Mollusc World

Issue 34 March 2014

Calma gobiophaga seaslug in Cornwall

Shell nacre and bone tissue engineering

McMillan/Turk letters

The Conchological Society of Great Britain and Ireland

Helping to understand, identify, record, and conserve molluscs

From the Hon. Editor

Special thanks are due to all who contributed to this issue, including from three new members; keep up the good work! There is also an introduction, below, from Simon Taylor, our new Marine Recorder. The death of Dennis Seaward, one of Simon's predecessors in this role and author of the first Sea Area Atlas of the Marine Molluscs of the British Isles, occured on 9th January this year. A tribute to Dennis will be included in a future issue of Mollusc World.

Peter Topley

Reminder: If you intend to renew your subscription for this year and have not yet done so, please do this (details on page 30) as soon as possible in order to continue receiving the Society's publications.

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 page 30 for further details).

Corrections – issue 34, November 2013

- Front cover caption was omitted: A scalariform grove or brown–lipped snail (*Cepaea nemoralis*) (Photo: Peter Topley) .
- Shell Club April convention date corrected (see page 29)

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

Front cover: *Calma gobioophaga* (3–4 mm) feeding on goby eggs, Cornwall. See page 6. (Photo: Caroline Tucker and David Fenwick)

Introduction to the new Marine Recorder

Simon Taylor

At the Society's 2013 Annual General Meeting my nomination as Jan Light's successor was received and approved. While I may be known to many of the Society's membership, there are some who are no doubt scratching their heads wondering who this new person is and how are they going to fill a position that Jan, over her tenure of more than two decades, had very much made her own.

To give a very brief personal background, I have been a member of the Society since joining as a junior in my early teens in 1979 although, admittedly, over much of that period I have been only sporadically active within the Society. A geology graduate, my professional background nowadays is in public rights of way and countryside access, based in my home county of Essex. Molluscs have been a principal interest since childhood days spent exploring the local muddy shores of places like Mersea Island and I am also a long–time member of the British Shell Collectors' Club, currently the Club's Chairman in fact. Having a significant involvement in both the Shell Collectors' Club and the Conchological Society is very interesting and has helped, alongside others, with the ambitions of both to work more alongside each other rather than almost in opposition, as has sometimes been the perception in the past. Pertinently, there are a number of very capable and active recorders of British marine molluscs amongst the membership of the "Club" who are not members of our Society and yet have proved perfectly willing to share their records with us. On the recording front I am not a complete novice, having contributed records to numerous schemes over the years and, since 2008, acted as mollusca recorder for the Essex Field Club, a society almost as old as our own, having been formed in 1880.

Simon Taylor, Hon. Marine Recorder. (photo:Shirley Taylor)

Now, an apology, as having been in the Recorder's role officially since April 2013, this introduction could be said to be two issues of MW overdue. The reason for this is twofold: firstly, with Jan having occupied the post for so long there was a lot of handing over to be done, and my thanks go to Jan and Nick for their cooperation, patience and help in this regard; secondly, not only was it necessary to become familiar with the computer software involved but there was something of a struggle to get it working. No doubt many readers will have encountered some difficulties with Windows 8 and the compatibility of other software, and the Recorder 6 software used by the Society was no exception. Fortunately, due to the perseverance and diligence of Mike Weideli, all is now resolved and Mike has also provided the training and support needed for me to run the software to full effect.

As such, I am now fully equipped to receive all available records (that is not to say that the flow has not been considerable in the interim anyway). Please remember that all records are invited and welcomed; those of common species are just as welcome as rarities, new area records and the like. We must be careful not to overlook the everyday in search of the exceptional. Similarly, records are urged from anywhere in Great Britain and Ireland, both for seldom visited places and sites which may be thought to be well studied but which may, nevertheless, have gaps in the Society's dataset. All formats are welcomed too, from hand written lists, through the Society's hard copy recording cards, to digitised spreadsheets and databases. My contact details are on page 31 of this magazine and recording templates in various formats are available on request. I see it as important that the Recorder is readily accessible by the Society's members so do please feel free to get in touch.

Most of you will be familiar with the online National Biodiversity Network (NBN) through which the vast majority of the Society's records are openly available to all. In recent years the relevance and usefulness of biological records has come more into focus. As a result, the number of available repositories has also increased, e.g. local biological records centres, local societies, the Wildlife Trusts and numerous (indeed, ever increasing) online portals, as well as specialist societies such as our own. As long ago as 2005 (see Marine Recorder's Report 2005 in MW 11) Jan was highlighting the consequences of this, namely a reduction in the overall proportion of records finding their way to the Society and the difficulty of validating records for non–specialist organisations (and hence the potential for low quality data to be available via NBN). One hugely important consequence of this is the need for the Conchological Society's dataset to maintain its very high reputation for the accuracy and reliability of the records it contains, and to my mind this is one of the most important aspects of the Recorder's role.

This means it may be necessary to query certain records when submitted, not because of any lack of trust of the recorder involved or anything of the sort, but merely in order to be completely sure beyond doubt that the data is correct. Not to do so would be irresponsible. If there is any doubt regarding the correct identification, for whatever reason (and after consultation with the relevant expert if necessary), then records may still possibly be included in the dataset, but only provisionally and with the back–up of voucher specimens or photographs, the locality of which are known and included in the dataset.

Similarly, many of you are using the NBN website and may come across occasional spurious records within our dataset. Some that were already known to me have been investigated and in every case the inaccuracy proved to be a simple keying error when the record was digitised, which can easily be corrected. Hence, if you are aware of any possible problems within the dataset, no matter what they may be, then do please let me know.

This leads on to one further plea. One way in which records can be checked is to review the original submission, which in most cases will be a hard–copy card or written list. Over the years the Society's archive of hard–copy records has become rather dispersed for various reasons and it now seems apposite to seek to reunite them all as a single point of reference. Most will have been digitised, some will not but this can be addressed. If you have any, can I please ask that you make contact so arrangements can be made to get them to me?

Returning to online matters, some of you will at some point or other have submitted records to a recording scheme via a website (the RSPB Big Garden Birdwatch is a prime example) and may be wondering why it is not possible to submit records via the Society's website. Ultimately this facility may well be introduced but currently the Society is working with the Biological Records Centre to assist the development of iRecord (www.brc.ac.uk/irecord), an online recording facility whereby submitted records are verified by the Society's Recorders and then allocated to our dataset on NBN. It is early days yet and regular recorders are encouraged to continue using current means of submission, but this system may well help encourage new recorders.

Also online, Facebook provides excellent facilities for discussion of matters molluscan. I have set up a group called 'British Marine Mollusca' which currently has 94 members and is proving useful for identification queries and all manner of lively interaction. If you are tempted then do please join in at www.facebook.com/groups /british.marine mollusca. There are related groups which are also worth investigating, particularly 'NE Atlantic Nudibranchs' where some of the underwater photography is simply breathtaking.

To close, I would like to thank: Jan Light on behalf of the Society for the wonderful job she did during her tenure as Marine Recorder, and again for her help in handing over the role; Bas Payne for his interim coverage of the job; Mike Weideli for his help with Recorder 6; and John Fisher for his invaluable and continued help and encouragement, without which I would never have been in a position to accept this role.

Mimicking the microstructure of nacre for bone tissue engineering

Jian Ping Fan

The reliance of man on shells can be traced back millennia. As a source of sustenance, a medium of exchange (shell money) or a symbol of creative inspiration in art, religion and myth, shells have been used by man from ancient times to the present. Interestingly, in his book *Conchology* (1811), George Perry remarked that 'The study of shells is a branch of natural history which, although not greatly useful to the mechanical arts, or the human economy, is nevertheless, by the beauty of the subjects it comprises, most admirably adapted to recreate the senses, to improve the state of invention of the artist.' Without a doubt, it was this admiration of the astounding beauty of these magnificent objects that gave rise to the passion and fascination I have for shells. However, two centuries after that remark, perhaps the notion of shells as just objects of beauty will have to be altered, as our reliance on shells has recently taken on a particular new dimension – that of bone tissue engineering.

Before delving into the technicalities of the subject, it is important to understand the meaning of tissue engineering and its greater purpose. Tissue engineering is an interdisciplinary field which has been gaining momentum over the past few years due to the rapid increase in demand for replacement tissue, organs and body parts. This interdisciplinary field of life sciences and engineering focuses on the development of novel materials and strategies to address the needs of a generally ageing population. The central dogma of tissue engineering is the use of materials as biological substitutes in forming a basic structure or template for tissue growth. To address this issue, scientists have spent years identifying and researching natural and synthetic materials to determine which best suit this application.

figure 1: Shells of *Haliotis asinina* which were used for SEM imaging.

One such material identified with the potential for use in bone tissue engineering is mother–of–pearl (nacre). This iridescent material has long been used in decorations for its beautiful interplay of colours when exposed to light. The model shell typically used in studies has been the abalone shell. (For this work, the abalone shell from the species *Haliotis asinina* was used, as seen in figure 1). More recently, studies conducted on the microstructure of this material show it to consist of a highly organised, hierarchical structure (Luz and Mano, 2009).

This hierarchical structure of the shell can be separated into two layers: the first is the prismatic calcite layer which forms the interface between the shell and its surroundings and the second is the inner nacreous aragonite layer which forms the interface with the animal. The fascinating microstructure of *H. asinina* can be fully appreciated in figure 2. Using scanning electron microscope (SEM) to achieve much higher magnification, outlines of highly ordered, interlocking polygonal tiles, approximately 8–12 µm in diameter and 0.4 µm thick, can be observed on the inner nacreous surface. This arrangement is akin to bricks and mortar, wherein the bricks are the aragonite polygonal tablets, cemented together with thin layers of organic material (Espinosa *et al.*, 2009). This highly sophisticated microstructure produces the superior mechanical properties of nacre. A study found that the compressive strength of the red abalone *Haliotis rufescens* was a remarkable 233–540 MPa, whereas the hard and rather solid human cortical bone measures a mere 130–200 MPa (Lin *et al.*, 2006). The superb properties of nacre have prompted a surge in scientific studies regarding the development of a synthetic material which can closely mimic the microstructure, as well as inspiring the novel usage of nacre in applications from defensive armour to biomedical applications.

As previously mentioned, nacre consists of interlocking aragonite tiles. The main constituent of nacre is aragonite (95%), a form of calcium carbonate ($CaCO_3$), whilst the remaining 5% consists of organic biopolymers. Although aragonite is mainly $CaCO_3$, it is 3000 times tougher than pure $CaCO_3$ (Lin *et al.*, 2006). To fully appreciate this fascinating property of nacre, it is crucial to understand the mechanism in which a force (energy), when applied to nacre, is dissipated through the structure. As shown in figure 2, the tiles are interlocked in a wavelike pattern, which when exposed to an impact, is capable of progressively spreading the force around the columns of tiles and dissipating the energy at the interfaces between each tile and the organic material.

Another intriguing property of nacre to complete its appeal as a potential material for bone tissue engineering is the ability of nacre to directly bond to bone tissue. Known as bioactive, materials of this class are capable of actively forming an apatite layer on their surface when exposed to physiological fluids such as blood. This apatite layer consists of bonelike mineral crystals which form through the

interaction of ions in the blood with the nacre, and it is thought that this apatite layer is important in allowing bone cells (osteoblasts) to attach and proliferate, leading to bone bonding. Even more fascinating is that research has also shown that nacre is capable of directing stem cells, signalling them to differentiate into osteoblast bone cells (Luz and Mano, 2009; Espinosa *et al.*, 2009).

To date, research has been ongoing to discover new techniques which can closely mimic the production of nacre–like materials for bone tissue engineering purposes. However, due to the complexity of the microstructure of nacre, the challenges facing researchers abound. Nevertheless, appreciating the unique features of nacre, one can see that, creating a material that resembles the mechanical and biological properties of nacre, a composite material which has the potential to be tailored for application in bone tissue engineering is highly probable. Perhaps, all we have to do is to look at the shell. After all, if scientists are seen as artists, then, the admiration for the shell has yet again delighted recreated the senses, improving the state of invention of the artist.

Acknowledgement

Gratitude is accorded to Dr Jie Huang, University College London, for generous guidance and for providing microscopy facilities. All images were obtained by the author; SEM images on a JEOL JSM 6300F field emission SEM.

References

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Luz G.M. and Mano J.F. (2009) Biomimetic design of materials and biomaterials inspired by the structure of nacre. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*. **367**:1587–605.

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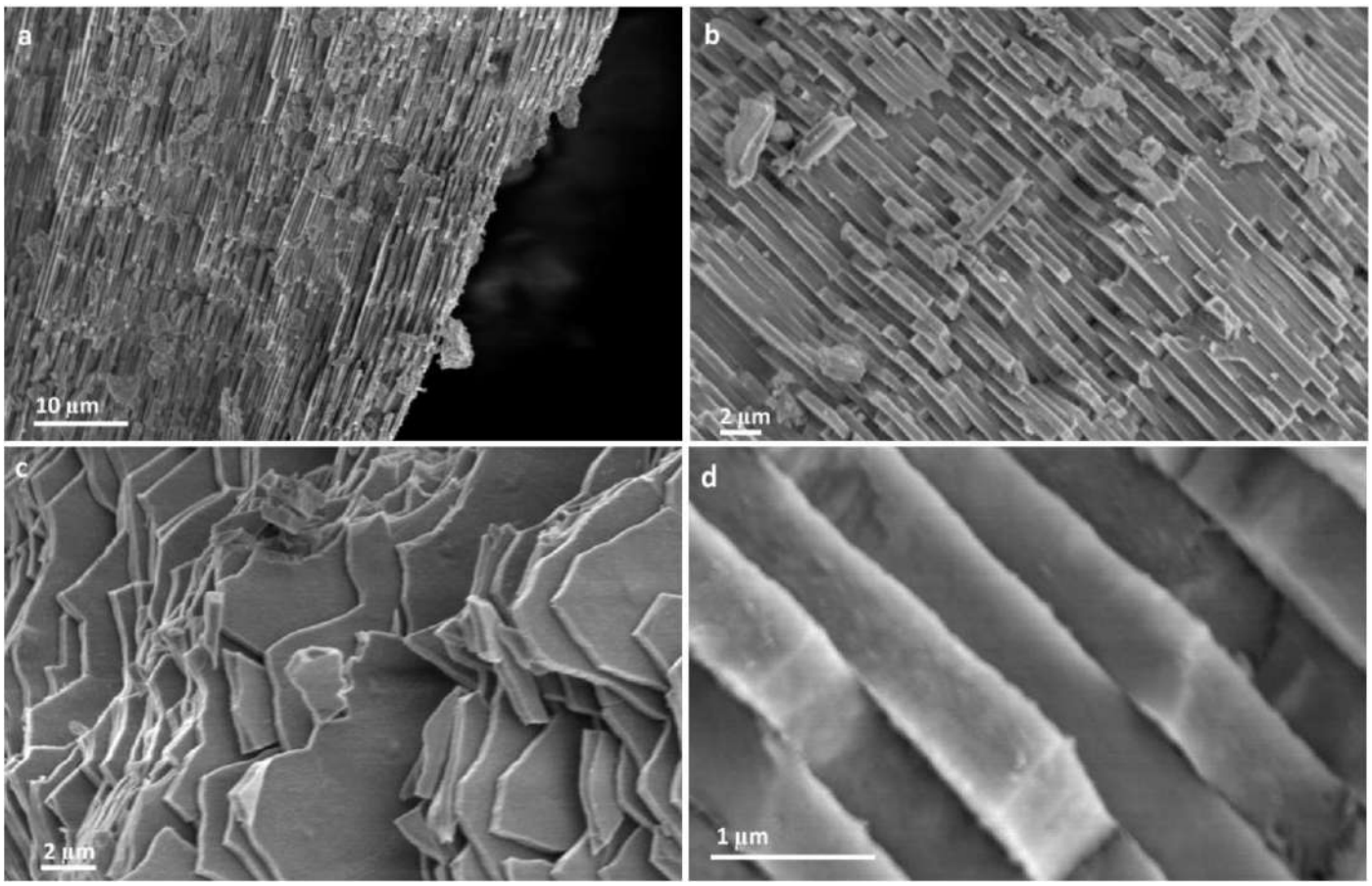

figure 2: The microstructure of nacre taken from *Haliotis asinina* observed using SEM: (a) fractured vertical cross section of the shell showing a brick wall–like microstructure; (b) wave–like arrangement of the aragonite crystal tiles; (c) top view of the fractured surface showing layered aragonite tiles and (d) interlocking mechanism of the aragonite tiles at high magnification.

