

Mollusc World

November 2015 • Issue 39

VERTIGO
MOULINSIANA
In the Midland Meres
and Berkshire

FRED TAYLOR
The story of
a 'lost' collection



ARMoured SNAILS FROM THE DEEP OCEAN

The story behind the discovery and
naming of a big-hearted mollusc



The
Conchological
Society
of Great Britain & Ireland

From the Hon. Editor



You will have noticed a change in the design of the front cover of this issue, which includes our new logo. The logo has been approved by Conchological Society Council and designed through the collaboration of a number of members. Our previous logo, featuring the Pelican's foot shell (*Aporrhais pespelecani*) has been

used in various forms for at least the last 20 years, but the need for a modern logo that is simple, memorable and clear when reproduced at small size in publications has been recognised for some time. The fibonacci spiral/nautilus design was also voted the top proposed design by members of the public at the NHM Big Nature Day (see opposite). Tyrian purple has been chosen as the background colour because of its molluscan associations. A simple black line version is available for use where colour is not an option (see below).

One or two of you have requested more items in the magazine that provide help with identification. Online and other published resources are available to help with this in some areas, however I would welcome any such submissions to *Mollusc World*, particularly focusing on the fauna of UK and Ireland. An interest in shells can come at any stage in life (as in the above photo with my two year old granddaughter Adelaide!) and help is always needed from articles aimed at different levels of expertise.

Peter Topley



Mollusc World

This magazine is intended as a medium for communication between Conchological Society members (and subscribers) on all aspects of molluscs, in addition to the material found on our web site. Hopefully it will also be of interest to all those enquiring about this subject or the work of the Society.

We include articles, meeting reports, research news, results from the mapping schemes and identification aids. We welcome all contributions in whatever form they arrive (see page 31 for further details).

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Front Cover: Scaly foot snail (*Chrysomallon squamiferum*) from the deep sea. See page 5. (photo: ©National Museum Wales)

Protection for the five shilling shell (*Mactra glauca*) in Jersey



Mactra glauca

(photo: Paul Chambers)

One of Britain's rarest molluscs will soon receive legal protection on the Channel Island of Jersey. The 'five shilling shell' (*Mactra glauca*) is a large (up to 12 cm) and attractive-looking bivalve whose northerly limit is reached at the Channel Islands. However, even there it is rare with *M. glauca* being found at just a handful of sites around Jersey although there are historical records from Herm and Guernsey.

M. glauca is particular about where it will live and generally prefers clean, coarse sand in areas of strong currents. Where these conditions are met the bivalve may occur in some numbers. In 2012 the Société Jersiaise conducted a survey of the largest *M. glauca* bed (which is about a hectare) and discovered a density of 1.6 specimens per 1 m²; a repeat survey in August this year revealed no specimens at all.

Following the large spring tides in September it was discovered that local fishmongers were selling large numbers of *M. glauca* that had been sourced locally. It transpired that (perhaps in ignorance of its rarity) fishermen had found the main *M. glauca* beds (which are in remote locations) and stripped them clean. This is part of an increasing problem in Jersey where traditional low water fishing practices (which are largely unregulated and unpoliced) are being used for commercial gain.

The local Environment Department was alerted and immediately agreed to give *M. glauca* full legal protection. It is hoped that this will allow stocks to recover and ensure that this iconic species has a future in the British Isles.

The Conchological Society at 'Big Nature Day' London's Natural History Museum, 23rd May 2015

This was the fourth such event at NHM with a marquee full of stands outside the Darwin Centre and also in the Wildlife Garden. Over 30 natural history organisations were represented and there was a lot of visitor interest in the Conchological Society's displays which included both large and micro-shells, details of the Society's recording schemes, a snail identification quiz and live molluscs. Many thanks are due to all who volunteered to help with our displays and in hosting the stand.



L. to R.: Mike Allen, Bri Eastabrook, Julie Allen, and Peter Topley on the Society's stand.



John Llewellyn Jones talking about shells with visitors.



Visitors at the stand in conversation.



Peter with Tom Walker.



A queue to view our stand!



Photographing a live *Achatina reticulata*.
(photos: Graham and Peter Topley)

Mating chains of *Akera bullata*

Clive Craik

It has been known for many years that the opisthobranch gastropod *Akera bullata* sometimes forms mating chains several individuals long. Like many gastropods, the species is hermaphrodite and an individual in a chain acts as male to the one in front and female to the one behind. Chain formation, which is rarely recorded, was first described by Tchang-Si (1931) whose drawing of a chain of five individuals is shown here as figure 1.

In March 2010, I discovered a dense colony of *Akera* in a marine aquarium outflow pond at Dunstaffnage Marine Laboratory, near Oban in west Scotland (Craik, 2012). The pond was unfortunately destroyed in September 2011, but I rescued some of the *Akera* and have since managed to maintain a population in captivity. Individuals mate in couples at all times of year and sometimes gather in tangles or knots of several individuals, which I thought might be mating groups. However, until now I had never seen true chains like the one in figure 1.

In winter 2014–2015, I changed the feeding regime. Rather than giving them filamentous green algae, sand or silt, I left one of the tanks with no added food, letting the *Akera* feed on the biofilm that rapidly grows on the tank side and bottom (since, surprisingly, trials showed that they seemed to gain weight most rapidly when feeding on biofilm alone). The tanks still needed regular cleaning and, on 15th May 2015, I gave one of the tanks an unusually thorough scrubbing. The tank held 34 individuals. Three days later there was a chain of six individuals moving across the tank bottom (figure 2). It almost became seven, but the chain broke just before this could happen (figure 3). Others were forming chains of three or four. Of course, this does not show that chain formation was a response to tank cleaning or feeding regime, but it is suggestive.

Although these captive *Akera* mate and produce egg batches throughout the year, almost all the egg batches fail to produce settled growing young (I do not know to what extent the minute semipelagic larvae have been hatching). The life cycle is annual, and to maintain the colony in recent years I have relied on tank leakage and the consequent appearance of small crawling young on the wet, weed-rich concrete floor of the open-air aquarium. No young now appear in the tanks themselves. However, this year it seems that even this tenuous source of young *Akera* is failing and that therefore this captive population will die out in late summer. Egg batches are superabundant but they all now appear to be infertile, probably because of years of inbreeding. If anyone has suggestions of how else to hatch and settle the young of this interesting and attractive species, please let me know, as time is running out!

