient woodland (Natural England 2012). Brignall Banks SSSI supports a diverse land snail fauna. A local survey in 2005 included two woodland sites in the SSSI (Gill Beck NZ0610; Scargill NZ0511) and identified 37 species including a number associated with ancient woodland; *Azeca goodalli*, *Limax cinereoniger*, *Columella edentula*, *Cochlodina laminata* and *Perforatella subrufescens* (Murphy 2006). The Scargill site NZ0511 had the highest species richness with 30 species recorded (Murphy 2006).



figure 1: Ancient woodland habitat, Brignall Banks SSSI (NZ0511).

A brief visit to North Yorkshire in January 2012 provided an opportunity to further examine the area's land snail fauna. NZ0511 was resurveyed to see if the species tally in this 1km² here could be increased and the adjoining NZ0411 was also surveyed. Habitats surveyed in both grids were primarily woodland along the river (figure 1), as well as drystone walls (figure 2) and hedgerows bordering nearby fields. As on the previous visit, Adrian Norris provided invaluable assistance with species identification.



figure 2: Drystone wall habitat along Moorhouse Lane, NZ0511.

*Coonabarabran, New South Wales, Australia

The results from the January 2012 survey are summarised in Table 1. Four species (*Arion silvaticus*, *Vitrea crystallina*, *Aegopinella pura* and *Oxychilus draparnaudi*) were added to NZ0511, bringing the tally for that 1 km² to 34 species. It is interesting that fewer than three-quarters as many species were recorded in this 1 km² site in January 2012 compared to May 2005, possibly at least in part reflecting seasonal differences in ease of detection between mid winter and late spring. It is also noteworthy that only one of the four ancient woodland indicator species known from NZ0511 (*Cochlodina laminata*) was found in January 2012. Eight of the species recorded in January 2012 (36% of the total) were represented by only single specimens, suggesting that further survey effort would have located additional species. The adjacent NZ0411 had 26 species identified, with 31% represented by single specimens. Five species from NZ0411 were additional to NZ0511, again suggesting that the species inventory for NZ0511 remains incomplete. The recorded land snail fauna of Brignall Banks SSSI is now 43 species in 14 families (Table 2). The greatest contributors to this diversity are the Arionidae (8 species), Zonitidae (8 species) and Helicidae (7 species). Three species identified in January 2012 were new species records for the 10 km square NZ01: *Arion silvaticus*, *Oxychilus draparnaudi* and *Lehmannia valentiana*, bringing the total land snail inventory for the square to 62 species (National Biodiversity Network 2012).

Cameron and Pokryszko (2005) recommended that, to reduce the risk of false negatives, samples for land snail species inventory studies should contain at least 10 times as many individuals as apparent species and a minimum of 200 individuals. The present study did not meet these minimum survey requirements. With a previously identified fauna of 30 species, the sample size of 172 individuals from NZ0511 was only 57% of what was required. This, together with the season, probably accounts for the reduced species tally. The NZ0411 sample, too, had only five times as many individuals (N = 130) as species identified. I estimate that the actual land snail species richness per 1 km² in Brignall Banks SSSI would be around 45 to 55 species.

Documented land snail diversities of 26 and 34 species in two adjacent 1 km² sites seem high to me, as I am used to the Pilliga Scrub in semi-arid inland New South Wales (Murphy 2009), where 10 species in 1 km² would be noteworthy. Adrian Norris, however, has told me that there are some 1 km² sites in Yorkshire where as many as 60 land snail species have been recorded. These results can be compared to 97 species recorded in 1 km² of Cameroon rainforest (De Winter and Gittenberger 1998), 61 species in 1 km² of Borneo rainforest (Schilthuizen and Rutjes 2001) and 27 species in 1 km² of Cretan maquis (Cameron *et al.* 2003).