Calma gobioophaga Calado & Urgorri, 2002 – a new UK record

David Fenwick

Thursday 14th March 2013 started out like any other day, but a visit by a local naturalist and a need to go shopping meant that my partner and I missed the low tide in Penzance, Cornwall and we had to change our plans at the last minute. Fortunately I remembered Carnsew Pool at Hayle, low water there being around two hours after mean low water here. The lower shore of Carnsew Pool is rich in sponges, sea squirts and anemones, and we have previously found a band of *Caryophyllia (Caryophyllia) smithii*, Devonshire cup coral, around the shoreline, under rocks just below low tide. I don't regard it as a hugely biodiverse site, but it's one of those sites where you know something unusual will turn up one day because of how unique the site is.

Carnsew Pool was constructed as a sluicing pool in 1833, and was once used to flush sand from Hayle harbour. The pool is approximately 550 m long and 250 m wide. Seawater funnels in and out of the pool through two small tunnels at its east end; there is also a sill on the Carnsew side of the tunnels. The salinity within the pool is close to that of normal seawater as freshwater doesn't enter the pool. The shallow body of water may also be slightly warmer than normal sea temperature, and this may be a contributing factor as to why *Calma gobioophaga*, a southern species, has been found here. There are intertidal mudflats at the southwestern end of the pool, with *Scrobicularia plana*, the peppery furrow shell, and sandier intertidal deposits closer to the sill and tunnels. The sand deposits that occur close to where the *C. gobioophaga* was found are quite interesting and contain a high proportion of *Retusa* shells, many species of foraminifera and live ostracods.

C. gobioophaga was found and photographed by Rosemarie Caroline Tucker and David Fenwick, on the lower shore in the most northern corner of Carnsew Pool at SW 55473 37485 on the 14th March 2013. Being very small, just 3−4 mm, it was first photographed in-situ amongst gobiid eggs, on which it feeds, without being moved (see front cover), and shortly after removed from the egg mass and photographed a small container of seawater, on *Fucus* sp. (figures 1 and 2). The *C. gobioophaga* and egg mass were found under a rock, of approximately 300 mm diameter. The importance of the species was not known at the time, so the specimen was not collected and preserved.

From ERICA, a Cornish Records Database, previous goby records from Carnsew Pool include *Gobius paganellus*, the rock goby; *Gobius niger* the black goby; *Gobiusculus flavescens*, the two-spotted goby; *Pomatoschistus pictus*, the painted goby and *Pomatoschistus minutes*, the sand or reckled goby. Gonçalo Calado who confirmed *C. gobioophaga* here, has previously noted the importance of *G. niger*, the black goby, for the species. Jakov Prkic, who also confirmed our species as *C. gobioophaga* stated that the species is regularly found on *Gobius cobitis*, the giant goby or gobi mawr (Welsh) eggs, on the shores of Croatia in May. The gobiid eggs here at Carnsew Pool appear to be similar to the eggs of *G. paganellus*, the rock goby, a common species of goby on Cornish shores.

The fact that *C. gobioophaga* has been found before on *G. cobitis*, the giant goby, is very interesting for the species is at its most northern distribution here and is particularly common in Mounts Bay, Penzance; it is a species I have recorded on many occasions. It will be interesting to see if *C. gobioophaga* can be found on *G. cobitis* eggs in the bay. The closest confirmed record of *C. gobioophaga* to the UK is perhaps one by Marco Faasse, from Brittany in 2010.

Calma galucoides, from which *C. gobioophaga* was separated in 2002, is a species which has already been found in the UK, it has been found feeding on eggs of *Lepadogaster purpurea*, Shore clingfish/Cornish sucker and *Parablennius gattorugine*, Tompot blenny.

Here I must thank Gonçalo Calado for his help in identifying the species as *C. gobioophaga.* Gonçalo assessed the images I sent him and stated 'The eyes (big in comparison to *C. glaucoides*) are very distinctive and, above all, the fact the animal is in pear−shaped fish eggs, i.e. gobiid eggs, is the best indicator. This appears to be a small individual and the eyes are already very distinctive underneath the basis of the rhinophores. It is *C. gobioophaga* and perhaps the northernmost confirmed record of the species although T.E.Thompson already pictured two "forms" of *C. galucoides* in his book.'

C. gobioophaga Calado and Urgorri, 2002, was confirmed using social media, and via the NE Atlantic Nudibranchs Group on Facebook, from images supplied.

Reference

Calado, G. and V. Urgorri, 2002. A new species of Calma Alder & Hancock, 1855 (Gastropoda: Nudibranchia) with a review of the genus. *Journal of Molluscan Studies*, **68**: 311–317.

For more information on Calma visit The Sea Slug Forum
http://www.seaslugforum.net/factsheet/calmgobi

figures 1 and 2: *Calma gobioophaga* from Camsew Pool, Hayle, Cornwall (length 3−4mm).

Letters between conchologists (1961-2002): the correspondence of Nora Fisher McMillan and Stella Maris Turk

June Chatfield

The current article came about from an offer by Stella Turk to make her correspondence with Nora McMillan available and this tells its own story. Although Nora McMillan, a past President of this Society died in 2003, there has not been an official obituary largely because she was a very private person who left no immediate family to supply information on her life and also because her publications, mostly short papers published over more than three-quarters of a century, were scattered across a long run of the *Journal of Conchology* and *The Conchologists' Newsletter* as well as other natural history journals and have not yet been collated, a necessary precursor to discussing a prominent member's *oeuvre*. However, already published in *Mollusc World* (Nunn 2006) is an article *In conversation with Nora McMillan MBE (1908-2003)* by Julia Nunn when she and Peter Crowther from the Ulster Museum, Belfast visited her at home in Bromborough, Cheshire, on 27th March 2003. They concentrated on the Irish connection as another visit was planned by Jan Light to cover her life in England, but sadly this was prevented by Nora McMillan's death later that year.

figure 1: Nora McMillan at 92 (Photo: Julia Nunn, 2002)

Nora McMillan (figure 1), born in Northern Ireland in 1908, had a lifelong interest in shells and was mentored by Britain's leading conchologist and collector J. R. le B. Tomlin as well as previously by a group of leading Irish naturalists including Arthur W. Stelfox, Robert J. Welch and Robert Lloyd Praeger. She joined the Conchological Society of Great Britain and Ireland in 1930 whilst working as a temporary member of staff at the Belfast Museum. In those days regular meetings of the Society took place in the north of England, in line with its Yorkshire origin. She was on the Council during the 1930s and 1940s, and held the office of Marine Recorder from 1951 to 1962 and in this capacity came into correspondence with Stella Turk from Cornwall in 1961, letters that continued until 2002 not long before she died. These give an informal but informative view of Mrs McMillan the conchologist in action against the background of the life of the society. The writer was loaned the folder of letters for two weeks whilst staying in Cornwall on field work in 2009 and it proved a very rich archive.

The letters cover a range of topics as well as shells for a long postal friendship developed between two kindred spirits with a shared interest in natural history and molluscs, cemented by a mutual love of cats. Nora McMillan was at the hub of the British conchological world when the letters began, then working as Curator of molluscs at the Liverpool City Museum and thus in close contact with the national network of conchologists. In contrast, Stella Turk (figures 2 and 7), brought up on St Mary's, Isles of Scilly, and resident in Cornwall for most of her life, had hardly ever travelled out of the county but was very active in natural history circles in Cornwall, her husband Dr F. A. Turk being a lecturer in Adult Education at the University of Exeter. However, Cornish conchologists were thin on the ground and she was the person to whom most people turned to for information on Cornish shells. The first letter from Nora McMillan (NFM 29.6.1961) picks this up as a visit to Cornwall was being planned by the University of London Scientific Society in which our member the late David Heppell (then a dental student at University College Hospital) was taking part and then on to Stella Turk joining the society.

NFM 29.6.1961 *We have very few Cornish members (may we not enrol you as a member of the Conchological Society?) and most of the Cornish records that we hold are rather old. An energetic Cornish worker would be very welcome.*

The letter then goes on to refer to Stella Turk's visit to see the shell collection in Truro Museum and an enquiry into whether *Mactra glauca* is ever washed up on shore at Hayle. She did indeed become a valued Cornish worker and had already joined, listed in Proceedings 16.1.1960 (*Journal of Conchology* **24**: 413), serving the Society herself as Marine Recorder and President, as well as author of a flow of contributions to *The Conchologist's Newsletter* (Turk, S. M., 1961, 1962 etc.) and papers in the *Journal*. With Nora McMillan's encouragement she became extremely proficient in identifying molluscs and especially so in taking on the tiny overlooked species from weed washings and shell sand, thus contributing many new records to the marine and non-marine censuses for Cornwall. These letters show that Stella Turk was sending uncommon records to Nora McMillan such as *Natica fusca* (now *Polinices fuscus*) and *Mactra glauca* (NFM 12.7.1961 & 21.7.1961). Regarding existing marine records from Cornwall Nora McMillan says:

NFM 21.7.1961 *If you want records for any particular species, I will gladly copy all the data on the relevant map(s) for you.*

At that time Nora McMillan was Marine Recorder but other plans appeared to be afoot within the Society. The 10-km square recording scheme for non-marine molluscs had been launched with the help of Monks Wood Experimental Station who had provided the computer backup for the vascular plant recording scheme and the Conchological Society's scheme was the second off the runway. This was at a time of the main frame when home computers were unheard of! It was deemed necessary to invigorate marine recording.


figure 2: Stella Turk at her desk, 2005.

NFM 12.7.1961 *The Conchological Society have appointed a small subcommittee to consider the Census of marine Mollusca.... I know we will be very glad of the help of yourself and your Cornish friends....*

Further notable shells were sent from Cornwall for checking:

NFM 8.2.1962 *Your limpet is* Patella vi[r]ginea *as you say.*

By then David Heppell had taken over as Marine Recorder with the introduction of marine census areas with a local recorder for each. Nora McMillan's interests in shell necklaces, the history of collectors and conchological bibliography came up in a letter (NFM 29.10.1962) in connection with a request for books by W. P. Cocks who published in the mid-nineteenth century with reference to the *Falmouth and Budock Guide* (1860). The latter ties in with a project that Nora McMillan had worked on with the late J. R. le B. Tomlin in collating shell lists from local seaside town guides. The same letter raised another issue with Liverpool Museum as she was then writing from her home address due to a new ruling at the museum whereby letters were opened and read in the central office before reaching the staff and that was definitely not to her liking.

(NFM 11.11.1962) Nora McMillan sent a shell necklace to Stella Turk and also asked for help from Dr Frank Turk for any information on the naturalist John Timothy Swainson (1755–1824), a project which reached fruition 25 years later (McMillan, 1987). A later letter concerned the Cornish mineralogist John Rashleigh and his shell collection at Truro Museum as well as limpets in kitchen middens (NFM 15.2.1963). By 1965 the correspondence turns to cats:

NFM 10.7.1965 *....you asked if I liked cats – I do (as all animals) and for the past 25 years my cat family has ranged from 8-22! Present stock 11 cats, 1 kitten, only ordinary cats, tortoiseshells I cannot resist and I have two blues, one tortie, one tortie-and-white, one red, one red female with lovely topaz eyes and a selection of ordinary black ones. Also one with an extra toe on each foot. Also a 'harlequin' white-and-black and a plain tabby. All the strays move in on me and just hang up their hats for good! I also keep goats so have lots of milk for them luckily, and half an acre of garden, plus a decent piece of woodland beyond. Also a griffin* [dog] *female and until last week a Staffordshire bull-terrier bitch as well, all living in amity bless them.*

Then abruptly the letter goes back to molluscs and Thiele's standard reference on European molluscs used for arrangement and indexing of shell collections in museums.

Finally she tells of field work in collecting Arionid slugs for Mr A. E. Ellis. By 1965 we are into book writing. Edward Step's classic work *Shell Life*, the book that Nora McMillan had started on, like many other members of the Society including the writer, had reached the point of needing revision and Nora McMillan had been asked by the publisher Warne to take this on and it was decided that a completely new book was required (NFM 8.8.1965). This was duly published, again in the Wayside and Woodland series (McMillan, 1968; Marren, 2003). Enquiries were then made about a Miss Pocock, whom Stella Turk was having difficulty finding information about, but Nora Mc Millan came up with the following: *I have specimens of* Avicula hirundo *from Marazion* [Cornwall] *found by Miss Elizabeth Pocock.* She was also the first person to find *Mactra glauca* in the British Isles in 1801 from Hayle in Cornwall (Chambers, 2009).

As conchologist at Liverpool Nora McMillan would receive shells from archaeological excavations to identify as she explains (NFM 16.12.1966):

As a matter of fact I am reporting on Prof. Mitchell's material (he has sent me 100lbs of the shelly clay to dry, wash, sieve, name and report it!!)

Back onto Society matters (NFM 30.3.1966):

I do not know what ails Mr Stratton but of late he has been most neglectful about answering letters! [He was unwell].

I return your suggested form [for marine field recording] *herewith and agree with almost all of it except I am not quite clear about the checking of records. Do I understand that you would accept a list of records, vouched for only by the collector and not seen by yourself or a Referee?*

Stella Turk had by then taken over from Shelagh Smith as Marine Recorder and she was sounding out Nora McMillan, who had done the job herself earlier, for advice. There is discussion on the methodology of the marine recording scheme or census. Advice and help went both ways as Stella Turk was able to find out something more on Miss Pocock, who turned out to be the wife of the Captain of the Princess Mary, one of the Falmouth packet boats (SMT 21.11.1966).

Nora Mc Millan had agreed to do some marine recording (NFM 21.9.1966) and also gave details of the location of Gardiner's collection of molluscs (a former Conch. Soc. Marine Recorder) that went to the Oxford University Museum. The location of collections and history of collectors was something that she knew a good deal about.

We then come on to reminiscences of her membership of the Conchological Society:

NFM 9.6.1967 *...the years of pleasure my membership has given me.*

That year, 1967 the Cornish coast was in the national news headlines with the wrecking of the oil tanker Torrey Canyon bringing crude oil to the beaches just at the beginning of the holiday season with hasty decontamination of shores using detergent that did further harm, especially to molluscs, resulting in dead limpets everywhere. I was also in north

Cornwall that summer witnessing the effects on the beaches around Newquay.