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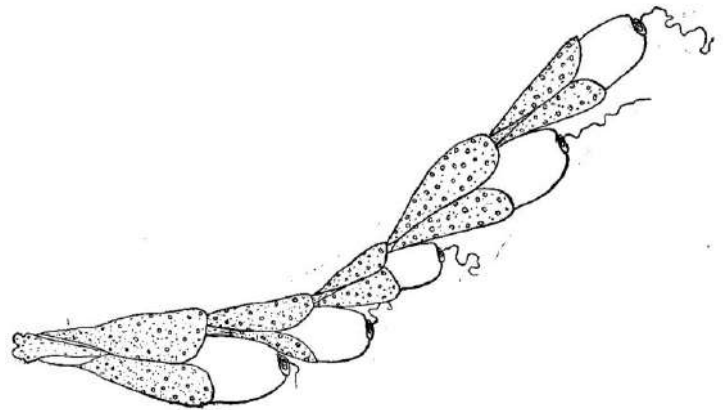


figure 1: Mating chain of five *Akera bullata*.
(Drawing in Tchang-Si, 1931)



figure 2: Mating chain of six *Akera* in aquarium, Dunstaffnage Marine Laboratory, Oban; 18 May 2015. Note the red and green filamentous algae growing on their shells (Craik 2013).



figure 3: As figure 2, three minutes later. A seventh individual is about to attach itself at rear end of chain.

Deep beneath the ocean surface, where no sunlight can penetrate, there are areas so hot, volatile and toxic that it's hard to believe life can exist... but it does, and often in abundance. It is exactly this kind of hostile environment that one of the most recent mollusc acquisitions at Amgueddfa Cymru - National Museum Wales (AC-NMW) came from: a spectacular marine snail called the 'scaly-foot gastropod', or for those of you who like Greek and Latin, *Chrysomallon squamiferum* Chen, Linse, Copley & Rogers, 2015 (figure 1, AC-NMW accession number NMW.Z.2015.005.00001). It comes from depths of 2785 m, living on the edge of hydrothermal vents and black smokers that reach temperatures of 300–400°C. This is certainly not your average snail...



figure 1: One of the *C. squamiferum* type specimens at Amgueddfa Cymru – National Museum Wales acc (see also front cover).

Under armour and ready for battle

The first hydrothermal vent field found in the Indian Ocean was discovered in 2000 and is known as Kairei field; a year on that Woods Hole surveyed the area in the RV *Knorr* 162-13 and encountered this new species. It was immediately obvious that something unique had been discovered. The foot of this snail displayed hundreds of hardened tags, almost like an armour. These tags are called sclerites; fleshy in the centre and hard on the exterior due to a layer of conchiolin (a protein secreted as a part of shell formation) covered by a layer of iron sulphide that gives it a black metallic appearance (figure 2). The iron sulphide exists in two forms in the snail: greigite, which is highly magnetic, and pyrite, which is commonly known as fool's gold. The presence of the metallic sclerites is not totally understood but Suzuki *et al.* at the Extremobiosphere Research Center in Japan suggest the snail may control the mineralization of the iron sulphides for protection from crab predation or perhaps for detoxification purposes.

Completely unique is that the iron sulphide is also found in the snails' shell, so this was the first discovery of an animal with iron sulphide in its skeleton (figure 3). Underneath the metallic exterior there is a thick but softer organic layer which covers the hard calcium carbonate shell that most marine snails have. So unusual is this triple layering in the shell, in both its chemical make-up and mechanism, that some scientists consider it to offer extensive protection and think it may be used as inspiration for man-made armour in the future.



figure 2: Close up of the sclerites on the foot of *C. squamiferum*.



figure 3: Magnification of the iron sulphide covered shell of *C. squamiferum*.

New vent fields, new discoveries

The iron and sulphide found in the scaly-foot gastropods at the Kairei field comes from the mineral rich waters expelled from the hydrothermal vents and black smokers. Different vents do, however, have different mineral compositions. Nevertheless, it was still of great surprise when in 2009 the Solitaire field was discovered in the Indian Ocean and living on it was a different colour form of the scaly-foot gastropod; this time displaying a brown shell and cream-coloured sclerites, both completely lacking the iron sulphide coating. Genetic testing by Nakamura *et al.* at the Precambrian Ecosystem Laboratory in Japan confirmed in 2012 that they are the same species and also that the sclerites of the iron-lacking form were in fact mechanically stronger. Then, in 2011, yet another population of the black scaly-foot gastropod was found in great abundance at the Longqi field, another new discovery for the Indian Ocean, and this is where the two specimens deposited at AC-NMW came from. Figure 4 shows snails from the three different vent populations.

The heart of a dragon

The external features of this snail are certainly spectacular and strange, but taking a look inside shows that the theme continues there. It is of no surprise that this snail has special



figure 4: Three populations of *C. squamiferum*, left to right: -2450 m, Kairei vent field, Central Indian Ridge; -2785 m, Longqi vent field, Southwest Indian Ridge (Type locality); -2606m, Solitaire vent field, Central Indian Ridge, Mauritius (Creative Commons, Chong Chen 2015).

adaptations to live in such a toxic and harsh environment; survival in such a place certainly requires an evolutionary helping hand. Like other species living on black smokers and close to vent effluents, it has evolved a symbiotic relationship with bacteria living inside its body. These bacteria supply the snail with most of its nutrition and to accommodate them the snail has developed a massive oesophageal gland, taking up over 9% of its body mass! In turn, the snail needs to keep the bacteria alive and so has also developed a huge circulatory system, including a supersized heart, to supply the oesophageal gland with enough oxygen. It's a win-win situation, or perhaps a deal made in Hell!

What's in a name?

Although it was discovered 14 years ago, it is only this year that the scaly-foot gastropod was officially christened *Chrysomallon squamiferum* by Chong Chen of Oxford University and his associates. This snail is so different to any others known that Chen *et al.* needed to describe a new genus to put this new species in. The genus name *Chrysomallon* means 'golden fleece', giving reference to the metallic coating often containing fool's gold. The species name *squamiferum* means 'scale-bearing', making obvious reference to the sclerites covering the foot of the snail. The process of describing new species also means that a specimen (holotype) or a series of specimens (holotype and paratypes) need to be selected as representatives of the species and placed in museum collections, and that is where we come in! The two specimens we have been donated are a

part of this incredibly important 'type' series. They even came with a note telling us to store them in 100% alcohol as any water in the preservative would cause them to rust over time. Rusting is certainly not a conservation issue we usually have to consider with our mollusc collections!