Acknowledgements

Thanks to Adrian Norris for expert assistance with species identifications, Jess and Nicola Murphy for assistance in the field, Sue Murphy for arranging the trip and Will and Jane Weston of Brignall Mill for their hospitality.

References

- Cameron, R.A.D., Mylonas, M., Triantis, K., Parmakelis, A. and Vardinoyannis, K. (2003) Land-snail diversity in a square kilometre of Cretan maquis: modest species richness, high density and local homogeneity. *Journal of Molluscan Studies* **69**: 93–99.
- Cameron, R.A.D. and Pokryszko, B.M. (2005) Estimating the species richness and composition of land snail communities: problems, consequences and practical advice. *Journal of Conchology* **38**: 529–547.
- De Winter, A.J. and Gittenberger, E. (1998) The land snail fauna of a square kilometre patch of rainforest in southwestern Cameroon: high species richness, low abundance and seasonal fluctuations. *Malacologia* **40**: 231–250.
- Kerney, M. (1999) *Atlas of the Land and Freshwater Molluscs of Britain and Ireland*. Harley Books: Colchester, England.
- Murphy, M.J. (2006) The land snails and slugs of the northern Yorkshire Dales: an Australian's perspective. *Mollusc World* **12**: 11–13.
- Murphy, M.J. (2009) A field survey of the molluscs of the Pilliga Scrub in semi-arid inland New South Wales, Australia. *Mollusc World* **19**: 18–21.
- National Biodiversity Network 2012. <http://nbn.org.uk>.
- Natural England 2012. <http://www.sssi.naturalengland.org.uk>
- Schilthuisen, M. and Rutjes, H.A. (2001) Land snail diversity in a square kilometre of tropical rainforest in Sabah, Malaysian Borneo. *Journal of Molluscan Studies* **67**: 417–423.

table 1: Species recorded at two adjacent 1 km² sites on the River Greta in the northern Yorkshire Dales.

	NZ0511 May 2005	NZ0511 Jan 2012	NZ0411 Jan 2012
<i>Carychium minimum</i>	X		
<i>Carychium tridentatum</i>	X		
<i>Azeca goodalli</i>	X		
<i>Cochlicopa cf. lubrica</i>	X	X	X
<i>Cochlicopa cf. lubricella</i>			X
<i>Columella edentula</i>	X		
<i>Lauria cylindracea</i>	X	X	X
<i>Acanthinula aculeata</i>	X		X
<i>Discus rotundatus</i>	X	X	X
<i>Arion ater</i>	X	X	X
<i>Arion subfuscus</i>	X	X	
<i>Arion circumscriptus</i>	X	X	X
<i>Arion fasciatus</i>			X
<i>Arion distinctus</i>	X	X	X
<i>Arion intermedius</i>			X
<i>Arion silvaticus</i>		X	X
<i>Vitrina pelucida</i>	X	X	X
<i>Vitrea crystallina</i>		X	
<i>Vitrea contracta</i>	X	X	X
<i>Aegopinella pura</i>		X	X
<i>Aegopinella nitidula</i>	X	X	X
<i>Oxychilus draparnaudi</i>		X	
<i>Oxychilus cellarius</i>	X		X
<i>Oxychilus alliaris</i>	X	X	X
<i>Limax maximus</i>	X	X	X
<i>Limax cinereoniger</i>	X		
<i>Lehmannia marginata</i>	X		X
<i>Lehmannia valentiana</i>			X
<i>Deroceras reticulatum</i>	X	X	X
<i>Deroceras panormitanum</i>	X		
<i>Euconulus fulvus</i>	X	X	
<i>Cochlodina laminata</i>	X	X	
<i>Clausilia bidentata</i>	X	X	
<i>Ashfordia granulata</i>	X		
<i>Trochulus striolatus</i>	X		X
<i>Trochulus hispidus</i>	X	X	X
<i>Arianta arbustorum</i>	X	X	X
<i>Cepaea hortensis</i>	X		X
<i>Cornu aspersum</i>			X
Total	30	22	26
	34		