Nora McMillan showed that she was not just a shell collector as she also took an interest in seaslugs and sent one of Dr Tom Thompson's reprints on to Stella Turk (NFM 21.6.1968 & 28.6.1968). The usefulness of long series of shells to show the range of variation in a species is also referred to (NFM 10.11.1968).

For many years Nora McMillan was a close friend of J. R. le B. Tomlin and she used to stay with Mr and Mrs Tomlin at Boscobel Road, St Leonards near Hastings in Sussex and undoubtedly they corresponded to make arrangements for visits as well as on molluscan matters. Following the Society's meeting at the National Museum of Wales, Cardiff in 2009, I had the chance to see selected items from the Tomlin archive of correspondence on display. Harriet Wood and Jennifer Gallichan investigated these for any Fisher/McMillan items but their reply was negative:

Unfortunately we do not have anything in our archive from Nora. This seems very strange as I know they were very close but I guess that is in itself the reason why. He probably kept more personal correspondence out of the bequest. [to Cardiff]

One project that Nora McMillan did with Stelfox was on extracting data on molluscs from lists in local town guides and although never published, the index cards went with the Tomlin archives to the National Museum of Wales. She refers to this (NFM 22.1.1970 & 28.1.1970) having been pleased to see Peter Dance (then Curator of the Tomlin collection at Cardiff) making use of them:

I am delighted to think you consider the Tomlin/Fisher (as I was then) card index of local lists will be useful.... The lion's share of the 'hunting' was mine, Tomlin made all the entries on the cards, added some, suggested further sources of supply, and generally acted as Editor. I need hardly say I enjoy searching out obscure guide books and journals, otherwise I would never have attempted the task! Mr Stratton seems unlikely to be at the AGM, and if he is not I shall, of course be pleased to present your Marine Recorder's Report. [Stella Turk being in Cornwall was unable to attend meetings in London.]

Tomlin would have been pleased to know that our bibl. of 'local lists' is now being so useful. It was fun to do as I have always loved grubbing about among ancient journals and guide books and between us we did manage to cover a great deal of ground. I will ask Michael Kerney (I shall see him on Sat.) if he would mention the existence of the bibl. in his report on the non-marine Mollusca, I think people don't know it exists or how useful it can be!

At this time Nora McMillan had volunteered to take on the post of Editor of *The Journal of Conchology* when the post fell vacant and in the same letter she outlines her editorial ideas:

Re short notes in the Journal. I do most firmly intend to return to the practice of including such, but in a rather different way. I would like to wait until I have collected enough to fill several pages and then publish them altogether. So if you have any please send them along.

There is then reference to the contents of the Falmouth Museum being sold off after the war.

Nora McMillan used her holidays for collecting and in 1970 she went to Co. Kerry in Eire (NFM 3.7.1970):

Enclosed are the rather meagre results of my Co. Kerry holiday last month. Unfortunately it coincided with the middle of the neap tides so my shore-collecting was not very fruitful.

She then makes reference to *Monodonta lineata* (now *Osilinus*) taking the place of *Littorina littorea* the edible winkle. She also refers to doing some marine collecting with David Harfield (existing member who now lives in Dorset) in Co. Down, Northern Ireland:

....we did some collecting at Newcastle (where we had gone to see Mr Tomlin)...

Then some praise for Stella Turk's work on the marine census:

You are certainly working wonders with it.

A week later the Cocks' leaflets come up (NFM 10.7.1970):

Tomlin knew of Cocks' lithographed leaflets but I got the impression he did not own any. We'll see what Dance turns up in Cardiff. Peter Dance was then working at the museum with access to the Tomlin archive.

There was a need for a definitive list of marine species and the two agree on what it should be (NFM 14.3.1971):

I agree entirely with your view that we should use Winckworth's list because, although in some respects it is out-of-date yet it is still the only COMPLETE list we have.

Ronald Winckworth, a former Marine Recorder and President, gave "The British Marine Mollusca" as the title of his Presidential Address at the AGM on 3 October 1931 and this was published in the *Journal of Conchology* followed by a definitive list of the British Marine Mollusca that served as the standard check-list for many years (Winckworth, 1932). I remember being sent a copy on joining in 1961.

Nora McMillan has strong views too on the entering of doubtful unchecked records:

Once erroneous records are in print they can never be killed! I hope you do not mind, but I have ventured to delete the bit about these 'Natica fusca' from Liverpool Bay from your record and also the record of Nucula sulcata which I am sure is a slip.

Lack of communication from Mr Stratton mentioned earlier was indeed because he was unwell and now he had died (Biggs, 1971):

His death leaves an awful gap in the Society, but Mrs Rands told me that his death was a merciful release for him.

I am glad you liked my effusion on being a field naturalist a walking one. Quite a number of members have told me they enjoyed it, I feel flattered! (McMillan, 1970).

Here there seems to be indication of some undercurrent in the running of the Society that was distancing Nora McMillan and Stella Turk from the rest of the team (NFM 27.12.1971):

Please, please do not on any account resign from Marine Recordership, no one else could or would do it as well as you and I am sure that I speak for Council in saying this.

....Should they try to cause you trouble our Hon Treasurer Marjorie Fogan (who is as tough as the bull-terriers she breeds!) and I are prepared to fight for you tooth and nail. Please sit tight ....

At this time a booklet on the shells of Cornwall had been published (Pascoe, no date) and as Editor Nora McMillan sent one to Stella Turk for review but she did not think highly of it (NFM 12.1.1972):

It is a great pity that it was so badly done.

However Nora McMillan had then been approached to write another book on seashells herself:

Warnes, speaking of their Observer books, say they sell splendidly (but there is none on marine Mollusca; I have been asked repeatedly to do one, but as they only offered a cash payment, no royalities, I have firmly refused).

In March 1972 Nora Mc Millan speaks appreciatively of her facilities at the museum:

It is a great help to be based on a Museum with collections available for reference quickly.

In a PS at the end of the letter, after over ten years into their postal friendship and collaboration on shells, formalities of address begin to drop:

I belong to the generation that dislikes the modern fashion of using Christian names at once for everyone .... "*Mrs Mac" is a good compromise and most of my colleagues at work, who, after all, see much more of me, used that description.* The letter is then signed 'Nora McMillan': she had evidently been addressed in the familiar way by people she did not know very well and preferred to stay in the more formal world of Tomlin *et al.*

A later letter (SMT 31.1.1972) replies:

Dear Mrs Mac,

If I may be a little less formal on the lines you suggest!

In April 1972 the topic of address continues (NFM 10.4.1972):

Dear Stella,

Even though we have not yet met I think we may advance to Christian names, if you do not mind? My Christian name is Nora, but I nearly always get "Mrs Mac", please use whichever you prefer.

The letter is then signed Mrs Mac so that was the form *she* evidently preferred. Fieldwork/holiday that summer was in Scotland to Shetland and Orkney, a venue to be repeated several times in following years and where Nora McMillan would later buy a croft around which there were several sagas remembered and related by Marjorie Fogan, but not included in these letters (NFM 21.5.1972):

On June 1st I am going to Shetland, this time to Whalsay and Fetlar; on the former island I have hopes of getting stuff from fishermen we shall see! At any rate I will collect diligently.

Stella Turk was corresponding with Dr Fretter (co-author *of British Prosobranch Molluscs*, Fretter and Graham 1962) at the University of Reading and this brought the remark, in view of the veliger larval work in Reading and the Plymouth Marine Laboratory (NFM 2.7.1972):

It would be fine to have the veliger studies linked up with adults really satisfactorily.

The history of conchologists again comes to the fore (NFM 19.9.1972):

I am especially interested in the early naturalists .... and *have a joint paper in the next no. of the J. Soc. Bibliography N. H. on William Bean.*(McMillan and Greenwood, 1972)

A further endorsement of Stella Turk's work as marine recorder follows (NFM 27.2.1973):

Please do not, unless really unavoidable resign from the post of Marine Recorder! You have worked absolute miracles of co-ordination and of good hard work and no-one could possibly take your place.

With the focus on meetings in London post World War II, it was both an effort and expensive for Council members from the north to attend regularly (NFM 30.10.1973):

In the future I hope to attend a few more meetings; it is a long, tiring and expensive journey in a day and I can never stay over-night because of dog, cats and goats. However now Dr Paul is living in Cheshire and I have a companion it will not be so tedious. So I look forward to the November meeting.

Chris Paul was to follow her as Editor of the *Journal of Conchology* when she resigned the post.

In May there is more news of her menagerie with the following amusing description (NFM 21.5.1974):

My livestock increase. At present I potter round part of our local parkland (surely the only park area in the British Isles where one has permission to take goats for a walk!) accompanied by a 15 year old 'pensioner' goat, a five year old with two enchanting month old daughters, a nine year old Welsh sheepdog and an engaging fox terrierish mongrel pup (salvaged from Dog's Home), plus notebook, pencil, plastic bag, glasses, hand lens etc. The time is thus not wasted. People always look so surprised to meet goats walking beside me along a suburban road. There is reference to Stella Turk's cat, presumably her new long-haired cat mentioned later and an update on the latest number of her own felines (14) at 'The Nook' in Cheshire (figures 3 and 4).

figure 3: Nora McMillan's home 'The Nook' in Cheshire.
(photo: Julia Nunn, 2002)


figure 4: Nora McMillan in her garden, goats in the background. (photo: Julia Nunn, 2002)

Nora McMillan had strong opinions and was prepared to be critical of lower standards (NFM 1.6.1974):

Thank you also for the nice things you say about me; I am afraid I have not pleased everyone but who can? Anyhow the setup of the Publications Committee means that the editor is left (I quote) with only the highly technical task of dealing with the printers.... I consider I could not edit under these conditions, hence my resignation.

It is bitterly cold and freezing hard; to think I was planning a trip to Southport for seashells next week!

1974 was recorded as a cool summer (Kington, 2010).

By 1976 Warne and Nora McMillan must have come to an agreement over the Observer's Book (figure 5) for she now writes (NFM 2.2.1976):

Just now I must buckle to and complete the Observer's Book on British Seashells – the publishers want completed ms. next month and an awful lot remains to be done.

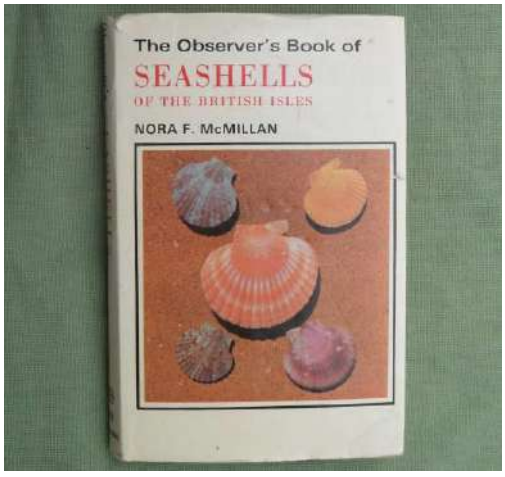

figure 5: The Observer's Book of Seashells, Warne, 1977.

Her travels now extended outside the British Isles and to the southern hemisphere, for the letter of 26 April 1976 refers to a recent return from New Zealand. The north/south divide in Conch. Soc. came up again (NFM 1.5.1976):

....officers to a London-based clique... 'country members' get very little for their sub.

In 1977 Stella Turk was working up a geographical guide to British seashells and their literature, Nora McMillan was supporting this (NFM 1.7.1977) and there was some talk of publishing the local lists made with Stelfox:

.... but only when I have received a written request for the job. Like you, I am a busy person, such a compilation would mean a lot of work and I naturally do not wish to waste time preparing something which will never appear! I look forward to seeing your updated 'Literature on British molluscs' (Paper for Students No. 11). This was a series initiated by the Reverend H. E. J. Biggs who set up a Junior Section. And before long Nora McMillan was off on her worldwide travels again, to Canada, for a month. Back from the other side of the Atlantic Nora McMillan was encouraging Stella Turk on her 'Mollusca Cornubiensis' and promising help from Liverpool Museum (NFM 3.9.1977):

We have had some Job Creation people working in the Merseyside Museums for the past year and they did a lot of cataloguing and such like so it ought to be fairly easy to extract Cornish records if wanted.

A lovely day, and I must take the dogs (3) out.

Later that year she was back in Shetland and Orkney (NFM 23.10.1977):

When in Shetland an acquaintance who conveniently works in a fish factory there .... He .... has promised to keep a look-out for anything unusual brought in by scallop fishers or lobstermen, and let me have it. In Orkney I stayed with the Smiths, Ian is still madly hunting opisthobranchs and has enlisted a helper on Rousay who is doing well.

In May 1978 comes news of a new Director at Merseyside Museums and reference again to Miss Pocock (NFM 8.5.1978) :

.... it is strange how elusive she is, for she did so much good work.

The letter goes on to compliment Stella Turk on her cockle paper (published in *The Conchologists' Newsletter* Turk, 1964 and *Papers for Students* Turk, 1978), and then back on to the need for series of shells representing all ages:

How I wish that prince of collectors T. G. W. Fowler had collected infants as well as always seeking the largest specimens .... he did love getting outsize specimens!.

In July 1978 there is further reference to Miss Pocock and an offer to (NFM 22.7.1978):

....look up Donovan and see what is said about her.

There appears to have been a lull in the correspondence and during that time Stella Turk and her husband Dr F. A. Turk were busy setting up a Cornish Biological Records Centre in rooms available to them at the School of Mines in Cornwall, also using Manpower Services people and setting up ERICA, their computer system for records. A letter from Stella Turk (22.11.1979) comments on the long time since they were last in touch and the good progress with the Biological Recording Unit. I did have the opportunity to visit this in 1989 whilst staying in Newquay and confirm that it was an inspiration and a buzz of activity as well as having a good social atmosphere. Eventually the facilities at the School of Mines came to an end so it was operated from the Turk's small cottage in Reskadinnick.

Later in the year we hear that Nora McMillan, now being over 60 has taken partial retirement from the museum (NFM 2.12.1979):

Like you, I find the days very full, and although I now only do three days a week in the Merseyside County Museums natural history seems to overflow into all my daily doings. Never have I been known to return from a walk, with dogs or not, without botanical specimens in hand, not to mention slugs and snails in tin and notes on local antiquities. Progress is at a very slow rate but at least I examine a smaller area more thoroughly.

There is an update on the 13 cats and 3 dogs, but now no goats. There is also mention of a stud of *Helix pomatia* the Roman Snail in the garden. The bungalow will have been sold on but one wonders whether the Roman snails might persist in the garden in spite of the northern climate.

The next year involves plans to visit the Isles of Scilly, where Stella Turk spent her childhood and there is also reference to Stella Turk starting a nature column in the local newspaper *Western Briton* (NFM 1.5.1980):

I had hoped to visit Scilly this year ...which Island do you suggest? Have you visited them all?

Your weekly 'Nature Note' sounds interesting to do; I do hope you will keep a file of your 'notes' because I am sure that lots of interesting data gets buried in such notes, simply because life is not long enough to wade through acres of local papers to find them.

There was a prompt reply later that week (SMT 4.5.1980):

Nature notes came to an abrupt halt after No. 5.