Back at the museum

This is not the first addition of molluscs from deep sea hydrothermal vents to our collections. With resident bivalve researchers working here, we already house material that has been described by our experts from such environments, in addition to other extreme marine environments. Some are from the oil seeps off Louisiana in the Gulf of Mexico, the mud volcanoes in the Gulf of Cadiz or methane seeps off Chile. Others are from hydrothermal vents on the Northern Mid-Atlantic Ridge and hydrothermal springs in the Cascadia Basin of the northeast Pacific. Perhaps the strangest place that one of our new species was described from was the wreck of the sunken ship *Francois Vieljeux* which contained organic cargo containing sacks of beans, sunflower seeds and bales of sisal twine. Over time, the rotting cargo produced a sulphur-rich environment that attracted animals able to exploit it, including the bivalve *Spinaxinus sentosus* Oliver & Holmes (figure 5). Amazing.

When you think that only 160 years ago much of the scientific community embraced Edward Forbes's 'azoic theory', that life could not exist deeper than 550 m, our knowledge and understanding of the sea has really come on a very long way. Nevertheless, there will always be more waiting to be discovered.



figure 5: Holotype of *Spinaxinus sentotus* Oliver & Holmes, 2006 from the *Francois Vieljeux* shipwreck.

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Crows fishing for river mussels

Dear Editor,

I have been watching some interesting crow behaviour. I daily cycle a bit of the Thames path near Eton and since January have seen evidence of a crow fishing out swollen river mussels (*Unio tumidus*) (figure 1) and smashing them on the path (figure 2). I have seen the bird dropping them (from about 5 m) and feeding on the shells; it is definitely a carrion crow.

I have not witnessed how the birds get the mussels out of the river, but they carry them in their talons, not their bill, so the food source cannot be too far away. The river was running fast and at winter height in January and February, so it would not have been a case of the mussels being exposed in shallow water by opening the weirs, etc.

Later in the spring (but still only occasionally, however), the single bird was joined by two others, as evidenced by the number of mussel kills (shells on path) being proportionately higher, so I am presuming the others had just learnt this behaviour. The crushed shell fragments are now a noticeable part of the path surface.

The Thames Path here is of a very similar surface for several miles, but only this one small stretch is used, so I deduce the food source is quite nearby, maybe the start of the Cuckoo Stream that leaves the Thames and runs past the Swan Life Line here?

If you fancy seeing this for yourselves, here are the OS coordinates and rough times for the activity; it was very predictable in the Spring but now (I am writing this in July) it is much less frequent – if happening at all. OS grid for the hot spot is: SU 95597 77654 and the best time of day was: 07.30h–08.15h.

Yours,

Gordon Collett



figure 1: *Unio tumidus* (length 75 mm) (photo: Peter Topley)



figure 2a & b: River mussel shells broken open by crows, Thames Path, near Eton.



figure 1: The sand flats at St Vaast la Hougue, Normandy, northwest France.

Dubbed the ‘Tide of the Century’, the exceptional equinox tides of 2015, coinciding incidentally with a total solar eclipse, merited my attention. The path of totality tracked across northernmost Europe and the Arctic but was potentially viewable in our neck of the woods in northern France, over the weekend of 20–21st March. However cloud cover that day prevented enjoyment of the phenomenon. Where we live in France, the sand flats at St Vaast la Hougue (figure 1), adjacent to the extensive commercial oyster park, are the focus of attention for local ‘*pêcheurs à pied*’ on the occasions of good low spring tides. The St Vaastais, and also residents from surrounding villages, flock to the shore just by the harbour wall to dig their wild harvest. The sand flats there are home to an extensive population of the razor clam *Ensis arcuatus*. The French call them ‘*couteaux*’ meaning knives. Since we moved to St Vaast in 2005, we have witnessed, and sometimes participated, in this foraging pastime, which is part of French culture, especially for the natives living around the coast. An exceptional spring tide would simply give the *pêcheurs* more of the same to fish more of the same! Other species of bivalve inhabit these sand flats. In the past, I have dug for *Spisula solida*, assorted venerid clam species, *Laevicardium crissum* and *Gari depressa*. But to my mind the French are very particular about their ‘*pêche à pied*’ activities. On the day they go to the shore to work a low tide they fish for, and only collect, one type of prey, in this case *couteaux*, the predominant species being *E. arcuatus*. The *pêche à pied* industry is subject to regulation. There are minimum fishable sizes for the invertebrates of interest. These are summarised in table 1. A free illustrated leaflet and a small card ruler for measurement are obtainable at local tourist information offices. Since July 2012, amateur *pêcheurs à pied* are supposed to register on a website where they will find information about the periods during which *pêche à pied* may be carried out, the equipment that is allowed and the maximum permitted catch (<http://www.manche.gouv.fr/Politiques-publiques/Mer-littoral-et-peches/Peches-de-loisir>).

At the end of the afternoon on 20th March, I went to the shore with my neighbours. As we arrived at the top of the beach there were stickmen as far as the eye could see... a seascape by L. S. Lowry (figure 2). The tide was already very low and as we made a way across the sands, over rises and skirting shallow channels which were still emptying, we observed both the cognoscenti and small, apparently novice, individuals and family groups digging or raking with varying degrees of success. The best receptacle for

accumulating one’s catch is a shoulder-worn wicker or plastic-lidded ‘*panier*’ with a small ‘letterbox’ in the lid for posting the clams (figure 3). As we made our way down to the point of lowest ebb I found occasional live *Pecten maximus*: enough for a taster to share with our neighbours in the evening (figure 4).



figure 4: Live *Pecten maximus* at St Vaast la Hougue.

When we moved to St Vaast, we were initiated into the razor-clamming ritual by our neighbour Daniel, a retired long-line bass fisherman, who has been fishing for razor clams since ‘he were a lad’. I say ‘we’ but in fact he only ever invites Nick to join him, having the customary fisherman’s attitude to female participation. My first encounter with the day’s catch would most properly take place in the kitchen!

Razor clams live in a perpendicular position in soft sediments and the siphon holes are fairly conspicuous and about the same diameter as the shells themselves. Sometimes the shells will spout as you walk above them and the trick is to dig very quickly to find the clam, and often they will dig more rapidly than you can. A more effective method is to carry a pot of cheap salt and trickle a little down the siphon hole. The change in salinity level causes the razor to rise to the surface. Such techniques are not necessary when Daniel is on the hunt. Whilst other *pêcheurs* dig with forks, Daniel plunges his hand into the fluid sands wherever he sees a spout and grabs the razors and pulls them out. Once the tide turns, razor clams may rise to the surface; possibly a change in the water table causes this.



figure 2: *Pêcheurs à pied* on the shore at St Vaast la Hougue.



figure 3: Shellfish collectors wearing shoulder-worn lidded *paniers*.