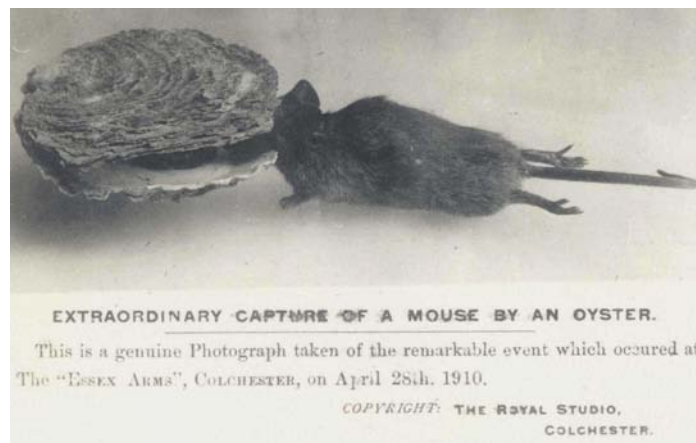
table 2: Land snail species list for Brignall Banks SSSI (based on the author's records from NZ0610 (Mar 2005), NZ0511 (May 2005 & Jan 2012) and NZ0411 (Jan 2012)).

<i>Carychium minimum</i>	<i>Aegopinella nitidula</i>
<i>Carychium tridentatum</i>	<i>Oxychilus draparnaudi</i>
<i>Azeca goodalli</i>	<i>Oxychilus cellarius</i>
<i>Cochlicopa cf. lubrica</i>	<i>Oxychilus alliaris</i>
<i>Cochlicopa cf. lubricella</i>	<i>Limax maximus</i>
<i>Columella edentula</i>	<i>Limax cinereoniger</i>
<i>Lauria cylindracea</i>	<i>Lehmannia marginata</i>
<i>Acanthinula aculeata</i>	<i>Lehmannia valentiana</i>
<i>Discus rotundatus</i>	<i>Deroceras laeve</i>
<i>Arion ater</i>	<i>Deroceras reticulatum</i>
<i>Arion subfuscus</i>	<i>Deroceras panormitanum</i>
<i>Arion circumscriptus</i>	<i>Euconulus fulvus</i>
<i>Arion fasciatus</i>	<i>Cochlodina laminata</i>
<i>Arion hortensis</i>	<i>Clausilia bidentata</i>
<i>Arion distinctus</i>	<i>Ashfordia granulata</i>
<i>Arion intermedius</i>	<i>Perforatella subrufescens</i>
<i>Arion silvaticus</i>	<i>Trochulus striolatus</i>
<i>Vitrina pelucida</i>	<i>Trochulus hispidus</i>
<i>Vitrea crystallina</i>	<i>Arianta arbustorum</i>
<i>Vitrea contracta</i>	<i>Cepaea hortensis</i>
<i>Nesovitrea hammonis</i>	<i>Cornu aspersum</i>
<i>Aegopinella pura</i>	

Oyster mousetrap

Jan Light

When I saw the two items in *Mollusc World* **28**, page 22, one relating to oysters as cat food and the other showing a slug caught in a mousetrap, I was reminded of something I had seen in Stella Turk's collection. She has accumulated a number of albums of greetings cards and other items of stationery with a molluscan, or marine invertebrate, theme. I collect them too. It seems very timely to submit this to the magazine for the amusement of readers as my contribution draws the two foregoing items together. There was no other information with the card and Stella cannot recall who sent the card to her, but possibly someone will recognise the attached notation as their own handwriting, or that of a fellow conchologist?



Molluscan Mouse-trap!