Stella Turk then goes on to advise that St Mary's is the best island to visit but the richest place for molluscs is the flats of St Martins. The trip duly gets under way with the added bonus of a detour to Stella's home at Reskadinnick on the return journey (figure 6), not the easiest place to get to by public transport, so that the two conchological penfriends can meet for the first time after corresponding for 19 years (NFM 14.5.1980):

Tomorrow I will ring up the kennels where I always board my three dogs....On the return journey I do hope that it will be possible to call on you at Reskadinnick; I quite understand that with such busy people as yourself and Dr Turk things must be arranged well in advance....

Although her official schooling was limited Stella Turk acquired much knowledge of natural history and her prominent place as a Cornish authority on natural history earned her an Honorary M.Sc. (NFM 27.7.1980):

I write to offer you my warmest congratulations on the M.Sc. that the University of Exeter have given you. No one deserves such recognition of sterling work more than you, and I am sure all your friends join me in good wishes.

The planned trip to the Isles of Scilly was duly scheduled for the autumn (NFM 9.10.1980):

We return from Scilly Sat 25th late afternoon so I could stay in Penzance and journey to Camborne .... depending on the times of buses from Camborne to Reskadinnick. I hope this is not too short notice, but I have had some difficulty in organising things, an unexpected visitor for a week, arranging for my cats and dogs....

figure 6: Stella Turk's cottage "Shang-ri La" at Reskadinnick, Cornwall, 2005.

Stella Turk's warm reply welcomed the visit (SMT 14.10.1980):

We would very much like you to come to lunch with us on Tuesday 28th October. I have just looked at the trains, and the best one would seem to be the 10.23 from Penzance, reaching Camborne at 10.46. As it is nearly two miles to Reskadinnick and there are no buses, we will arrange for a taxi to meet you.... As you see at Shang-ri La, we just live in the crevices between the books!

Later that year the attention turns to A. E. Ellis, a former Editor of *The Journal of Conchology*, past President, past Non-marine Recorder and author of the classic *British Snails* (Ellis, 1926). He had been Biology Master at Epsom College (SMT 4.11.1980):

Today came a letter from Arthur Ellis saying how glad he was that we had met as we are two of his favourite people! Isn't it nice to be like[d] by someone of whom one thinks very highly... Everyone seems to respect and admire AEE who one feels one can trust to be honest as well as always kindly and who views events with a humane humour.

Certainly indeed it was a delight to met you and to have you here at Shang-ri La .....and that you will come again.

Nora McMillan replies (NFM 9.11.1980):

Nice of Ellis to put us on his 'favourite' list. I have known him for many years and always found him prompt to help and advise. And of course he likes cats, hence an admirable person.

It was a great pleasure to meet you in the flesh after years of correspondence and I hope to revisit Cornwall. Later (NFM 30.8.1982) there is more on museums, a reference to the shell collection at Stockport Museum with a caution on the accuracy of labels in old shell collections used for identification and also mistakes in lists being made by Manpower Services helpers with no knowledge of the subject. Nora McMillan was always very critical of

inaccurate work. In the same letter (NFM 30.8.1982) goats come into the picture:

I am once more a goat-keeper.

This is followed by an update on the cats.

There is reference to Nora McMillan having visited the Isles of Scilly and news of a forthcoming visit to Shetland and the Fair Isles, where she stayed at the bird observatory.

....when I rang up to book the wife of the Warden asked if I was a birdwatcher and when I replied indignantly that I was a malacologist she said warmly 'what a lovely change'! On the other hand suppose I scare off a rare migrant bird when snailing? I shall probably be murdered in my bed by an indignant birdwatcher, sorry 'twitcher'.

Yours sincerely,

Mrs. Mac

This letter marks the dropping of formalities in the address from 'Mrs Turk' to 'Stella' and signed 'Mrs Mac'. Affixed to this was a carbon copy of a typed reply from Stella Turk dated 3.9.1982 with news of Gillian Mathews who had written a key to chitons. At this time Stella Turk was coming to the end of her two years as President of this Society and as is traditional the outgoing President nominates their successor. The new President, Adrian Norris of Leeds Museum, was from the north of England, although by the post-war years most meetings were centred on London.

The last letter in the file from Nora McMillan, dated 4th January 2002 was short and not very upbeat, she died the next year, aged 93.

We have had a week of bitter cold with hard frosts all day – very depressing for the idea of any natural history field-work. Not a snail to be seen!

With every good wish for Year 2002

From, Yours sincerely

Nora

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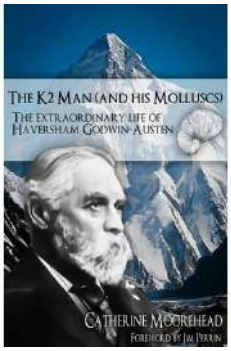
figure 7: Stella Turk in her garden at Shang-ri La, May 2009.

BOOK SALE

Terry Wimbleton's library, autumn 2014.

We have been asked to sell the late Terry Wimbleton's library, which includes around 300 books and long runs of the Journal of Conchology. The catalogue should be available on the website in the autumn; the closing date for bids is likely to be around the end of the year. Further information will appear in the next Mollusc World.



Book Review: *The K2 man (and his molluscs). The extraordinary life of Haversham Godwin-Austen* by Catherine Moorhead.

Neil Wilson Publishing 2013. 279 pp. black & white and colour images and photographs. ISBN 978-1-906000-58-5. Publisher's price £24.99.

This book is a long overdue biography of an important historical figure in both nineteenth century mountain surveying and conchology (and a former president of this Society).

Catherine Moorhead teaches at Godwin−Austen's old school, the Royal Grammar School in Guildford, Surrey, and is herself an experienced mountaineer, so that the book naturally focuses on this aspect of his life. However, the author admits that she has little knowledge of natural history and has included two very short sections relating to his interests in both molluscs and art, written by relevant experts.

Haversham Godwin−Austen was born in Devon in 1834 and at the height of British colonial power in India joined the Indian Army as a surveyor, mapping the tributaries of the Irrawaddy delta in Burma before travelling to Northern India with his grandfather, General Godwin. The book then describes his undertaking of one of the most remarkable expeditions in British mountaineering history. With immense physical energy and dedication, using what is by today's standards very primitive and minimal equipment, he mapped the way to the Himalayan mountain now called K2 (which for a while was also called mount Godwin−Austen). Beyond the village of Skardu, gateway to the Karakoram, he was the first Westerner to explore and map the world's most extensive glacier system. He later carried out mapping surveys in Ladakh, Tibet, Bhutan and Burma, before retiring to England where he focused on his natural history interests.

The book also relates aspects of his colourful personal life, including his early affair with (and a child by) a local woman called Kudikji, subsequent marriages, health issues, failed attempts to stave off bankruptcy and a late conversion to Buddhism. In her researches the author consulted the archives of the Malacological Society of London and thus her comments largely relate to Haversham's involvement with them, including his presidency of that Society in 1897−9: 'probably his most satisfactory honour'. But he was also president of the Conchological Society in 1908−9 and it is not obvious in the text that she consulted our own archives in Leeds directly for any relevant information (the 'Malacological and Conchological Societies' Archives at Wye College, Ashford, Kent' is given as a source). Haversham built up a large collection of Indian land and freshwater molluscs as a result of his travels and went on to describe many new species from this area and elsewhere, corresponding with well-known conchologists of the time. The author describes the collection, later acquired by the Natural History Museum, London, where Haversham worked in retirement, as 'the greatest collection of *Mollusca* hitherto assembled, anywhere'! The book describes Haversham's criticisms of H.K. Gude's Mollusca contributions to the *Fauna of British India* series from the point of view of his experience in the field and mentions work on his own multi-volume *Land and Freshwater Mollusca of India*, completed at the age of 89 in 1923, just three years before his death.

Included is a section of plates, many of which are of Haversham's own beautiful and accurate landscape watercolours featuring the places he visited. At the back of the book are maps showing the routes of his various expeditions. There are also appendices including a summary of Haversham's life, data relating to his major expeditions, a bibliography and sources of material consulted together with an index.

I would recommend this book as an interesting background to the life of a fascinating character who was involved in the beginnings of the modern western understanding of the terrain and natural history of the Indian subcontinent, although conchologists may be disappointed in the minimal detail given to the aspects of his life which related directly to molluscs.

Peter Topley

The toothed top shell, *Osilinus lineatus* eaten on Alderney *John Glasgow*

The following is taken from *Channel Island Marine Molluscs* by Paul Chambers, 2008.

'It is suspected that this species, which is common on all the islands, has taken the ecological niche occupied on other coasts by the common periwinkle (*Littorina littorea*), which is rare everywhere (except Les Minquiers). In the late nineteenth century, *Osilinus lineatus* was being sold commercially at the Guernsey fish market which, together with its local name of grey winkle, suggests that it was being gathered and eaten in much the same manner as *Littorina littorea* was in Britain and France.'

Those in the pot in the photo (right) were gathered by my friend Louis Jean and are referred to locally as winkles.

Snail speeds (and other oddities)

Robert Cameron

Some members of the Society already know that I am contracted to write a New Naturalist book on Slugs and Snails. Despite the broad title, it is concerned only with terrestrial molluscs and, while ranging across the world, it will have a distinctly British flavour. The text is well-advanced, and I am *hoping* to complete it in the first half of 2015. There are some obvious questions that I would like to answer, but have found very little written that is to the point. So this little note is really a begging letter: if you have some information, or know where it can be found, I would love to hear from you! All contributions will of course be acknowledged. I may well have missed some obvious sources.

The first of these questions concerns the speed at which snails move. Way back in 1947 Bernard Verdcourt published a small paper in the *Journal of Conchology* (**22**: 269–270), giving some results of timing the movements of three species. In his book *The Shell Makers* Alan Solem gives the rough estimate of 'a few inches a minute'. Finally, I can look at the recorded speeds of the winners in the annual Snail Racing Championships held at Cougham in Norfolk. These involve the garden snail *Cornu aspersum.* The all-time record is 13 inches in 2 minutes and 20 seconds, but most winners have come in at around three minutes. These times represent minimum speeds, as I do not know if the snails made straight for the finishing line! The little table below lists these records converted into the same units. I have used the current names for species, but Verdcourt's *Arion hortensis* may well have been *A. distinctus.*

Species	mm/sec	cm/min	m/hour
Oxychilus navarricus	0.26	1.56	0.94
Arion hortensis	0.48	2.88	1.73
Cepaea hortensis	0.84	5.04	3.02
Cornu aspersum	1.83	11.0	6.60
Solem's estimate	1.67	10	6

I have taken 4 inches to be 'few' in Solem's estimate. These figures represent maximum recorded speeds over very short time spans. I suspect that they can be exceeded in all cases, but it is very unlikely that they would be maintained for as long as an hour, and even less likely that movement over an hour would be in a straight line. Having said that, I have seen *Cepaea nemoralis* at least 5 metres up trees, and I would guess that they had climbed in a single night. *Lehmannia marginata* surely moves even further. Nevertheless, two things show up. As we might expect, larger snails move faster than smaller ones, though that may not be universal. Also, the potential distance a snail could move in a night or over longer periods is far larger than those actually recorded. Most records of dispersal show distances of 10 metres or less over a season, although Frédéric Magnin and his colleagues recorded the invasive *Xeropicta derbentina* moving 42 metres in a year in Provence.

My subjective impression is that slugs move faster than snails, and I would expect carnivores to be a bit faster than the rest. I may have time to do a few speed trials myself.

I have another long-standing question, to which someone may have a good answer. I have repeatedly been told, or seen in popular literature, that after the battle of Crécy in the Hundred Years War, snails were made to crawl over wounds. I have good records of this being done to slight wounds at a much later date (the remedy also involved urine!), and there is evidence that mucus has some bacteriostatic properties (delaying growth rather than killing like an antibiotic). I have also been told that the Crécy story is not supported by any contemporary evidence. Does anybody know better?

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'[A swallow] built its nest on the wings and body of an owl that happened by accident to hang dead and dry from the rafter of a barn. This owl, with the nest on its wings, and with eggs in the nest, was brought as a curiosity worthy the most elegant private museum in *Great-Britain***.** The owner, struck with the oddity of the sight, furnished the bringer with a large shell, or conch, desiring him to fix it just where the owl hung: the person did as he was ordered, and the following year a pair, probably the same pair, built their nest in the conch, and laid their eggs.'

Gilbert White

Letter XVIII to Daines Barrington,
from *The Natural History of Selborne*, first published 1789

The novelist Patricia Highsmith and snails

I think the attached snippet from the *Sunday Times* of 8th December is the oddest conchological story from 2013:

'...snails also seemed to calm her [Patricia Highsmith] and she once arrived at a cocktail party carrying a gigantic handbag that contained a lettuce and 100 snails – her companions for the evening, she said.'

I'm unsure which biography of Highsmith is cited here, but it's likely to be Joan Schenkar's (2009) *The talented Miss Highsmith: The secret life and serious art of Patricia Highsmith*. Jeanette Winterston's review of this biography in the *New York Times** says 'She collected snails, liking their portable hiding place and the impossibility of telling which was male and which was female. She travelled with snails in her luggage and kept hundreds at home. If she was bored at dinner parties, she might get a few snails out of her purse and let them loose on the tablecloth. As she didn't eat much, she was often bored at dinner parties.'

Colin McLeod

* www.nytimes.com/2009/12/20/books/review/Winterson-t.html?pagewanted=all&_r=0

Rearing and breeding the sacoglossan sea slug, *Limapontia senestra* (Quatrefages, 1844)

Ian Smith

Limapontia senestra is one of the easiest sea slugs to keep, breed, rear and observe in captivity. It can be obtained in most months from rock pools and some lagoons where green filamentous *Cladophora* spp. grow. It occurs frequently in pools at, or above, MHW on exposed shores where the water is frequently renewed by the swash of large waves (figure 1).

figure 1: Pool above mean high water level on the exposed coast of north Anglesey, Wales.

In June 2013 the *L. senestra* specimens were small in the pool shown in figure 1, and I could not see any while at the site. As *Cladophora* was abundant, a litre of it was collected. To avoid crushing any slugs present, it was spread about 1cm deep in several containers and just covered with pool water. Four litres of water were taken from the pool to ensure a supply of water in captivity at the salinity the slugs were accustomed to. At home, small portions at a time of *Cladophora* were examined in water under magnification. Fifteen specimens of *L. senestra* were found ranging from 1.7 mm to 3.6 mm length. Most had only partly developed rhinophores, and some had crests resembling those on *L. capitata*, though other markings and subsequent growth showed all to be *L. senestra* (figure 2).

figure 2: Top right; part developed rhinophores. Left; head crests like those on *L. capitata*. Bottom; no rhinophore or crest development visible.

The fifteen specimens, with some *Cladophora*, were placed in 700 ml of pool water in a one litre capacity, white, translucent, plastic bacon box (figure 3). (A long, thin box is easier to examine under a binocular dissecting microscope than a square one.) A lid was put on to minimize evaporation loss, with one end slightly loose to permit air exchange. The box was placed on a north facing window ledge in an unheated room where direct sun never reached it. The light through the translucent sides and lid enabled the *Cladophora* to live. These conditions sufficed for the *L. senestra* to live, feed, grow and reproduce. By October 31st all fifteen were still alive and had grown to 4 mm or 4.5 mm length, and many spawn masses at all stages of development, and many juveniles under 1 mm long, were present.

figure 3: Bacon box on north facing window ledge.