Over the years the *E. arcuatus* populations have waxed and waned and some tides have seen the diggers having to work quite hard to make a reasonable haul. There was even one fallow year in March 2009. But come the next equinox tide, the *couteaux* are back.

If the *Ensis* population migrates sometimes landward and sometimes seaward, this is a bit of a mystery. But also the clams are probably much more numerous than one might suppose. For every one razor that is taken, there are probably 20 more in the sediments immediately adjacent. Despite years of exploitation these clams are not being fished out. The area that can be fished by people on the shore is small when one considers the extensive sandy seabed which extends way offshore, and which is never touched. These sublittoral razorfish beds are likely to act as a source of constant recruitment.

And what to do with the *couteaux* when you have foraged? Some may be sandy, especially if the shell was damaged in the digging, so running them under water is sensible. They can be cooked on a rack on an open fire or you can steam them open then dress them in a sauce of your inventing. I prefer to cut away the small black digestive gland (as you would do for scallops) but this is not common practice. If I am not eating them straight from the fire with butter, parsley, garlic then I snip them into pieces for other cookery: uneaten cooked razors are never wasted. They can be added to soups, seafood dishes, risottos, *pasta al vongole* and can be frozen for such purposes. I've seldom seen razor clams offered for sale in the British Isles. Perhaps they do not appeal; certainly they are a rather strange looking morsel of mollusc meat when removed from their shells!

Molluscs and echinoderms		
Common name	Scientific name	Minimum size or weight
Whelk	<i>Buccinum undatum</i>	4.5 cm
Venus clam	<i>Venerupis pullastra</i>	4 cm
Razor clam	<i>Ensis</i> and <i>Solen</i> spp. <i>Pharus legumen</i>	10 cm
Cockle	<i>Cerastoderma edule</i>	11 cm
King scallop	<i>Pecten maximus</i>	11 cm
Pacific oyster	<i>Crassostrea gigas</i>	5 cm
Native oyster	<i>Ostrea edulis</i>	6 cm
Surf clam	<i>Spisula solida</i>	2.5 cm
Mussel	<i>Mytilus edulis</i>	4 cm
Surf clam	<i>Donax</i> spp. <i>Tellina</i> spp.	2.5 cm
Ormer	<i>Haliotis</i> spp.	9 cm
Sea urchin	<i>Paracentrotus lividus</i>	4 cm (excluding spines)
Sea urchin, Breton region	<i>Paracentrotus lividus</i>	5.5 cm (excluding spines)
European clam	<i>Ruditapes decussatus</i>	4 cm
Japanese clam	<i>Ruditapes philippinarum</i>	4 cm
Pink venus clam	<i>Venerupis rhomboides</i>	4 cm
Smooth clam	<i>Callista</i> spp.	6 cm
Warty venus clam	<i>Venus verrucosa</i>	4.3 cm
Clam/Quahog	<i>Mercenaria mercenaria</i>	4.3 cm
Octopus	<i>Octopus vulgaris</i> / <i>Eledone cirrhosa</i>	750 g
Queen/variegated scallop	<i>Chlamys</i> spp.	4 cm.

Table 1: Minimum fishable sizes for invertebrates (see text).

The 'Lost' Shell Collections of Fred Taylor of Oldham Brian Goodwin



figure 1: Portrait of Fred Taylor.
(courtesy of Buxton Museum and Art Gallery)

Fred Taylor (1871–1949) (figure 1) was renowned for his collections of British land and freshwater shells, especially those he obtained from around his local patch. There have been several biographical publications and obituaries (Armitage 1949, 1962; Jackson 1949) so the main details of his life are reasonably well known. Perhaps of greater interest is the story of his shell collections, and what happened to them after he

died, a subject that has received some attention, but which has never been fully resolved.

But first, a very brief summary of his life. Fred was born on 31st January 1871 and died at his home in Landseer Street, Oldham two days after his 78th birthday. He was interested in many aspects of natural history, but in particular British birds and their eggs (oology) and British land and freshwater mollusca. Taylor was known for collecting large series of snails, and for his meticulous cleaning and preparation of specimens, including the dissection of the 'love dart' or gypsobelum.

In life he was generous with his 'duplicates' and many Fred Taylor shells found their way into the collections of friends and colleagues. One small collection, made during two holidays in the Isle of Man in 1909, resides in the Manx Museum (see figure 2), and nicely illustrates Taylor's skill in preparing and presenting his collections.

Fred covered his 'local patch' well and in 1898 he published *The Land and Freshwater Mollusca of the District between Ashton-under-Lyne and Oldham* (*J. Conch.* 9 (2), pp. 49–53). In the same year, he donated to Oldham Museum (now Gallery Oldham) a comprehensive collection of British land and freshwater molluscs, including many from the local area. Industrial Oldham in the late Victorian era might be imagined to be 'slim pickings' for conchologists but FT made discoveries in the most unlikely industrial settings. Figure 3 shows Fred in one of these, on the canal at Guide Bridge where the alien *Planorbis* (now *Menetus*) *dilatatus* was common in the hot water discharged from the mill. Fred had a keen eye and was adept at spotting very small species and unusual variations, such as sinistral individuals of normally dextral species – of which, more later.



figure 2: Fred Taylor's Isle of Man collection of land and freshwater snails (courtesy of the Manx Museum).



figure 3: Fred Taylor at Guide Bridge, Aston Canal – habitat of *Planorbis* (= *Menetus*) *dilatatus*. (photo by J. Wilfrid Jackson – courtesy of Buxton Museum and Art Gallery).

Over the course of a long and active collecting career, Taylor had not only donated, gifted and exchanged many specimens, he had also accumulated a significant personal collection. The story really begins at the time of his demise. Fred's intention was to bequeath his collection to John Armitage, a close friend for over 35 years. However, after he died, these wishes were over-ridden, apparently by his daughter. Adrian Norris briefly tells the story in his account of the molluscan collections at Leeds Museum (Norris 2002):

John was allowed to remove all he could carry in one large suitcase; his knowledge of the collection ensured that he acquired the most important material.