Book Review: Web of Nature: Martin Lister (1639–1712), the First Arachnologist (History of Science and Medicine Library) by Anna Marie Roos 478 pages, b/w illus., Brill, Leiden/Boston, 2011. ISBN 9789004207035, from c. £95.51



To many of those interested in the history of conchology Martin Lister is primarily known and admired as the author of the first major compendium of shells published in the U.K., his *Historia sive synopsis methodica conchyliorum* (1685-1692) consisting of over 1000 accurate and briefly annotated engravings of shells, mostly carried out by his daughters Anna and Susana, and also for the earliest book on British spiders and shells (1685). A

full length scholarly biography of Martin Lister has been long overdue and in this volume Anna Marie Roos (recently created Lister Research Fellow at the University of Oxford) has amply filled this gap in the literature. The author has decided to emphasise Lister's interest in spiders in the title (he was among the first to observe their behaviour, including the "ballooning" effect of using strands of web to float in the air), which is perhaps too restrictive, because besides arachnology and conchology, the author includes details of the background behind his publications on many other aspects of science including Medicine (he was made a Physician to Queen Anne after many years in general practise in York and London, and he attended the autopsy of King Charles II), geology and the nature of fossils, chemistry, statistics (he invented the histogram) and travel (his contemporarily popular and fascinating *A Journey to Paris in the Year 1698* (London, 1699)).

The book sets Martin Lister's life in the background of emerging modern scientific thought in the 17th century. Lister was an early

member of the Royal Society and corresponded with many famous scientists and philosophers of the time including John Ray (with whom he later fell out), Robert Boyle, Isaac Newton and Francis Willoughby. Fortunately much of Lister's correspondence was saved for posterity in the 18th century and resides in the Bodleian Library in Oxford. Information in the book is based on the author's researches in this and other archives and she is currently editing and transcribing the correspondence of Lister in preparation for publication (Brill, volume one forthcoming in 2013).

Anyone interested in the history of shell collecting would probably want to focus on the background and synthesis of the *Historia...conchyliorum*. It is therefore rather disappointing that the main discussion of this major work takes up part of just one small section of the book. However there is some interesting background to the synthesis of this *magnum opus* including evidence that Lister took a close interest in his daughters' execution of the drawings and engravings in order to achieve the greatest accuracy. The book is well indexed and has a useful bibliography. Some places in the book indicate that the current use of nomenclature could have been checked. Aside from such minor points the book is a fascinating synthesis about the man and the age of science in which he worked. However the very high price of this readable volume will probably restrict its purchase to libraries and enthusiasts, rather than helping to significantly increase the awareness of this important pioneering figure of 18th century natural history.

Peter Topley

Diary of Meetings - Conchological Society

Programme Secretary: *Bas Payne, The Mill House, Clifford Bridge, Drewsteignton, Exeter EX6 6QE; 01647 24515, programme@conchsoc.org*

IMPORTANT: Please remember to inform the leader if you intend to attend a field meeting. If you are held up in traffic or your public transport is delayed, please try to contact the meeting leader if possible.

Indoor meetings at the Natural History Museum will take place in the [Angela Marmont Centre for UK Biodiversity, Darwin Building](#), for which you turn left at the tail of the *Diplodocus*, go past the dinosaur exhibition then down the stairs and turn left. Please note the earlier start times, and also the long indoor meetings in October and January with an early start time of 11:00 h. Please bring plenty of exhibits and demonstration material.

The Programme Secretary will be happy to receive any offers to lead field meetings or suggestions for speakers for indoor meetings.

Key to meetings

NHM = Natural History Museum, London, indoor meeting

FIELD = Field Meeting at outdoor location

WKSHP = Workshop on Molluscan topic

YCS = Yorkshire Conchological Society Event

YCS – Saturday 8th September

Nunnington for River Rye. Freshwater meeting
Meet at 10:30 h in parking area north of river in Nunnington, grid ref. SE 669795

Contact: David Lindley
(0113 2697047) (home), david.lindley3@btinternet.com

FIELD – Sunday to Wednesday 16th-19th September

South Pembrokeshire. Marine meeting
Leaders: John Llewellyn-Jones and Celia Pain
(01634261147) (home) and 07795 966963 (mobile),
tp006f6896@blueyonder.co.uk

Meet at Penally railway station car park near Tenby at 9.30am on Sunday 16th September. After a H&S briefing we will walk across

the dunes to Tenby South Beach and Giltar Point (SS125984). On the promontory, are caves, boulders and sandy mud. There is a strong tidal flow here. Low tide is at 12.15pm.