The following images show some of the development and breeding observed.

figure 4: By late October, stock gathered in June had grown to 4mm or 4.5 mm with fully developed rhinophores.

figure 5: The bursa copulatrix (site of penis penetration) is sealed on *L. senestra*. Copulation is by hypodermic piercing of the site with a sharp style at the tip of the penis. When 'ready for service' the whitish penis with style and grey penial sac are everted like a sock turned inside out. Those not ready, or all passion spent, usually have just the white style tip showing below the right eye (on all adult specimens as sacoglossans are hermaphrodites).

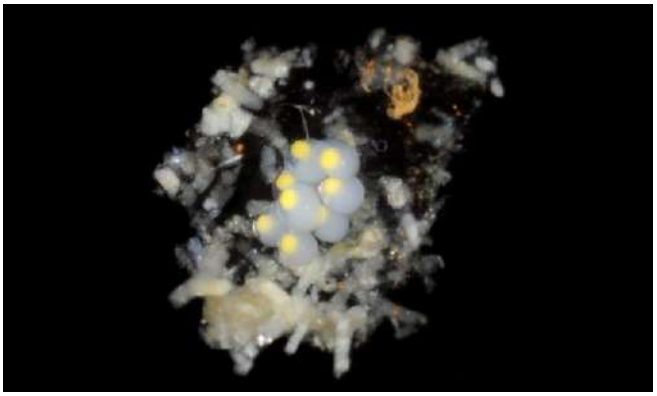

figure 6: Spawn masses at all stages of development were found on October 31st. This image shows a gelatinous spawn mass containing eight ova, each with a yellow embryo in white albumen. Diameter of ovum capsules 0.4 mm; unusually large size makes them easier to observe and photograph than the ova of other opisthobranchs.

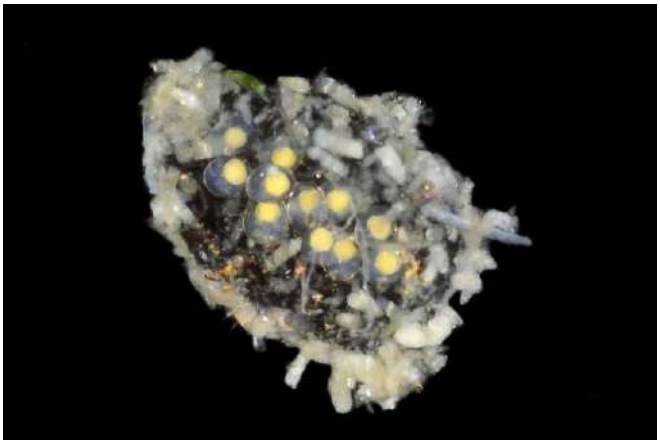

figure 7: Eleven ova in spawn mass. Thompson states that 40 ova per mass is the maximum; I found seven to thirteen. Yellow embryos further developed and larger than in figure 6. White albumen reduced as embryo develops.

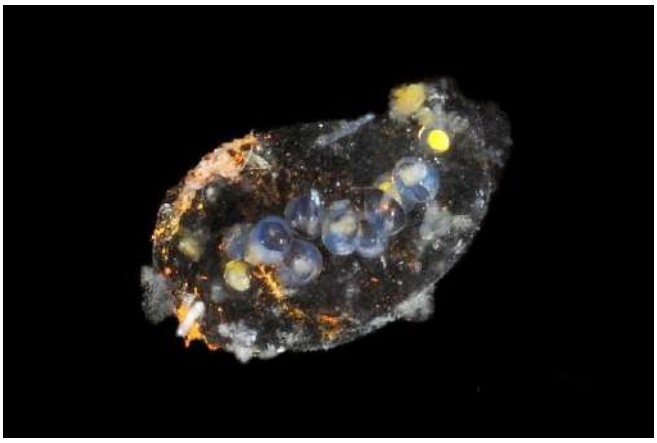

figure 8: *L. senestra* has no planktonic veliger stage; the yellow embryos turn into tiny black slugs, each curled within its individual capsule. Replicating the open–sea planktonic conditions for the veliger stage of most other opisthobranch species is very difficult in captivity.

figure 9: After hatching from their individual capsules, the young remain within the gelatinous spawn mass for a period.

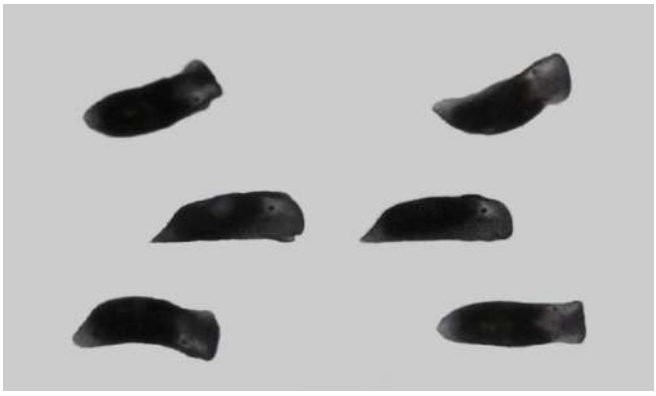

figure 10: When the young emerge from the spawn mass, they are about 0.7 mm long and have no sign of rhinophore or crest development other than a slight rib above the eye when viewed from certain angles. By early February the fifteen original specimens had increased to 110 measuring 2.5 mm to 4 mm long.

Comment; identification and recording.

The pool in figure 1 was visited because NBN Gateway had *Limapontia senestra* and *L. capitata* recorded at the grid reference in July 2001. I found several *L. senestra* but no *L. capitata* on visits and subsequent *Cladophora* searches in September 2012 and June 2013. However, I did find several *L. senestra* with undeveloped rhinophores or crests (all subsequently reared until rhinophores developed) that could easily be mistaken for *L. capitata.* The direct development, omitting a veliger stage, of *L. senestra* ova in secured spawn masses is well adapted to populations living in pools with only brief sporadic connection with the sea. *L. capitata*, with a planktonic veliger stage, is suited to life on middle and lower shore or sublittorally with more contact to open sea. Of course, *L. capitata* may occasionally be swept into and stranded in a high tidal pool, but I suspect that many *L. capitata* records from high pools are misidentified young *L. senestra* with undeveloped rhinophores.

The usual way cited for separating the three *Limapontia* spp. is:
Long, thin rhinophores: *L. senestra*.
Head crests: *L. capitata*.
No crests or rhinophores: *L. depressa.*
This is an over simplification that can lead to misidentification. As can be seen from above, *L. senestra* less than 4 mm long can fit any of these three categories. In fact, Quatrefages' original description mentions crests. (Gascoigne (1973) tried to have *L. senestra* (Quatrefages, 1844) removed from the British list as he had seen none with crests.) To further complicate the matter, *L. depressa* often has head ribs which can resemble *L. capitata* crests; this was described by Alder in Jeffreys, 1869 and clearly illustrated by Hancock in Eliot, 1910, but has largely been overlooked since. Other features such as habitat, body markings, length of metapodium and position of anus need to be considered, as well as rhinophores and head crests, when identifying *Limapontia* species. Detailed illustrated accounts of the three species can be seen in the Conchological Society online encyclopedia at http://www.conchsoc.org/groupbrowser/Marine%20slug

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Quatrefages, A. De. (1844). Sur les gastéropodes phlébentérés. *Annls Sci. nat.* (*Zool.*) 1: 3 (First description of *Acteonia senestra* page 142, first illustration of *A. senestra* figure iv on plate 3.)

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Acknowledgement
Help and advice from Dr Cynthia D. Trowbridge, University of Oregon, U.S.A. are gratefully acknowledged.

Molluscs in Scotland – Edinburgh meeting

Adrian Sumner

figure 1: The Royal Scottish Museum building, Edinburgh.

The 2013 regional meeting of the Conchological Society was held jointly with National Museums Scotland in Edinburgh, in their imposing main building in Chambers Street (figure 1). The meeting began with discussions over coffee and an opportunity to look at a wide variety of exhibits (figures 2 and 3). With everyone adequately refreshed, Mike Allen, the President of the Conchological Society, welcomed about 20 members and non–members, not only from Edinburgh and Glasgow, but from as far away as Aberdeen and Inverness to the north, and from Cumbria to the south.

figure 2: Coffee and exhibits at the start of the meeting.

figure 3: Shelagh Smith and Sankurie Pye discuss a point over some exhibits from the Museum.

The first talk was given by Adrian Sumner (Conchological Society) who described how several species of slugs and snails were increasing their ranges in Scotland. Evidence for this came from various sources, notably the Society's own non–marine census. Distribution maps for several species clearly show increases in range in recent years, especially for a conspicuous species like *Cornu aspersum* which could not easily be overlooked. The spread of alien species whose date of introduction was known, such as *Potamopyrgus antipodarum* and *Boettgerilla pallens* could also be followed. It was clear that slow–moving creatures such as slugs and snails were unlikely to spread at a noticeable rate without human assistance, and in fact they travel in much the same ways as people. To travel on land, they might attach themselves to motor vehicles, but are more likely to travel as part of their loads: transport of slugs and snails and their eggs in plant pots or attached to roots of plants, as they are moved around the country, is almost certainly an important mechanism. Alien species can be carried into the country by shipping, either with ballast water (e.g. *Potamopyrgus antipodarum*), or in cargoes of vegetable matter, including fruit and vegetables. In canals, freshwater snails can be washed along by the water, drift along on rafts of floating vegetation, or hitch a lift on a passing boat. Several reasons were put forward to explain why slugs and snails might be spreading: increased opportunities for translocation, finding unoccupied niches, changing agricultural practices, an increase in ruderal and brownfield sites, and an ability to compete successfully with native species. Evidence of the last is slight, though it should be noted that while *Limacus maculatus* is now widespread and abundant in many parts of Scotland, the very similar *Limacus flavus* has apparently not been recorded for several years.

The next speaker was Sankurie Pye (National Museums Scotland) who described the work being carried out at the Museum on hydrobiid snails (*Hydrobia acuta neglecta, Peringia ulvae, Ecrobia ventrosa* and *Potamopyrgus antipodarum)* from Scottish brackish water lagoons. Shell form is often used to differentiate between species but this is difficult at the best of times, and not reliable as it may be affected by environmental and parasitic factors. As a consequence, the accuracy of the published distribution is doubtful when the information is not backed up with retained specimens. Very few specimens of *Hydrobia acuta neglecta* may be found in museum collections in Britain either as shells or whole animals. DNA analysis of the Cytochrome Oxidase I mitochondrial gene region of specimens from the Outer Hebrides shows a good, though not perfect, correlation with the tentacle pigmentation patterns. In a reasonable sample size, tentacle pigmentation is a useful indicator of species identity.

The third speaker, Ross Poulter from Edinburgh Zoo (The Royal Zoological Society of Scotland) spoke about a family of snails that at first sight would not come under the heading of 'Molluscs in Scotland' – the Partulidae of Tahiti and adjacent islands in French Polynesia. They were first discovered by Captain Cook, though Darwin failed to see them when he visited in 1835. In 1967 the authorities introduced the Giant African Land Snail *Achatina fulica* as food, but this proved to be a disaster as it multiplied out of control. The introduction of the carnivorous snail *Euglandina rosea* 10 years later in an effort to control it had no effect on the *Achatina*, but instead *Euglandina* turned its attention to *Partula*. Several species of Partulidae have become extinct, others are reduced to very small numbers, and some now exist only in zoos and other facilities where they are being bred with the hope of returning them to the wild eventually. This is where the Scottish connection comes in, as Edinburgh Zoo is one of the sites where *Partula* species are being raised. We heard how one species was even saved when it had been reduced to single captive individual. Attempts have been made to reintroduce *Partula* spp. to supposedly *Euglandina*–proof enclosures, so far with mixed success. Bureaucracy is also a problem: the country that once introduced *Achatina* and *Euglandina* without a thought now wants to put returning *Partula* in quarantine for a year before releasing them into the wild, although there are no adequate quarantine facilities. One has to be an optimist to work with Partulidae!

figure 4: Mike Allen introduces Charles Everitt of the National Wildlife Crimes Unit.

The morning session was rounded off by Charles Everitt of the National Wildlife Crimes Unit, who spoke about Protecting the Freshwater Pearl Mussel (figure 4). This is a species that has been under threat for many years, both from illegal fishing for pearls, and from pollution. Scotland now holds about 60% of the world population, although it was once much more widespread. (Several new populations have apparently been discovered in Sweden, however.) Up until

the 1960s, freshwater pearl fishing was legal, though it was a very wasteful process with numerous mussels being killed just to find a few pearls. The mussels are also very susceptible to pollution, as they need very clean water without suspended sediment. Since the 1980s it has been an offence to catch pearl mussels to look for pearls, to sell pearls, or to disturb their habitat. Unfortunately, illegal pearl fishing still takes place. It would be impossible to have a police presence on all the pearl mussel rivers in Scotland, many of them in remote areas, but with the help of gamekeepers, water bailiffs and landowners, a much better watch is now being kept. A watch is also being kept for illegal sales of freshwater pearls, though this has been difficult, as there is no real means of identifying pearls from freshwater pearl mussels; DNA and isotope analysis could potentially be used, but would involve destruction of the pearl! The other aspect of protection for freshwater pearl mussels is protection of their habitat, and the legislation stipulates that before any work is carried out on rivers containing mussels, appropriate consultations must take place and permissions obtained. In spite of this, a serious pollution incident occurred recently which probably destroyed a population of the freshwater pearl mussel, but which resulted in large fines for those responsible. The battle for the freshwater pearl mussel is thus far from over, but at least the situation is becoming more hopeful than it has been for a long time.

After the lunch break, when there were further opportunities to look at the exhibits, take part in lively discussions, and get one's own specimens identified, the afternoon session opened with a public lecture, promoted by the Museum, for which we were joined by about 40 members of the public, making a capacity audience (Fig. 5). The lecture was given by Dan Harries of Heriot–Watt University (Fig. 6) on 'Scotland's Living Reefs'. Most of Dan's talk has already been covered in *Mollusc World* (issue 32, July 2013, pp. 15–17), although he did additionally refer to other sites of such reefs, as well as other organisms, such as fan worms and cold–water corals that can form such reefs. This was an excellent lecture which was enthusiastically received by the audience.

The next speaker was Graham Pierce of Aberdeen University, who spoke about modelling the habitat of the cephalopod *Eledone cirrhosa* in UK waters, and particularly how the data obtained might be used to identify the habitat of Risso's dolphins with a view to defining potential Marine Protection Areas. After describing cephalopod fisheries – 4.25 million tons worldwide in 2003, of which 60,000 tons were in the NE Atlantic – we were told about their short life–cycles and rapid growth, and some of their ecological requirements. There is an important fishery for *Eledone cirrhosa* in European waters, and it is also the main food of Risso's dolphin, forming nearly 90% of its diet. The distribution of *Eledone cirrhosa* depends on the slope of the seabed, depth of water, sediment and distance from the coast. However, unfortunately no clear correlation could be found between the distribution of Risso's dolphin and that of *Eledone cirrhosa*; we did, however, learn a good deal about the life of cephalopods.