Exactly what then happened to the remainder of the collection is not documented but staff at Leeds Museum kept a keen look out for Fred Taylor shells and Adrian went on to record that:

In 1975, and again in 1983, sections of the original collection turned up in the hands of dealers, the first at Knaresborough with Edward Milborrow and the second at the Cheshire Taxidermy Studios of Sale, Cheshire.

A further lead, from Rotherwick, Hampshire turned out to have been a collection belonging to a different Taylor (but with a link to Fred):

...this time a school caretaker in Manchester by the name of George Taylor. Fred, in his generosity had given this little-known collector some 36 boxes of material all collected between 1897 and 1908, including two boxes of *Catinella* (*Quickella*) *arenaria* (Bouchard-Chantreaux 1837) collected at Braunton Burrows.

It was concluded that:

This probably still leaves a section of the collection unaccounted for, but by far the most important elements are now back together. This includes the left-handed specimens of *Helix pomatia*, *H. aspersa*, *Trichia striolata* but I can find no trace of the sinistral specimens of *Cochlicella acuta* & *Oxychilus draparnaldi* which he also had in his collection.'

When John Armitage died in 1996, his collection of shells, including most of the ones extracted from Fred Taylor's collection (see later), together with his field

notebooks, diaries and many photographs, passed to Leeds City Museum (Norris, 1996).

However, I have recently come across a series of letters to J. Wilfrid Jackson in the archive of Buxton Museum & Art Gallery that throw some further light on the matter. The first letter on 8th February 1949 was from Fred's daughter Winifred to Jackson and said, simply:

It will probably be a shock to you to hear that my father died the day after Mr Moore [This was Charles Herbert Moore, another conchologist whose collection is at Leeds Museum]. Dad was seventy eight. His mind had been failing for a long time, but he still clung fast to his old interests.'

Jackson sent a letter of condolence to Winifred and Fred's wife, and the archive also contains several letters from John Armitage to JWJ as they coordinated information for the respective obituary notices they were preparing. The second letter from Armitage in the series – dated 11th March 1949 – is worth reproducing in full :

Avocet, Heath Grove, Buxton

Dear Dr Jackson,

Was in Oldham yesterday, - at Landseer St., & learned that our mutual friend Fred Taylor had left to me his entire collection & paraphernalia. Some millions of shells all-told, & vast numbers of duplicates.

So should any of your friends in the Conch. society fancy a few F.T. taken & cleaned *B. steinii* collected only last year, and some of the other shells which he took in great quantity, I will see they have them this spring when all the material is installed at my home in Buxton.

I swept a 'knowing' eye over the small stuff & spotted the reversed *H. draparnaldi*, reversed *H. rufescens*, juvenile *V. vivipara* & reversed *P. steinii*. There are other left-handed species which I shall track down; these I shall definitely keep together. The paintings of these & other shells are fastened in the wonderful album which I think will be retained by Mrs. Taylor.

Best wishes, yours sincerely

Jack

A week later Armitage wrote again, including:

Enclosed with this note is the letter from Mrs Taylor; a surprising turn of events after being offered everything & given a free hand. Even if Mr Taylor had left me his collections in a properly drawn-up will, I would not dream of contesting Winnie's claim to the main cabinet & its contents. She is behaving in an extremely stupid fashion; but there is nothing I can do about the matter. Except make the further proposed visit on April 5, & continue the search for the reversed *H. pomatia*, *aspersa*, *acuta* & *rufescens* & take without hesitation anything portable & worth having!! I know Fred would have wished me to have them, as does Mrs Taylor. So please delay the announcement as to the fate of the collection.'

It seems that Taylor's daughter may have believed that the collection was too valuable to simply give it all away, but perhaps felt obliged to follow Fred's wishes in part

and allowed Armitage to remove selected specimens. The statement from the letter of 18th March above regarding a 'further proposed visit on April 5', implies at least two visits to select shells, and certainly one of Armitage's original hopes was fulfilled because he later reported to JWJ (28th January 1950) that:

I've many hundreds of well-cleaned *Marstoniopsis steinii* of Fred's collecting for distribution. I sent some to Hugh Watson & he was delighted with them.

Not too long after in 1953, Armitage was appointed Keeper of Biology at the Leeds City Museum (with Jackson as one of his referees) and the story of FT's collection goes cold until the Leeds Museum acquisitions in 1975 and 1983, noted above.

However, with the Armitage/Jackson correspondence uppermost in my thoughts, I thought it would be worthwhile to see if the Internet could throw any further light on the matter, and before long I came across details of an auction in 2006 at – now this was a shock – Affiliated Auctions & Realty LLC in Tallahassee, Florida. There were eight lots which sold for between \$50 and \$120, and for a total of \$700. Each lot comprised multiple boxes of specimens (as per figure 4), and a brief summary of the lots (using FT's names) is as follows: 90331 – mainly *Helix nemoralis* (but photos show a few *Cornu aspersum* and one *Haliotis* sp.)

90332 – again *Helix nemoralis*, with one or two 'intruders'.

90333 – mainly or entirely *Helix hortensis*.

90334 – varied lot; names visible include *Limnaea*, *Physa*, *Succinea* and *Planorbis corneus*. (From the common names listed it probably includes *Lymnaea stagnalis*, *Lymnaea peregra*, *Succinea putris*, *Pomatias elegans*, *Physella acuta* and *Planorbarius corneus*.)

90335, varied lot including some bivalves; names visible include *Pisidium* sp. and *H. virgata*.

90336, varied lot; names visible include *Paludestrina jenkinsi*, *Vitrea rodgersi*, *Helicella nitidula*.

90337, varied lot; names visible include *Planorbis planorbis* and darts from *Cepaea hortensis*.

90338, varied lot; mainly *Cornu aspersum* and *Helix pomatia*, but also including some smaller species and at least one large bivalve.



figure 4: Detail of '*Helix nemoralis*' from one of the Fred Taylor lots auctioned in Tallahassee, USA in 2006.

It is clear from the lot descriptions and the pictures that they were indeed originally from Fred Taylor; in several photos his handwriting was identifiable (see figure 5).