We hope to visit Manorbier Bay SS058976, Monkstone Point SN147042 at the south end of Saundersfoot and the Castle Martin area on the other days.

Please ring the leaders if you have not been in contact previously. You are responsible for finding your own accommodation. The leader and others have booked a cottage at Tavernspite, SN 1812. Accommodation should be sought nearby.

YCS – Sunday 30th September

Reighton Sands. Marine meeting.
Joint Meeting with YNU Marine and Coastal section
Meet at 09:30 h in the car park at Reighton Gap, grid ref. TA 139762.

Low water 1.0 m at Bridlington is at 11:30 h.

Contact: David Lindley
(0113 2697047) (home), david.lindley3@btinternet.com

NHM – Saturday 6th October

11:00 h in the Angela Marmont Centre for UK Biodiversity, Darwin Building.
Please note the revised start time and changed venue. No Council meeting.

Please bring plenty of exhibits and demonstration material. There will be a lunch break at about 13:00 h. Lecture to start at 14:00 h. Members are encouraged to bring specimens of any Mollusca for identification. Binocular microscopes will be available if needed.

Guest speaker at 14:00 h
Robert Cameron (University of Sheffield)
The Cepaea Megalab project

YCS – Saturday 6th October

Yorkshire Wolds

Meet at 10:30 h near pond in Fridaythorpe village, grid ref. SE 875591

Contact: David Lindley

(0113 2697047) (home), david.lindley3@btinternet.com

FIELD – Saturday 13th October

Wyre Forest. Fungi and Slugs. Joint meeting with Wyre Forest Study Group

Leader: Rosemary Winnall and John Bingham

(01299 266489) (home) (07732 203393) (mobile)

Meet at 10:30 h at Hawkbatch car park near Bewdley, grid ref. SO 761776, for further studies on the distribution of slugs within the Forest and their relationship with fungi.

NHM – Saturday 20th October

11:00 h in the Angela Marmont Centre at the Natural History Museum

Full day meeting of Council only.

FIELD – Saturday 3rd November.

Nottinghamshire. Slug search

Leader: Chris du Feu (01427 848400) (home)

chris@chrisdufe.force9.co.uk

Nottinghamshire molluscs are not well recorded. The aim of this field visit is to add to the county records by searching some Nottinghamshire Wildlife Trust (NWT) reserves. The mollusc fauna of these nature reserves is virtually unrecorded - the day cannot fail to provide worthwhile records for the NWT and who knows what surprises are waiting to be unearthed?

We hope to visit Bentnick Banks (SK498552), an SSSI on limestone with a wide variety of habitats, Teversal Pastures (SK492617), again an SSSI with unimproved grassland with both drier and wetter parts and Annesley Woodhouse Quarry (SK487532), which is an SSSI of unimproved magnesian limestone grassland. Details can be found on the NWT web site - <http://www.nottinghamshirewildlife.org/nature-reserves/> which shows the location of all the reserves and gives all details required. All these sites are near the M1 to allow for easy travel from further afield in the short autumn days.

Meet at 10:30 am at Portland Park car park (SK498552).

We intend to begin at Bentnick Banks, then to move on to Teversal Pastures. If time allows we will finish with a search of Annesley Woodhouse Quarry.

Please contact Chris du Feu before the event to confirm exact details.