The afternoon session concluded with an entertaining talk by Stewart Angus of Scottish Natural Heritage, who described his career encounters with molluscs. As with many of us, these started at an early age, in his case on a beach near Stornoway, Isle of Lewis, where there was an abundance of the Banded Wedge Shell, *Donax vittatus*. At school he did a project on pollution in Stornoway harbour, and at Aberdeen University did an honours project on marine shells. After being shipwrecked on his first outing, Stewart concentrated on molluscs on beaches instead! He became the Conchological rep for sea areas 30, 31 and 32 (West Minch, Lewis, and the Uists), and co–founded Porcupine with Shelagh Smith and Dave McKay. A period as a teacher on Lewis, followed by appointment to the Nature Conservancy Council (NCC) in 1978, brought him back to studies on *Donax vittatus*. In 1992, the Scottish part of the NCC became Scottish Natural Heritage (SNH), where Stewart became Area Manager for the Western Isles, and became involved with coastal ecology. This included studies of the machair, kelp beds, and lagoons. Some of the best brackish water lagoons are in the Uists, but they are vulnerable to rising sea levels, and although there are some typical lagoon indicator species, they can be difficult to identify (e.g. the Hydrobiidae). Abundance of these species, and also the lagoon cockle *Cerastoderma glaucum*, can vary enormously from one year to another. Could such biota be used to monitor increasing salinity as sea level rises? New lagoons may well form further inland, but will the biota be able to make the transition? We look forward to hearing more about this in the future.

Our thanks are due to National Museums Scotland for hosting the meeting, and especially to Sankurie Pye and Susan Chambers for all the hard work they put into organising the meeting.

figure 5: The audience assembles for Dan Harries' talk on "Scotland's living reefs.

figure 6: Dan Harries giving his talk.

Non–marine molluscs from Southwell Business Park, Portland, Dorset, including the nationally–rare British whorl snail *Truncatellina callicratis*

*Chris Gleed–Owen**

Introduction

This article presents a molluscan list (16 snail and one slug species) from topsoil/litter sampling of five locations at Southwell Business Park (SBP) on the Isle of Portland in Dorset. The list offers a useful contribution to the county's biological record, and includes a nationally–rare species. Much of the site is characterised by semi–improved grassland with scrub margins, on Purbeck Limestone bedrock, located close to sea–cliffs on the southwest edge of Portland. The site's semi–natural habitats are designated a Site of Nature Conservation Interest (SNCI) under the aegis of Dorset Wildlife Trust (DWT). Sampling of SNCI grassland and scrub edge was carried out during Phase 2 ecological surveys for a proposed academy school, the Isle of Portland Aldridge Community Academy (IPACA).

figure 1: Mollusc sampling locations (April 2012) and mass hibernation of *Cornu aspersum* (November 2011) at Southwell Business Park, Portland, Dorset.

(Image licences licensed from Getmapping plc)

Methodology

Five samples were taken on 11/04/2012 from the locations shown in figure 1. At each location, turf was cut from an area of approximately 25 x 25 cm. Roots, leaf litter and topsoil were scraped off using a trowel and knife, until a volume of 1 litre had been collected. Table 1 shows the habitat type at each of the sample locations, and the SNCI compartment where relevant.

Mass hibernation of *Cornu aspersum* (at least 500 individuals) was observed by lifting concrete slabs and other debris, on disturbed ground near the west edge of the site (see figure 2).

The samples were soaked, wet–sieved through a 0.5mm sieve, air dried at room temperature, and examined under a binocular microscope at x7–x40 magnification. All snail shells and slug plates were removed and identified using standard field guides (Cameron, 2008; Kerney & Cameron, 1979) and comparative material. Additional assistance and verification was provided by Adrian Norris, the non–marine recorder for the Conchological Society of Great Britain and Ireland.

Sample	Location	Habitat description
1	SY 67866 69769	Maritime grassland at western perimeter fence–line (SNCI comp2)
2	SY 67906 69771	Gravelly patch in semi–improved neutral grassland (SNCI comp2)
3	SY 67988 69792	Semi–improved grassland, bramble scrub edge (non–SNCI)
4	SY 68235 69899	Semi–improved grassland, southern perimeter fence (non–SNCI)
5	SY 68272 69941	Semi–improved calcareous grassland at fence–line (SNCI comp1c)
*C. asp**	SY 67890 69875	Concrete slabs and ruderals on disturbed ground (non–SNCI)

table 1: Habitat type at each mollusc sampling location.
**C. aspersum* mass hibernation site.

figure 2. One of several mass over–wintering sites of *Cornu aspersum* at Southwell Business Park, Portland (November 2011).

Results

The combined mollusc list from five sample residue contains at least 19 species, comprising 18 snails and 1 slug; table 2 on the following page lists them. The minimum number of individuals (MNI) is given for each species, based on the number of identifiable shells or plates.

Species	Common name	S1	S2	S3	S4	S5	Visual
Aegopinella nitidula	smooth glass snail	3					
Cecilioides acicula	blind snail					3	
Cepaea hortensis	white–lipped snail	2				1	
Cernuella virgata	striped snail	50		13	4	30	
Cornu aspersum	common garden snail						c.500*
Lauria cylindracea	common chrysalis snail	1		1			
Deroceras sp	a field slug	2					
Monacha cantiana	Kentish snail					1	
Oxychilus alliarius	garlic snail			1	1		
Oxychilus cellarius	cellar snail					1	
Punctum pygmaeum	dwarf snail	2				1	
Pupilla muscorum	moss chrysalis snail	1				3	
Trochulus hispidus	hairy snail	3	1				
Trochulus striolatus	strawberry snail	1					
Truncatellina callicratis	British whorl snail	24				1	
Vallonia costata	ribbed grass snail		4	4	1	30	
Vertigo pygmaea	common whorl snail				3		

table 2. Mollusc species identified from five root/topsoil/litter samples (1 litre, 25 x 25 cm area) at Southwell Business Park, Portland, Dorset, in April 2012. *Recorded visually in November 2011.

Discussion

Mollusca are an under–recorded group in Britain, and whilst Dorset is a relatively well–recorded county, its non–marine malacofauna is still somewhat neglected. Of particular note among the species recorded here is the very rare British whorl snail *Truncatellina callicratis.* Whilst not as rare as *Truncatellina cylindrica,* it still has a highly–restricted distribution.

T. callicratis is confined to calcareous grasslands and coastal rocky habitats in southern England (Kerney & Cameron, 1979). Kerney (1976) showed it as distributed along the southeast coast of Devon, parts of the Dorset coast, and the southern tip of the Isle of Wight. The NBN Gateway (www.searchnbn.net) reflects the same distribution today, with few modern records.

In Dorset, *T. callicratis* is known from a scattering of sites from southern Portland and the Purbeck coast, but it is severely under–recorded. The NBN Gateway, queried on 25/11/2012, showed 17 unique Dorset records: 11 from Portland (1963–2011), six from Purbeck (1862–1999). There have only been three Dorset records in the last ten years.

The data presented here therefore constitute a significant contribution to the biological record for *T. callicratis* in Dorset. The SBP site is currently subject to an academy school development, and the SNCI's *de facto* protection has safeguarded the grassland habitats used by *T. callicratis.*

Despite its rarity, *T. callicratis* receives no formal conservation action or legal protection. As it is common elsewhere in Europe, it receives no European protection either. It was deemed insufficiently threatened for inclusion on the UK Biodiversity Action Plan (UKBAP) priority species list (M. Willing, pers. comm.). Section 41 of the Natural Environment Research Council (NERC) Act 2006 has effectively replaced the UKBAP, with *T. callicratis* still omitted. Nevertheless, it remains one of Britain's rarest snails.

Much of the coastal calcareous grassland habitat that support *T. callicratis* in southern England is protected by SNCI or Site of Special Scientific Interest (SSSI) status, giving the invertebrate fauna *de facto* protection. However, it is likely that some *T. callicratis* populations are not on protected sites.

The identification of the *T. callicratis* was not altogether straightforward, as all the individuals had weak or absent dentition. Normally *T. callicratis* has three denticles deep within the mouth, but toothless populations are known (Cameron, 2008; Kerney & Cameron, 1979). The identifications were verified by Adrian Norris (Conch. Soc. non–marine recorder).

All of the snails were dead shells when identified, but the samples probably contained live individuals at the point of sampling. Most of the species in the list are very small and easily overlooked by field recorders. The *T. callicratis* in figure 3 are adults and subadults, barely 2 mm tall. The sample included juveniles too, and this is evidently a breeding population.

All of the other species recorded here are widespread in Dorset, and all are consistent with a coastal grassland site such as this. The species lists from samples 1 and 5 have strong similarities (see table 1), which reflects the dry, open grassland context. Sample 2 was depauperate owing to the lack of vegetation on this gravelly patch. Samples 3 and 4 are from the junction between grassland that is regularly mown and taller vegetation (scrub and tall herbs) that offers shading and damper conditions.

T. callicratis was only found in samples 1 and 5, from dry, unshaded, maritime and calcareous grassland. It was absent from the damp, shady locations, which is to be expected given the species' association with dry calcareous habitats (Kerney & Cameron, 1979).

figure 3:. *Truncatellina callicratis* from Southwell Business Park, Portland (sampled April 2012).

Recommendations for future surveys

Further survey work on suitable coastal calcareous grassland locations in Dorset, Devon and the Isle of Wight would be valuable in determining the true distribution and conservation status of *T. callicratis* in the UK. It has hitherto been assumed that *T. callicratis* is not threatened despite being rare, as its coastal habitats are reasonably secure (M. Willing, pers. comm.). It would be better if we could back this up with better survey data, so I intend to do more survey targeting *T. callicratis* in the future.

Details of a related Conchological Society field meeting on 31st May this year are to be found on the back cover of this issue.

Acknowledgements

Thanks to Adrian Norris for kindly reviewing the molluscan material I collected from SBP, and in some cases correcting my identifications. I am indebted to the late Professor David Henry Keen for the molluscan identification knowledge he imparted to me in the 1990s while working on subfossil Thames terrace assemblages.

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We will explore the shore of Aberavon sands (figure 1), Port Talbot, the east end of Swansea Bay that is rich in seashells including *Pharus legumen* (figure 2) and *Acteon tornatilis* as local specialities. Another visit will be made to a rocky shore near Porthcawl for a range of seashore life from seaweeds to animal life colonising the rocks and consider their way of life and adaptations to the inter–tidal environment. The new centre provides en suite rooms and ample single accommodation: visit their website for a virtual tour www. field–studies–council.org/mp

figure 1: Aberavon Beach looking to Swansea Bay.

figure 2: *Pharus legumen* at Aberavon Beach.

(photos: June Chatfield)

The way we were – 1897 style

Brian Goodwin

Mollusc World frequently carries reports of Conchological Society (CSGBI) field trips but conchological outings in the late nineteenth century were somewhat different to those of today, as the archive photograph below (figure 1) clearly shows!

figure 1: The Snail Hunters – Murlough Bay, County Antrim, May 1897. Left to right: Chaster, Hardy (back), Adams, Welch; front – Standen.

Most noticeable perhaps is the interesting range of 'headgear', but ties, jackets and waistcoats also seem to be 'de rigueur'. Unlike now, women members of such societies were regrettably few and far between. The photograph (from the J. Wilfrid Jackson Archive at Buxton Museum & Art Gallery) is of an august group from the Manchester Branch of CSGBI on an excursion to Northern Ireland and was taken at Murlough Bay, County Antrim in May 1897. Fortunately, for posterity, we have a detailed account of various aspects of the trip in the 1897 volume of the *Irish Naturalist* (**6**: 173–188), including not only lists of Mollusca encountered, but also of beetles, together with geological descriptions and some informal records of birds, mammals and plants. However, in another part of the Jackson Archive, I came across what is probably an unpublished account of the trip in verse, apparently by the 'local lad' Robert Welch who was also a member of the group. Welch was not only a keen conchologist, but also an expert and highly regarded photographer, and a humourist to boot who clearly enjoyed a bit of 'craic' in the local parlance.

Colleagues who are interested in the history of the CSGBI may appreciate a few biographical details about each of the participants, but first I give a transcript of Welch's delightful comic verse version of events (and celebrating Queen Victoria's Diamond Jubilee):

The Jubilee Trip of Naturalists to Ballycastle
By one of the Trippers

Four Conchologists determined to cross the Irish Sea,
So they went on board a steamer, after sundry drinks of "tea";
They didn't talk of solemn things, of Gladstone, or Home Rule,
But behaved themselves like little boys, who'd just got out of school.

There was STANDEN, the curator, of Owens College fame,
Who wrote a famous paper, to which he signed his name –
'Twas all about the "Antrim Arms", & a pretty Irish girl,
Who gave him so much whiskey, that his hair began to curl!

There was also "The Great" HARDY, who far abroad had been,
He talked of things he'd never done, & what he'd never seen;
He broke an Irish poker on his mighty brawny arm,
For Irish whiskey acts on Influenza like a charm!

Then there was CHASTER, the sedate, who took them all to Church,
One Sunday morn at Cushendun, then left them in the lurch –
For it was late when they arrived, they could not enter then,
So he stood them "cups of tea" all round, in an Irish "boozing Ken"!

There was ADAMS, the teetotaler, who prayed aloud for rain,
And went about collecting slugs, & not at all in vain;
He gathered many "Pellets" too, which were quite misunderstood,
By scoffers who would have it – "Muck wasn't any good"!

R. WELCH, the great Photographer, came also from Belfast,
And took a splendid picture (by which his fame shall last),
Of himself, and all the others, as they squatted on a stone,
Which penetrated Chaster's "bays", beside his Ischium bone!

And last, not least, came WILLIE WELCH, who for fear lest they should weep,
Told many funny "moral tales", which made their spirits leap,
And sang them songs, in wagonettes, & cars, & railway trains,
To learn them all, they all agreed, he must have taken pains.

They invaded Rathlin Island, where an Irish bull they found,
Who bellowed loud upon the hill, & stamped upon the ground,
And charged the "Bloody Saxons", as they landed on the shore,
Till they persuaded him – with rocks – to trouble them no more!

Now about this Isle of Rathlin is a very curious fact –
There are <u>ninety</u> British Beetles on it (<u>ninety-one</u> to be exact),
And every one's the "commonest", in the bally British land –
At least so J. Ray Hardy gave us all to understand.

One day they sat upon the sands, & there they spied a flag,
"Look there!" said one, "what's that?" – "I mean that bally rag!"
"Why let me see, the twenty-fourth – the twenty-fourth-of May!"
"Come boys! We'll drink a blessed toast, upon this blessed day!"

So up from off the sands they got, as if a swarm of ants,
Had injected formic acid, just underneath their pants!
With patriotic zeal they sped, to toast our blessed Queen,
And soon an elevated glass in every hand was seen –

THE TOAST –
"Her Majestay! (gurgle!)
"The Twenty-fourth-of May! (gurgle!)
"Hoo-bally-ray! (gurgle!) (gurgle!)
"Hoo-ju-bally-ray!! (gurgle!) (gurgle!)

Then they quitted Ballycastle, in the bally Irish Mail,
Which goes a bally mile an hour, like a bally Irish snail!
And when they got to Ballymoney, they had a bally drink,
But they reached Belfast quite sober, whatever you may think.

Then the parting, sorrow-laden, came, as partings must,
But we'll all meet again, in the future, let us trust,
When slugs & snails come out to dine, & the rain has laid the dust,
Yes! We'll meet again, Boys, somewhere, we will, by Gad, or bust!