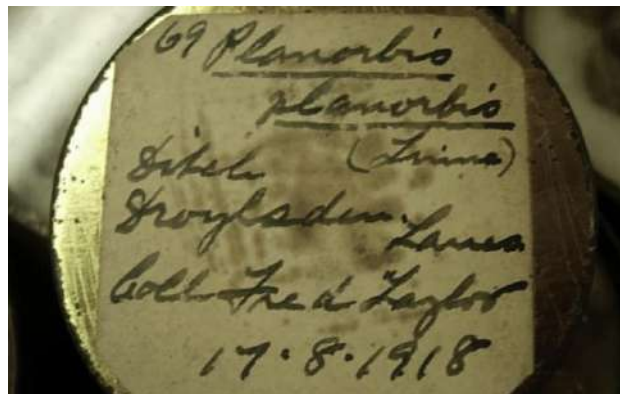


figure 5: Label of '*Planorbis planorbis*' from one of the Fred Taylor lots auctioned in Tallahassee, USA in 2006.

Unfortunately, despite a direct approach to the auction house, I have been unable to determine who sold the shells, and who bought them. We do know from the published auction details that the seller, or 'consignor', was female and 'inherited the collection approximately 30 years ago (i.e., circa 1976) from her mother who brought it over to the USA from England'. It is possible that the 'mother' referred to was Fred's daughter Winifred, but as far as I am aware she had only two sons. Conceivably, the consignor could have been married to one of the sons, in which case 'mother' would more accurately have been 'mother-in-law', but this is speculation.

So far as I can tell, the American collection did not include any of the 'missing' reversed shells referred to by Adrian Norris above. I did, however, manage to track down some of the missing sinistral species not bequeathed from Armitage to Leeds Museum. On a visit to Gallery Oldham, I found two small collections of ex-FT shells that John Armitage had donated in 1991, a few years prior to his death in 1996. They included sinistral *Oxychilus draparnaldi* (see figure 6), *Bythinella scholtzi* and *Viviparus viviparus*, which leaves only the *Cochlicella acuta* still unaccounted for.



figure 6: Sinistral *Oxychilus draparnaldi* from the Fred Taylor collection at Gallery Oldham.

So, the question of what happened to the ‘lost’ shell collections of Fred Taylor of Oldham is a little clearer but remains, in part at least, a mystery. Where did the ‘Tallahassee shells’ go? And why did John Armitage donate just some of FT’s sinistral specimens to Gallery Oldham? Oh, and wouldn’t it be great to know the whereabouts of the album of paintings!!!

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Acknowledgements:

I am extremely grateful to: Paul Weatherall and the Manx Museum for permission to include figure 2; Patricia Francis, Natural History Curator at Gallery Oldham, for hospitality and access to their Fred Taylor collections; and Ros Westwood, Derbyshire Museums Manager, and Derbyshire County Council for access to the Buxton Museum archives. After I had written the article, I realised I did not have the details of the Norris publication I had quoted. Adrian kindly tracked down the correct document – i.e. Norris (2002)

A rare carved and inscribed WW1 Turbo marmoratus Linne 1758 *John Robinson*
 The inscription reads: Dan 18th RB Andaman Islands 1917



(John Robinson collection)

After a little sleuthing, I discovered that the 18th (London) Kings Rifle Brigade was formed in November 1915 and made up of Supernumerary Territorial Force Companies from National Reservists, men of the Queens, Royal Sussex, East Surrey, Essex and Middlesex Regiments. In 1916 they were sent to India, where they were based in Rangoon at Sale Barracks, with a detachment at Port Blair in the Andaman Islands guarding convict settlements. To supplement their meagre rations, the convicts were allowed to produce artefacts which they could sell to visitors and their guards, of which this shell is a rare example. Presumably ‘Dan’ was one of the soldiers stationed there and bought the shell as a souvenir of his stay. I have seen (and own) many carved Andaman shells, most of them are inscribed ‘A Present From The Andamans’ or ‘A Present From Port Blair’ or simply ‘Andamans’ or ‘Port Blair’. One I have seen was inscribed ‘A Present From Port Blair 1917’ which, in the light of the information I have discovered about my shell, is likely to have been purchased in similar circumstances. My shell is the only one I have seen that can be positively attributed to a

specific Regiment. The detachment rejoined the Brigade in India in 1917.

The Kings (Shropshire Light Infantry) Battalion of The Territorial Force was based in Singapore in February 1915 and a detachment was also sent to the Andaman Islands to carry out guard duties. They rejoined their Battalion in Singapore in April 1917, so it's quite possible shells exist with details of this regiment as well.

On a ‘difficult’ shell

In the shell room, here I sit,
 This blessed Mollusc what is it?
 Books are strewn upon the floor,
 You couldn’t struggle through the door!
 Yet with every avenue explored,
 It seems this shell has been ignored!
 Perhaps I’ll find its name by chance,
 When at another tome I glance?
 It’ll be there for all to see,
 Till then I’ll let this problem be!

Thora Whitehead



Sign outside a Nursery in Minehead, Somerset.
 (photo: Peter Topley, courtesy of Seashells Nursery)

On 11th April 2015 members of the Conchological Society of Great Britain and Ireland and the Wyre Forest Study Group met at Clee Hill village. The attendees included Ron Boyce, Mags Cousins, Rosemary Hill, Bob Kemp, Peter Topley, Will Watson and Rosemary Winnall, joined by Susan Limbrey for the afternoon. Although sunny, it was a very cold and windy day so it was decided to stay off the exposed section of Brown Clee Hill and head up the path within the confines of the village towards one of the abandoned quarries (figure 1).



figure 1: Path above Clee Hill village. (photo: Peter Topley)

A west-facing wall overgrown by moss produced *Arion ater* agg. live (L) juvenile (juv.), *Cepaea* sp. shell (S) juv., *Arion (Mesarion) subfuscus* L., *Deroceras reticulatum* L., *Discus rotundatus* L and *Trochulus hispida* S. Most of the party went on to shelter behind an old local Dolerite sett wall with lime mortar, with grass at the base (figure 2). This added *Arion (Carinarion) fasciatus* L., *Lehmannia marginata* L., *Limacus maculatus* L., *Tandonia budapestensis* L and *Vallonia excentrica* L to the list for the day. Two members of the group found a small pond nearby which added *Lymnaea stagnalis* L., *Radix balthica* L and *Musculium lacustre* L. The group then headed to the shelter of their vehicles for an early lunch before heading on to Downton Gorge where we were met by the Warden, Simon Cooter.



figure 2: Rosemary Winnal examining a Dolerite wall above Clee Hill village for molluscs. (photo: Ron Boyce)

The Conchological Society previously visited Downton Gorge on 21st April 2012 and details of this permit-only National Nature Reserve (figure 3) may be found in Ron Boyce's article in *Mollusc World* issue 30. On the first occasion it was impossible to cover all of the reserve and given that it follows the valley of the River Teme for some distance, a further visit was considered necessary. On this