INDOOR – Saturday 17th November

Regional all-day meeting at and joint with the Bournemouth Natural Sciences Society, 39 Christchurch Road, Bournemouth BH1 3NS (see photo below) www.bnss.org.uk

Contact / organiser: June Chatfield (01420 82214) (home); also Graham Long (01425 653718) and grahamlong@waitrose.com



Programme:

- 10.15 – 11.15 Arrival, tour of museum and refreshments
- 11.15– 12.45 Demonstrations, workshops and shell/fossil collections, molluscs in garden (weather permitting)
- 12.45 – 13.35 Lunch (bring your own eats, tea /coffee available)
- 14.00 – 14.30 Lecture Room: short presentations on each Society – John Cresswell (BNSS) and June Chatfield (Conch Soc)
- 14.30 – 15.15 Lecture Room: Some land and freshwater molluscs in the area covered by the BNSS – Graham Long
- 15.15 – 15.30 Refreshments
- 15.30 – 16.15 Lecture Room: Marine molluscs of the South Coast – Jonathan McGowan
- 16.15 – 17.00 Final opportunity to view exhibits

Members are invited to bring specimens for identification and to exhibit.

The venue is near the centre of Bournemouth and a 15 minute walk from the railway station which is served by fast trains from London and Manchester, via Winchester. From the station entrance turn left (ASDA is ahead) and then proceed down St Swithuns Road South to the roundabout. Turn left into Christchurch Road. The BNSS building is on the right.

For those arriving by car, Christchurch Road is the A35 and there is free parking.

There is a good low tide the following day for anyone wanting to stay on to collect. Tide data for the following Sunday (18th Nov) is Low tide 07.10 0.7m, and 19.36 (in the dark) so any collecting is effectively only in the first part of the morning.

A Travel Lodge is nearby but further information is available from the Tourism Information Centre (Telephone: 0845 051 1700). www.bournemouth.co.uk e-mail: info@bournemouth.go.uk

WKSHP – Saturday 24th November

The annual workshop held in Woking offers Members the opportunity to receive tuition on identifying difficult groups. Bookings to Judith Nelson (01483 761210) (home)

NHM – Saturday 8th December

14:00 h in the Angela Marmont Centre at the Natural History Museum, preceded by Council meeting.

Guest speaker at 14:00 h

Miranda Lowe (NHM London)

Blaschka: Glass creatures of the ocean

2013 meeting dates:

Please note the following dates for indoor meetings (all **NHM**) in your diary: Saturday 26th January, Saturday 23rd February, Saturday 20th April (AGM), Saturday 5th October, Saturday 19th October (Council meeting only) and Saturday 14th December.

Membership Update

The following members have joined the society recently and have not previously been included in either this column of Mollusc World or in the latest edition of the Members' Guide (February 2011). **Please note that to be included here members must sign a data protection consent form.** If you have not been included and now wish to be please contact the membership secretary.

The codes in italics after the member's address indicate the member's interests:

A – Applied Conchology (shell artefacts, shell money cooking, decorations etc), **B** – Conchological books, **C** – Conservation

D – Diving, **E** – Ecology and Pollution, **F** – Fossils

G – General Malacology including genetics and physiology

Mb – British Marine, **Mf** – Foreign Marine

Nb – British Non-marine, **Nf** – Foreign Non-marine

P – Photography, **W** – Conchological poetry and prose

Z – Captive breeding of molluscs

Mollusc World July 2012

- 2012 Dr. C. GLEED-OWEN
Director & Principal Ecologist, CGO Ecology Ltd.,
15 Cranbourne House, 2 Knole Road, Bournemouth,
BH1 4DQ
chris@cgoecology.com
C, E, F, G, Nb
- 2012 Mr A. KEAY
Woodchip Conservation Volunteers, 37 Merrymeet,
Woodsterne, Banstead, Surrey, SM7 3HX.
Andykeay1@aol.com
C, E, Nb, P
- 2012 Ms A. TAYLOR
3 Hogmansquoy, Stromness, Orkney, KW16 3DR
Andrea.taylor7@btopenworld.com
A, B, C, D, E, F, Mb, Mf, P