Whatever the 'conchological' outcome, the trip seems to have been a convivial one with a goodly amount of whiskey consumed – at least by Standen, Hardy & Welch, if not the 'sedate' Chaster or the 'teetotaler' Adams. Some of the events (such as the encounter with the bull) are confirmed by the *Irish Naturalist* report; others, such as the encounters with whiskey, will have to remain as 'uncorroborated'!! Quite whom the 'Willie Welch' referred to was, I have been unable to determine, except that he came with Robert Welch from Belfast. Since he is not referred to in the scientific report, it may be that his role (as intimated in the verse) was to provide 'entertainment'.

All the other participants were well-known CSGBI members and active in the conchological circles of the day:

Robert Standen (1854–1925), born near Preston, was a conchologist and Assistant Keeper at Manchester Museum (formerly Owen's College) who served as Secretary of the Manchester Branch of CSGBI from 1888 until the HQ moved from Leeds to Manchester in 1895. He acted as the CSGBI Curator from 1894 until his death in 1925, and also had terms as President in 1916 and Secretary in 1923 (when his son-in-law J. Wilfrid Jackson had a 'sabbatical' from the Secretaryship to do a year as President). Standen was a frequent collaborator with James Cosmo Melvill and together they described many new species of tropical marine shells. A detailed and heartfelt obituary by Jackson appears in *Journal of Conchology* **17**: 225–235, and includes the plate shown as figure 2.

figure 2: Robert Standen – portrait from his obituary in the *Journal of Conchology* (1925)

John Ray Hardy (1844-1921), the only one of the merry band not to serve as President of CSGBI, was, like all of the others, a man of broad interests. In addition to molluscs, he was knowledgeable about plants, but primarily known as an entomologist, and an expert on beetles and Lepidoptera (see figure 3). He was employed, like Standen, as an assistant keeper at Owens College, Manchester, progressing, in January 1908, to become Curator of Entomology. He held this post until his retirement in 1918. When Hardy died, Standen and Harry Britten (who took over as assistant keeper of Entomology at Manchester Museum) disposed of his collections of molluscs and insects, together with cabinets, and realised £114-7-0 for his widow.

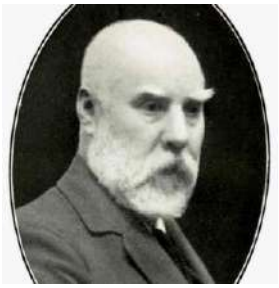

figure 3: J. Ray Hardy – assistant keeper of Entomology, Owens College, Manchester University.

Dr George William Chaster (1863–1910) was born in Wigan but the family soon moved to Southport. He undertook medical training at Liverpool University and after working in that city moved to Southport Infirmary in 1896. As well as his conchological activities, he was also a coleopterist, with a large collection, and a broad interest in natural history. He published many papers and short notes in the *Journal of Conchology*, and several papers in the *Irish Naturalist* for he was a regular visitor and spent most of his holidays there. He died at the early age of 47 and an obituary appeared in *Journal of Conchology* **13**: 72–74. Conchologically, he was interested in the smaller marine species and did a lot of dredging. His collection of 2,890 lots of northeast Atlantic and Mediterranean marine shells, is located at the National Museum of Wales in Cardiff.

Lionel Ernest Adams (1854−1945), originally from London, was an all-round naturalist who published on a wide range of subjects including birds of prey and small mammals (moles, shrews) as well as molluscs. The 'pellets' mentioned in verse were, of course, owl pellets, 225 of which were dissected for prey remains. His book titled *The collector's manual of British land and freshwater shells*, with the wonderful sub-heading *'Containing figures and descriptions of every species, an account of their habits and localities, hints on preserving and arranging etc. the names and descriptions of all the varieties, and synoptical tables showing the differences of species hard to identify'*, was first published in 1884 (see figure 4) just before he first joined CSGBI, and he also authored *Mollusca of Northamptonshire* (1896). He served the CSGBI as Treasurer from 1890−1898, as President in 1899, and then as Non-Marine Recorder from 1900 to 1904. He lived to the age of 90, and a brief, and frankly inadequate, obituary appeared in *Journal of Conchology* **22**: 204.

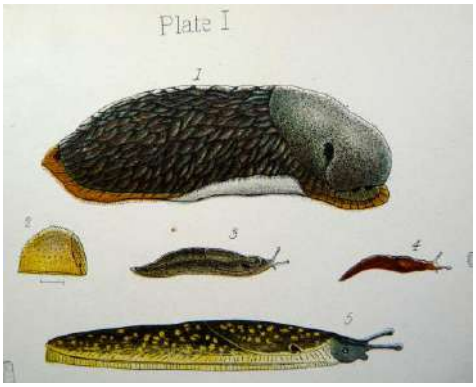

figure 4: Part of Plate 1 from Lionel E. Adams' '*The collector's manual of British land and freshwater shells*', showing (1−5) *Arion ater, Arion minimus, Arion hortensis, Agriolimax laevis* and *Geomalacus maculosus*.

figure 5: Blue plaque erected at Robert Welch's birthplace in Strabane, County Tyrone.

Robert John Welch (1859−1936) was appointed official photographer for Harland & Wolff in the mid 1890s and among his subjects was the construction of R.M.S. Titanic. Welch sailed on the Titanic in April 1912, but fortunately only the trial run. There is a permanent exhibition of his photographic work in Ulster Museum and it also features in the book *Ireland's Eye* (Evans *et al.* 1977). Figure 5 shows a blue plaque erected at his birthplace in Strabane. He served as President of CSGBI in 1923 and in the same year was conferred a M.Sc. by Queen's University, Belfast for his contribution to Irish natural history. An obituary was penned by J. Wilfrid Jackson and appeared in *Journal of Conchology* **20**: 329−332. His status in Irish natural history circles is reflected in the fact that he was also the subject of a memorial issue of the *Irish Naturalists' Journal* (Praeger, R.L., *et al.*) − see figure 6.

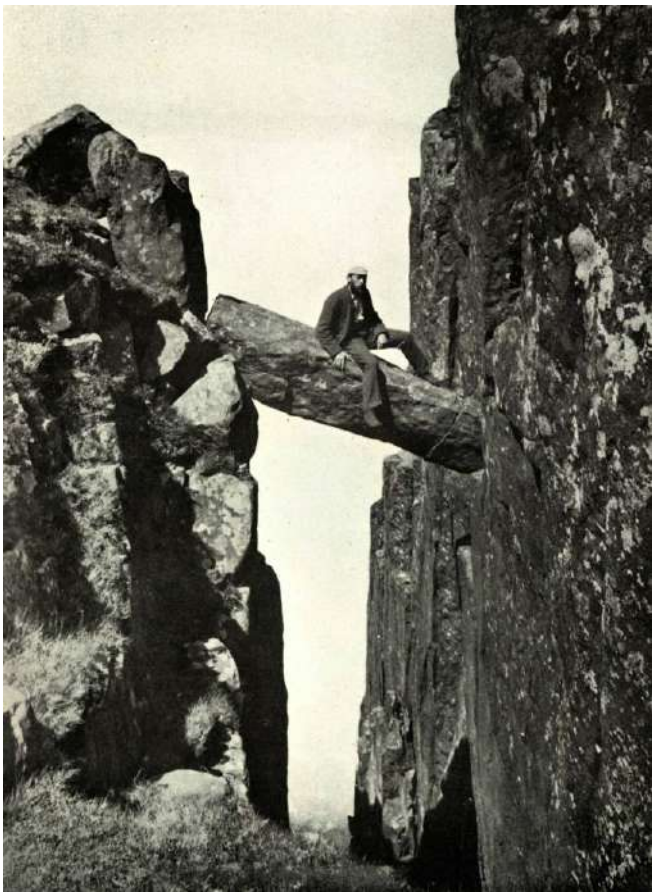
figure 6: 'Self portrait' of Welch at Fair Head, County Antrim, from the *Irish Naturalists' Journal* memorial edition.

Quite how conchologists of the future will look back on the members of 2014 field trips will, I hope, be a subject for a future *Mollusc World* article. Another 117 years would take us to 2130, by which time (at the current rate of issue) we should be on, or about, issue 384!

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Acknowledgement

Much of the information in this article is based on material from the J. Wilfrid Jackson archive at Buxton Museum and Art Gallery and I am grateful to Ros Woodhead for permission to use these sources.

Tortoise and Roman Snail 25 years on

June Chatfield

On the back cover of *Mollusc World* **28**, March 2012, we featured a photograph of a Roman snail (*Helix pomatia*) that was about the same size as two hatchling spur-thighed tortoises (*Testudo graeca*). A visit to Juniper Hall Field Centre on the North Downs of Surrey to meet up with Conchological Society member Simon Terry, who is making a special study of Roman snails in that area and who has a particular fondness for tortoises too, brought the opportunity of a photo-update as I took one of those two former hatchlings, Micro, to Juniper Hall on 3rd May 2012. Here is Micro just two months short of his 25th hatchday (tortoises come out of eggs) photographed with a different Roman snail found in the grounds of Juniper Hall that day (figure 1). Micro the tortoise, photographed in 1987 and 2012 could well live on for another 50 years but the original snail with which he was photographed earlier would not be alive now, even though *H. pomatia* is our longest-living land snail. 'All of a size' 25 years on no longer applies. The Roman snail shell in May 2012 (adult) measured 3.9 cm in height, 3.1 cm diameter and the weight was 26.6 g; Micro the tortoise has grown to shell length of 16 cm weighing in at 1420 g, and although now sexually mature, he will continue to grow for at least 15 years and increase in weight.


figure 1: Adult Roman snail from Juniper Hall now dwarfed by a well-grown tortoise, Micro.

Pot luck on the Yorkshire coast!

Paula Lightfoot

As a Seasearch diver, I appreciate the biodiversity value of 'artificial reefs' and enjoy spending time observing and recording marine life on shipwrecks, pier legs, coastal defences and even pipelines. However, while looking for shells on the strandline of a Yorkshire beach last October, a chance discovery made my trip to the shore much more fruitful than I could have imagined. As I walked along Reighton Sands in the long sandy bay between Filey and Flamborough, a dark shape in the surf of the ebbing tide caught my eye. It turned out to be a washed up lobster pot, covered in a turf of hydroids, bryozoans, sponges and anemones (figure 1).

figure 1: Washed up lobster pot on Reighton Sands, Yorkshire.

Having rejected the tempting idea of bringing the whole lobster pot home for closer study (they are heavier than they look!), I spent over an hour on the beach examining and photographing the attached and mobile species on the pot, before removing clumps of faunal turf to see what hidden species it would reveal.

The abundance and diversity of hydroids and bryozoans on the pot led me to hope I would find some nudibranchs, and I was not disappointed. Examining the faunal turf under a microscope revealed specimens of *Coryphella lineata* (figure 2), *Coryphella browni*, *Palio dubia* (figure 3), *Flabellina pedata*, *Onchidoris muricata* and a *Doto* sp. They were all tiny juveniles between 2 mm and 7 mm long – I wouldn't stand a chance of spotting creatures this small on a dive! I also found a coil of nudibranch spawn on the stem of the hydroid *Tubularia indivisa*, which is the preferred food of *C. lineata* and *C. browni*.

Although I have occasionally found *Palio nothus* on intertidal rocky shores in Yorkshire, *Palio dubia* was a new species for me. It is a sublittoral species found below 10 m depth, which feeds on the bryozoan *Eucratea loricata* (Picton & Morrow, 2010), and sure enough, there were several clumps of *Eucratea loricata* amongst the faunal turf I had collected from the pot. Finding *Palio dubia* on *Eucratea loricat*a attached to fishing gear has a long history, as Alder and Hancock wrote in 1848:

> *'This is one of the commonest Nudibranchs from deep water on the Northumberland coast…almost exclusively found on* Gemellaria loriculata [Eucratea loricata]. *This zoophyte is brought in abundantly by the fishermen at Cullercoats adhering to their lines, and by examining it carefully, individuals of* Polycera lessoni [Palio dubia] *may frequently be found lying like small drops of green jelly among the flaccid branches.'*

The pot was also home to several species of bivalve, including juvenile king and queen scallops, *Pecten maximus* and *Aequipecten opercularis*. While still on the beach I spotted and photographed a brightly coloured 14 mm queen scallop attached by byssus to the pot (figure 4), but closer investigation of the faunal turf revealed many more specimens of just 1 mm – 2 mm diameter.

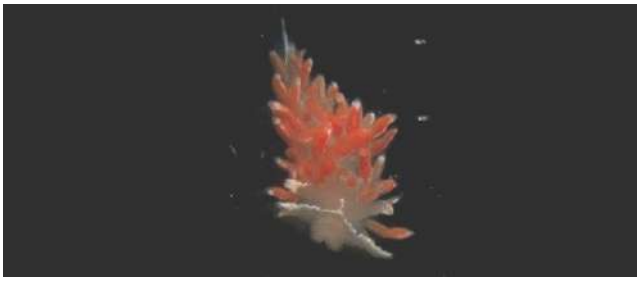

figure 2: Juvenile *Coryphella lineata*, one of several specimens of this species found on the pot.

figure 3: Juvenile *Palio dubia*.

figure 4: Queen scallop, *Aequipecten opercularis*, attached to the lobster pot.

The horse mussel, *Modiolus modiolus*, was particularly abundant on the pot, with individuals ranging from 2 mm to 15 mm in length, the larger specimens attached to the pot itself and the smaller specimens attached to bryozoans and hydroids. Other abundant bivalves included *Hiatella arctica* and *Musculus subpictus* (figure 7, page 29). While diving, all I usually see of bivalves is a pair of mysterious siphons poking out of the sediment or rock, so it was fascinating to be able to observe these living creatures in more detail under the microscope.

I found many saddle oysters adorning the branches of bryozoans and hydroids (figure 5). The morphology of their shells differed greatly, with some bearing fluted spines while others were completely smooth (figure 6). Unfortunately, I was unable to identify them to species level as they were so small that I couldn't discern any muscle scars under the microscope.

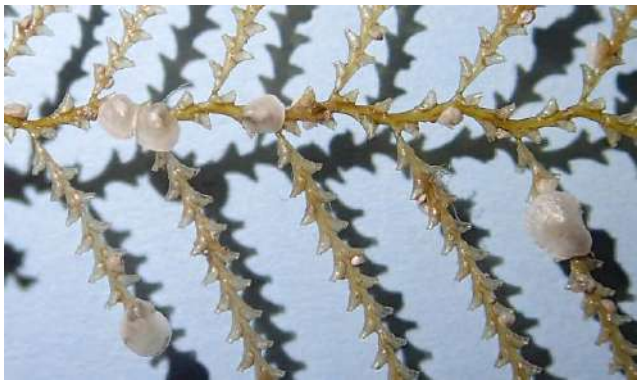

figure 5: Saddle oysters attached to the hydroid *Abietinaria abietina*.

figure 6: Different morphology of saddle oyster shells found on the lobster pot.

Marine snails were also present amongst the lobster pot fauna, notably *Rissoa parva*, *Onoba semicostata* and numerous juvenile *Nassarius incrassatus*.

I posted photographs of my finds on the British Marine Mollusca Facebook group, where some of my identifications were confirmed and others corrected by several very helpful members of the Conchological Society. It also prompted an interesting discussion about the importance of structural complexity of the seabed to bivalve mollusc settlement, as illustrated by the quantity of bivalve spat found on the lobster pot, including commercially important scallops and ecologically important horse mussels.