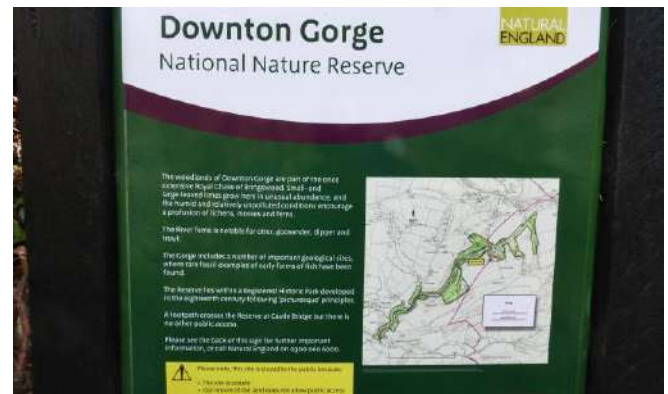


figure 3: Downton Gorge information board. (photo: Peter Topley)

occasion Simon kindly took us across the reserve in his Land Rover so that we could start where we had left off. Fortunately the valley was sheltered from the wind and considerably warmer than Clee Hill. While waiting for Simon to ferry a second party, a small tufa flush on the bank of the river (figure 3) yielded *Aegopinella nitidula* L., *Arianta arbustorum* S, *Cepaea nemoralis* L, *Clausilia bidentata* L, *G. rotundatus* L and *Nesovitrea hammonis* L.



figure 3: Looking for molluscs at a tufa flush above the river Teme. (photo: Peter Topley)



figure 4: Castle Bridge with Downton Castle in background. (photo: Ron Boyce)

On reaching Castle Bridge (figure 4) and the wooded limestone gorge, further specimens of *Helicigona lapicida*, dead or alive, were sought without success, not helped by the relatively dry spring weather. In conversation later with David Cameron, he remarked that *H. lapicida* shells are not long-lasting and that it is unlikely that the ones seen on the previous meeting were subfossil. So hopefully this species is still alive somewhere in the gorge. Additional species found in this area included *Arion (Kobeltia) distinctus* L., *Carychium* sp. S, *Euconulus fulvus* L seg (figure 5a), *Merdigera obscura* S, *Oxychilus alliarius* L, *T. hispida* L and *Vallonia* sp. juv. L (figure 5b). Where the gorge narrows, a tunnel had been cut through the limestone to add interest to walks when the site formed part of the grounds of



figure 5: *Euconulus fulvus* seg. (above) and *Vallonia* sp. juv. (below), Downton Gorge. (photos: Peter Topley)



figure 6: Entrance to limestone tunnels, Downton Gorge. (photo: Peter Topley)

Downton Castle (figure 6 and 7). This new area added *Aegopinella pura* L., live *A. arbustorum*, *A. ater* agg. L, *A. subfuscus* L, *Carychium tridentatum* S, *Cochlicopa lubricella* L, *Cochlodina laminata* L, *L. marginata* L and *Oxychilus cellarius* L. Some members of the party went as



figure 7: Bob, Will and Simon examining limestone outcrops near tunnels at Downton Gorge. (photo: Peter Topley)

far as the Y-shaped tunnel linking the higher and lower riverside paths to converge on a contrived viewing point of the rapids and startled each other by colliding. We then returned to Castle Bridge to cross to the far bank where there are the remains of one of many mills that occupied the valley in former times when there were ironworks. Climbing up the riverbank along a streambed gave no further species but the silted up old mill pond area provided *Deroceras laeve* L, *R. balthica* S and *Succinea putris* L. Dead shells of a Vitrinidae species were found but *Phenacolimax major* cannot be reliably separated from *Vitrina pellucida*. I compared the shells found with those in my reference collection, and in particular with shells from a recently found site for *P. major* over the border in Worcestershire, and they appeared just the same as the shells from this site, but unless a return visit in the future finds the live animal, it is not possible to record it. *Boettgerilla pallens* was also found on this side of the river. The afternoon had passed quickly, and thoughts turned to sampling the River Teme itself, if a return visit can be arranged in the future at a time when this fast-flowing river falls low enough to be sampled safely.

Thanks are due to Natural England for permission to visit Downton Gorge and to Simon Cooter for escorting us on the visit and providing transport across the reserve.

Molluscs of the Midlands Meres

Introduction

The Meres and Mosses of the north-west Midlands form one of the most important natural freshwaters in Britain for the range of wetland habitats and their considerable floristic and ecological interest. They are also important for aquatic invertebrates and support a significant representation of molluscs including the EU Directive (92/43/EEC) Annex II species *Vertigo moulinsiana* (Desmoulin's whorl snail) (figure 1). Whilst many of the sites have national and international protection, variously as SSSI's, NNRs, SAC and Ramsar sites they are not widely and publicly known, probably due to being small, dispersed, without easy or public access, mostly on private land and often hidden in dips in the surrounding agricultural landscape.

Geology, ecology and importance for molluscs

There are more than 60 open water bodies known as 'meres' and a smaller number of peatland sites, or 'mosses'. They extend from Shrewsbury (Shropshire) in the south to Knutsford (Cheshire) in the north, as far east as central

Mags Cousins

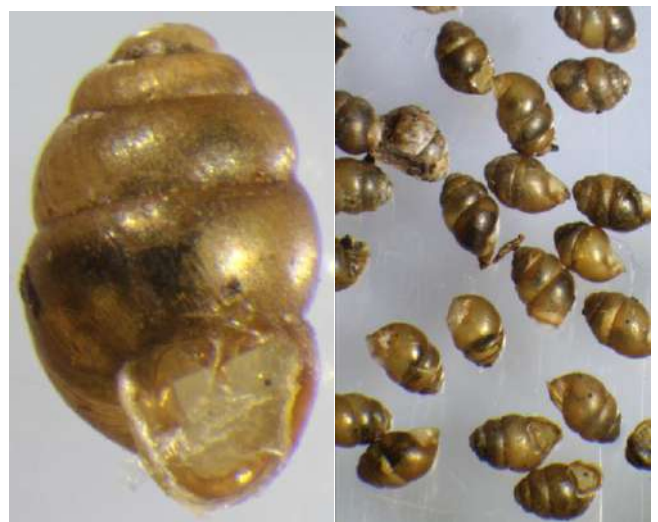


figure 1: Specimens of *Vertigo moulinsiana* (height c. 2.5 mm) from Fenemere SSSI, Shropshire. (photos R. Burkmar (left) and the author (right))

Staffordshire and as far west as Wrexham. The gently undulating plain in which they occur owes its present form to glaciation. The underlying sandstones and marls are covered by a deep layer of glacial drift consisting of sands, gravels and clay lenses with the meres and mosses occurring in hollows in the drift, separated by sandstone ridges.



figure 2: Sweat Mere SSSI transition from open water, floating *Berula erecta* and *Carex paniculata* through to *Alnus glutinosa* and *Salix cinerea* carr.