Conchological Society Annual General Meeting 20th April 2013

Members are reminded that they can nominate candidates for election to the Council. Rule no 12. *Candidates for nomination to Council shall be paid-up Members of the Society when nominated and when the votes are counted at the Annual General Meeting and shall be nominated by two Members. Nominations, other than those made by Council, shall be sent in writing to the General Secretary at least three months before the Annual General Meeting and shall be accompanied by a signed declaration of the candidate's willingness to serve.*

Note: Nominations must be received by the Hon General Secretary for this particular AGM **not later than 30th November 2012.**



North American Ring Pink River Mussel, *Obovaria retusa* (Lamarck 1819) in the collection of the Bath Royal Literary and Scientific Institution (see page 13) (photos: Ron Boyce)

About the Conchological Society

The Conchological Society of Great Britain and Ireland is one of the oldest societies devoted to the study of molluscs. It was founded in 1876 and has around 300 members worldwide. Members receive two publications *Journal of Conchology* which specialises in Molluscan Biogeography, Taxonomy and Conservation and *Mollusc World*, our magazine for members. New members are always welcome to attend field meetings and indoor meetings before joining.

How to become a member

Subscriptions are payable in January each year, and run for the period 1st January to 31st December.

Ordinary membership is £33.00, Family/Joint membership £35.00, Student membership £15.00, Under 18 (receiving *Mollusc World* only) £5.00 and Institutional subscriptions £47.00. In view of the high cost of overseas postage, members living in Europe will be asked to pay an additional postage charge of £8, and members living in the Rest of the World an additional postage charge of £17. See website for further details.

Payments in sterling only, to the membership secretary (contact details are on our web site). For UK residents we suggest payment by standing order, and if a UK tax payer, please sign a short statement indicating that you wish the subscription to be treated as Gift Aid. Another simple and secure way of paying for both UK and overseas members is by credit card online via PayPal from <http://www.conchsoc.org/join>. Overseas members may also pay using Western Union, but a named person has to be nominated, so please use the Hon Treasurer's name, Nick Light.

How to submit articles to *Mollusc World*:

Copy (via e mail, typed or handwritten) should be sent to the Hon. Magazine Editor at the address below. If sending electronic copy using e-mail please include a subject line "*Mollusc World* submission". When emailing several large file attachments, such as photos, please divide your submission up into separate emails referencing the original article to ensure receipt. Electronic submission is preferred in Microsoft Word, but if other programmes (e.g. Works) are used, please indicate the programme used with the accompanying e-mail. Images and Artwork may be digitised, but we recommend that a digital image size 200Kb- 1Mb (JPEG preferred) be sent with your submission. For line art we recommend that you send hard copy, all originals will be treated with care and returned by post. Authors should note that issues of the magazine may be posted retrospectively on the Conchological Society's web site. The copy deadline for the November 2012 issue is 30th September 2012; inclusion in that issue is dependant upon space available but contributions are always welcome at any time.

Please send articles to:

Peter Topley, c/o The Hon. General Secretary, Miss R.E. Hill, 447b Wokingham Road, Earley, Reading RG6 7EL (or alternatively Peter's address may be found in the member's guide); email: molluscworld@ntlworld.com.

Advertisements in *Mollusc World*

We are pleased to invite advertisements, provided they are in line with the Conchological Society's charitable objectives and responsibilities. Typical examples might include books and other publications, equipment, services and collections of (or individual) shells. The latter will be vetted on a case by case basis and only accepted if there are no ethical problems. Advertisements of shells for sale from commercial shell dealers will generally not be accepted. A nominal charge will usually be made for advertisements and will be required from commercial advertisers. Charges per issue are currently £20 per 100 cm² space for a boxed advertisement or £1.00 per line for a text only advertisement. Any requests for advertisements should be sent to the Editor by the normal route; information on preferred methods of payment will be given at the time.