Seabed structural complexity may be provided by geological features, man–made features or biogenic reefs such as those created by *Modiolus modiolus* or *Sabellaria spinulosa*. Structurally complex areas comprise a tiny proportion of the seabed around the UK and Ireland, which consists mainly of vast plains of subtidal sediment. These crucial areas are vulnerable to human impacts including the use of mobile fishing gear, coastal construction and disposal of dredged materials (UKMMAS 2010). Measures to protect structurally complex areas from damaging impacts, for example through the UK's emerging network of Marine Protected Areas, or to introduce structural complexity to man–made features such as coastal defences (Firth *et al*, 2013) can bring many benefits for the conservation of marine biodiversity and ecosystem services.

The lobster pot had recently been in active use, it was intact and freshly baited. The growth–check lines on the perennial bryozoan *Flustra foliacea* indicated that some of the sessile fauna had been growing on the pot for at least four years (Stebbing, 1971). I realised that although I often see lobster pots encrusted with marine life while I am diving, I had no idea how long a lobster pot spends in the water, so I decided to find out. I learned that groups of 7–10 lobster pots are roped together in a line called a fleet. The time the pot spends in the water is called the 'soak time' and it varies depending on the weather, the number of fleets the boat has and the catch returns – in good fishing conditions, the pots may be hauled every 1–2 days, but they are sometimes left for several days. A mechanical hauler pulls up the fleet one pot at a time, the pot is then cleared of catch and re–baited. Once the whole fleet has been hauled, it is returned to the water, either in the same area or moved to a deeper or shallower area, but generally speaking each crew has their own patch. This helped me understand how the pot could support long–lived faunal turf, which in turn provides habitat for a wide variety of species. In total, I recorded 45 species from ten different phyla on the pot.

I was unsure whether I should share these records, as I didn't know the exact location of the lobster pot when it accrued all these species, and records of sublittoral species associated with a grid reference on a sandy beach would look odd! The Conchological Society's Marine Recorder, Simon Taylor, advised me to record the species where I found them with a note that the habitat was a washed up lobster pot. I have now entered all the records and accompanying photos into the online recording system iRecord (www.brc.ac.uk/iRecord). The mollusc records have already been verified by Simon Taylor and will be made available in the Conchological Society's dataset on the NBN Gateway in due course.

Interestingly, although I recorded several species of crustacean amongst the faunal turf, including squat lobsters, porcelain crabs, hermit crabs and spider crabs, one species I did not find in the pot was *Homarus gammarus*…the common lobster!

If you would like to visit Yorkshire to record marine, terrestrial and freshwater molluscs, please join the Conchological Society's field trip on the 8th to the 13th September 2014 – for details see back cover and p. 31

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Acknowledgements

Jan Light, Bernard Picton, Ian Smith, and Simon Taylor for assistance with species identification and for suggesting this article.

Kat Sanders, Yorkshire Wildlife Trust's Fisheries and Research Officer, for information about lobster fishing practices in Yorkshire.

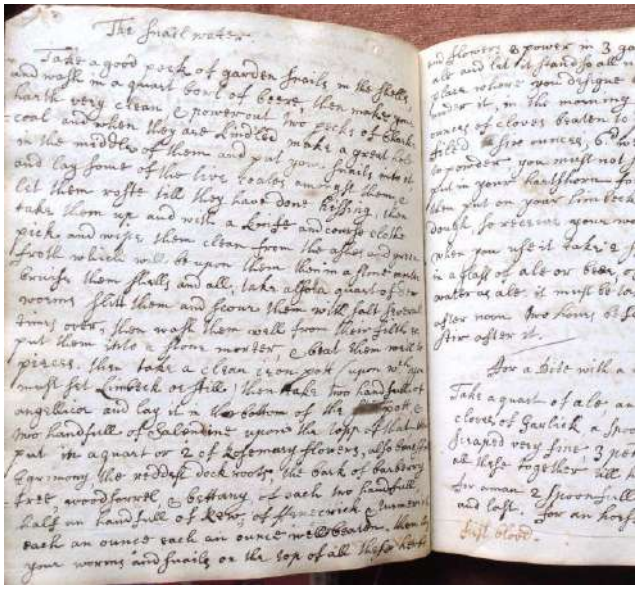
Figure 7: A juvenile *Musculus subpictus* from lobster pot (length c.4 mm). (see page 27)

Snail Water − a 17th century recipe

Rosemary Payne

This is a medicinal recipe from a 17th century manuscript book of recipes, most of which are cookery and many still usable. This book does not say what snail water is for, but it is very similar to other snail water recipes of the 17th and 18th centuries used for a variety of ailments from skin diseases to syphilis. Home use is NOT recommended!

I have left the spelling and punctuation as it is – if in doubt just say it aloud, preferably with a Leicestershire accent. A limbeck (or allembic) is a distilling vessel. I imagine 'dew worms' are collected early in the morning.



The Snail Water

Take a good peck of garden snails in the shells, and wash in a quart bowl of beere, then make your harth very clean, & power out two pecks of Charkcoal and when they are kindled make a great hole in the middle of them and put your snails into it, let them roste til they have done hissing, then take them up and with a knife and course clothe pick and wipe them clean from the ashes and green froth which will be upon them: then in a stone morter bruise them shells and all, take also a quart of dew worms slitt them and scour them with salt several times over, then wash them well from their filth & put them into a stone morter, & beat them well to pieces. Then take a clean iron pott (upon which you must set Limbeck or still) then take two handfulls of angellicor and lay it in the bottom of the pott, & two handfull of Salendine upon the topp of that, then put in a quart or 2of Rosemary flowers, also bearsfoot, Egrimony, the reddest dock roots, the bark of barberry tree, woodsorrel, & bettany, of each two handfull, half an handfull of Rew, of Fenecrick & turmerick each an ounce each an ounce [sic] well beaton, then lay your worms and snails on the top of all these herbs and flowers & power in 3 gallons of the strongest ale and let it stand so all night or longer in the place where you designe to make your fire under it, in the morning you must put in 3 ounces of cloves beaten to powder, of hartshorn filed five ounces, 6d weight of saffron dryed to powder you must not stir it after you have put in your hartshorn for it must be uppermost then put on your limbeck, and close it with rye dough, so receive your water in pints

When you use it take 2 spoonfull of the strongest in a glass of ale or bear, of the smallest as much water as ale. It must be taken in the morning or after noon two hours before you eat & walk or stir after it.

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.

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How to become a member

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

Ordinary membership £33; Family/Joint membership £35; Student membership £15;
Under 18 (receiving Mollusc World only) £5; Institutional subscriptions £47.
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 Carolyn Postgate at CIRCA Subscriptions (contact details above). 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 (contact details above). If sending 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. Images and Artwork may be digitised, but we recommend that a digital image size 200Kb- 1.5Mb (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 general copy deadline for the July 2014 issue is 6th June 2014; inclusion in that issue is dependant upon space available but contributions are always welcome at any time.

Advertisements in Mollusc World

We are pleased to invite advertisements, provided they are in line with the Conchological Society's charitable objectives and responsibilities. Advertisements of shells for sale from commercial shell dealers will generally not be accepted. Please contact the Hon. Editor of Mollusc World for further details.

It's a Cracker!

Corny mollusc jokes occasionally turn up in Christmas crackers. The top three were sent in by John Llewellyn Jones; the fourth one was found by the Editor!

How does an octopus go to war?
Answer: Well armed.

What do you get if you cross a cowboy with an octopus?
Answer: Billy the squid!

What has eight arms and tells the time?
Answer: A clocktopus.

How do snails keep their shells shiny?
Answer: They use snail varnish.

ADVERTISEMENT

BOOK FOR SALE

The Compendium of Land Shells by R Tucker Abbott - VGC small tear on top of back dust cover. £140.
Email Jackie Pedley at catmadjax@blueyonder.co.uk

British Shell Collectors' Club

Saturday 26th April 2014
Note: NOT 27th (an error in MW 33)
Shell Convention

Is for beginners to experts and is an opportunity to meet others interested in shells and to seek advice from experienced collectors.
Includes members exhibits, dealers tables, exchange tables, Identification clinics and a grand auction of shells and shell related material for Club funds.

Saturday 25th October 2014
Shell Show

Another opportunity to meet other members and to seek advice from experienced collectors. Members are encouraged to create display tables for the prize competitions for categories such as One Species, British Marine, Caribbean or in specialities such as shell art or shell postage stamps. Displays can feature marine, land and freshwater species. Five major prizes are awarded.

Both events are held at Theydon Bois Community Centre, Coppice Row, Theydon Bois, CM16 7ER and are open from 9am to 5pm, admission free.

For further information about the club and other events see: www.britishshellclub.org.uk/

Conchological Society **Diary of Meetings (continued from back cover)**

Monday 8th to Saturday 13th September 2014: FIELD MEETING (marine and non-marine), Yorkshire.
(joint with Yorkshire Naturalists' Union and Seasearch)
A week of intertidal recording on a range of rocky and sediment shores along the Yorkshire coast, based in Scarborough where laboratory facilities will be available at the University of Hull's Scarborough campus. If sea conditions permit, there will be diving and dredging to provide further specimens for everyone to study. (LT 10:20 +0.7 (8th); lowest 11:50 +0.4 (10th); 14:00 + 1.1 (13th)) .
Visits to terrestrial and freshwater sites will also be arranged. Organisers: David Lindley, Adrian Norris and Paula Lightfoot.
Enquiries to Paula Lightfoot (01904 449675, p.lightfoot@btinternet.com) .

Saturday 18th October 2014: FIELD MEETING (non-marine): Wyre Forest, Worcester / Shropshire (joint with Wyre Forest Study Group).
Organisers: Rosemary Winnall (01299 266 489, 07732 203 393, rosemary@wyreforest.net) and John Bingham.
Slugs, fungi and harvestmen.
Meet at 10:30 at Uncllys Farm, SO 760 753 (postcode. DY12 2LR).

Please note the following dates in later 2014 for your diary:

Saturday 11th October 2014: INDOOR MEETING (and Council meeting).
Saturday 8th November 2014: REGIONAL MEETING.
Saturday 29th November 2014: WORKSHOP (Woking).
Saturday 6th December 2014: INDOOR MEETING (and Council meeting).

Indoor meetings at the Natural History Museum take place in the Angela Marmont Centre for UK Biodiversity, Darwin Building. From the main entrance hall, turn left at the tail of the *Diplodocus*, go past the dinosaur exhibition, then down the stairs, and then turn left. The door of the Centre will be locked; please ring the bell and someone will come to open it. ***Please bring plenty of exhibits and demonstration material.*** If you intend to attend a **field meeting,** please remember to inform the leader beforehand, and if, on the day, you are held up in traffic or your public transport is delayed, please try to contact the meeting leader if possible.

We are always happy to receive any suggestions for speakers for indoor meetings, or offers to lead field meetings, and also any suggestions about Society participation in the meetings of local and other societies. Programme Secretary: *Bas Payne, The Mill House, Clifford Bridge, Drewsteignton, Exeter EX6 6QE; 01647 24515,* programme@conchsoc.org

Conchological Society of Great Britain and Ireland
Diary of Meetings

Please check the website (www.conchsoc.org) for further details and any updates, including other meetings arranged at shorted notice.

Saturday 5th April 2014:
ANNUAL GENERAL MEETING AND PRESIDENTIAL ADDRESS
Speaker: The President, Dr Mike Allen
Snails help paint pictures of the Stonehenge landscape and land-use.
14:00 – 17:30: Angela Marmont Centre, Natural History Museum.
The lecture will start shortly after 14:00. (Council members please note that there will be a Council meeting before this meeting.)

Saturday 26th April 2014: CONFERENCE: Molluscs in archaeology (see MW Nov 2013: 30) (joint with the Association for Environmental Archaeology).

Saturday 31st May 2014: FIELD MEETING (non-marine and marine): Purbeck Coast, Dorset.
Organisers: Chris Gleed-Owen (07846 137 346, chris@cgoecology.com).
Cliff-top grass, scrub and woodland in Durlston Country Park (known area for *Truncatellina callicratis*); rock shore at Kimmeridge Ledges in later afternoon (LT 18:00, +1.3).
Meet at 10:30 at DCP car park SZ 032 773, or at 15:30 at Kimmeridge Bay car park, SY 909 791.

Saturday 14th June 2014: FIELD MEETING (marine (and non-marine)): Bournemouth, Dorset.
Organiser: June Chatfield (01420 82214 – home, no e-mail).
Marine molluscs on sandy shore (known site for *Aporrhais pes-pelecani*) with pier piles and groynes (LT 17:20, +1.0); also land molluscs.
Meet at 13:30 at car park off Manor Road, Boscombe, SZ 107 912.

Monday 16th June 2014: FIELD MEETING (marine): Lindisfarne, Northumberland.
Organiser: Rosemary Hill (0118 966 5160, rosemaryhi@lineone.net); please contact by 13th June if you intend to come.
Search for *Tornus unisulcatus* on site where it has been found in shell sand by the late Ted Phorson. (LT 11:40 +0.1).
Meet at 10:00 sharp at car park near Chare Ends NU 125 424.

Saturday 28th June 2014: FIELD MEETING (non-marine): Avebury, Wiltshire.
Organiser: Mike Allen ((07828 103454, aea.escargots@gmail.com).
Snail transects across the bank and ditch, and a guided archaeological tour of the Neolithic stone circle.
Meet at 10:30am at central car park (opposite post office), but please park at the National Trust car park on outskirts of the village, SU 099 696.

Saturday 12th July 2014: FIELD MEETING (non-marine): Moss Valley, Sheffield, West Yorkshire (joint with Sorby NHS).
Contribution to the Sheffield Bioblitz.
Meet around 10:30; exact time and place to be confirmed.

Sunday 13th July 2014: FIELD MEETING (marine): Chimney Rocks, Penzance, Cornwall.
Organiser: David Fenwick (01736 448 392, davidfenwicksnr@googlemail.com).
Rocky shore with good small gastropods, piddocks and *Doris ocelligera* (LT 12:20 +0.5).
Meet 10:30 at top of slipway on W side of Jubilee Pool, SW 475 299.
Monday 14th July 2014: FIELD MEETING (marine): Hannafore Point, Cornwall.
Organiser: Bas Payne (01647 24515, bas.payne@gmail.com)
Rocky shore; also patches of sand with small bivalves,including *Spisula elliptica*, *Gari* and *Moerella* (LT 13:30 +0.4).
Meet 11:00 on Marine Drive at the kiosk at Hannafore Point, SX 255 523.

Saturday 19th July: FIELD MEETING (non-marine): Wetlands, Berkshire.
Organiser: Rosemary Hill (0118 966 5160, rosemaryhi@lineone.net).
Time and place to be confirmed.

Saturday 6th and Sunday 7th September 2014: WORKSHOP (marine): Scarborough, North Yorkshire. (joint with Yorkshire Naturalists' Union and Seasearch)
A two-day course on the ecology, life cycle and identification of nudibranchs by Jim Anderson (www.nudibranch.org). Cost £70 per person which includes course materials. The course is a mixture of theory and practical sessions and will include a visit to a local shore on Sunday morning. Organiser: Paula Lightfoot (01904 449675, p.lightfoot@btinternet.com)

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