Sites like Sweat Mere still display fine hydroseres (Figure 2) and coupled with the interesting origin, the succession demonstrated and the species assemblages they support, they have been the subject of scientific and academic enquiry and of concern to conservationists since early visits by Ratcliffe, Bellamy and peers decades ago. The meres have been known to be important for molluscs since at least the 1960's and many of the SSSI citations state the sites as being important for molluscs e.g. Bar Mere SSSI (Cheshire) and Maer Pool SSSI (Staffordshire). As is so often the case the exact nature of their importance for these and other invertebrates is still poorly known with records being sparse. This was very clearly demonstrated in 2012/13 when several more sites were found to also support significant populations of *V. moulinsiana* hitherto thought to only have one population in this area at Sweat Mere SSSI in Shropshire.

***Vertigo moulinsiana* in the Midlands Meres**

In 2011, Natural England commissioned the regular Article 17 Annex II species reporting on the condition of the population of *V. moulinsiana* at Sweat Mere SSSI. As I had recently acquired responsibility for this site my curiosity was piqued to see the snail that formerly I knew of only as having caused so much controversy during the construction of the Newbury bypass. I accompanied the surveyor Toby Abrehart, into the swampy Alder carr with abundant sedges to see the snail in its preferred habitat at this site, NVC community W5 *Alnus glutinosa* – *Carex paniculata* (Figure 3). Knowing that there was similar habitat just 7.5km away at Fenemere SSSI, I persuaded Toby to come with me to check this out too and was delighted that the first *Vertigo* I found was indeed *V. moulinsiana*. This triggered a search over the coming months of the other meres and in total there were eight sites for Desmoulin's in addition to the original location at Sweat Mere, with very big populations at Aqualate Mere NNR (Staffordshire), Quoislely Mere SSSI and Chapel Mere SSSI (both in Cheshire) and Fenemere SSSI (Shropshire). These four sites have the best remaining

transitional wetland habitats of the meres, demonstrating the full hydrosere from open water, floating reedswamp, swamp, Alder and Willow carr, through to fen rush pasture and damp grassland. The extensive dense sedge beds provide the habitat that Desmoulin's appears to prefer in the Midlands meres. Other sites have lost much of the transitional wetland habitats to artificial drainage and agricultural improvement.



figure 3: *C. paniculata* (Greater Tussock Sedge), habitat of *V. moulinsiana* at Sweat Mere SSSI.

The population at Sweat Mere was thought to be an isolated outlier of the main stronghold for the species in the river basins of south east and east England, but this is clearly not the case. Indeed as Desmoulin's are suffering a decline in the South East, the colonies in the Midlands Meres are demonstrably an increasingly important and highly significant contribution to the overall population.

The search of the meres for Desmoulin's also led to the discovery of six specimens of *Segmentina nitida* The Shining Ram's-horn (RDB 1) at Tatton Park mill pool (a site with no statutory protection) and a single specimen of *Vertigo geyeri* Geyer's Whorl Snail (RDB 1) at Wybunbury Moss NNR (Abrehart, 2012). The latter site is a fabulous example of a basin mire with quaking bog, known as 'schwingmoor', an acidic community and the feature for which the site is included in the West Midlands Mosses SAC. The *V. geyeri*, was near the edge of the basin, where the base rich shallow surface ground water influences the water chemistry and vegetation, a characteristic of many of the sites.

Hydrochemistry of the meres

Rainwater percolating through the surface layer of glacial drift to the water table in the catchment is the main source of water to the majority of the meres. Virtually all of the meres have a pH in the range 7.5 – 9 but vary in chemical composition, compatible with the heterogenous nature of the drift deposits and the groundwater leaching. There is a close correlation between conductivity and alkalinity and Reynolds (1979) noted that the richer meres (higher conductivity) tended to hold more mollusc species than the less productive meres. Palmer et al (1980) demonstrated that the correlation between the number of molluscs and conductivity was closer than that between number of mollusc species and alkalinity, at least for the data collected during the 1979/1980 invertebrate survey of the meres (Wigginton et al, 1980).



figure 9: Toby Abrehart surveying for *V. moulinsiana* in *Carex paniculata* tussocks in NVC community W5 *A. glutinosa* – *C. paniculata*, at Fenemere SSSI, Shropshire.

Habitat preferences for *Vertigo moulinsiana* in the meres

Transect surveys to establish a baseline for the abundance and distribution of *V. moulinsiana* were carried out between 2012-2015 on the five main sites; Sweat Mere, Aqualate Mere, Quoisley Mere, Fenemere (Figure 4) and Chapel Mere, all by Toby Abrehart. This was particularly important as active management was being considered or already taking place for restoring more natural hydrology and for controlling invading Alder and Willow carr on surrounding fen. At Sweat Mere and Quoisley Mere in particular, historic drainage had dropped the water levels in the wetland by over a metre leading to an overall loss of wetland habitat across the range of community types. The ambition for the sites is to restore as far as possible the natural hydrological functioning of the wetlands which could entail raising the bed level of outlet drains and to restore surrounding transitional fen by removing trees which have been able to colonise during dry periods. This could have repercussions on the suitability of conditions for Desmoulin's, though in the long run should lead to an increase in suitable habitat with an expansion of sedge-rich transitional wetland. Throughout the meres Desmoulin's was found to be most abundant under the following conditions:

- On dense stands of the large sedges in NVC community types S3 *C. paniculata*; S7 *Carex acutiformis*; S6 *Carex riparia* swamp and also on the same sedges within W5 *A. glutinosa* – *C. paniculata* and W2 *S. cinerea* – *Betula pubescens* – *Phragmites australis* carr woodland.
- Where moisture levels were in the range 3-5, on the scale devised by Killeen and Moorkens (2003) where 3 = wet, water rises under light pressure; 4 = very wet, pools of standing water generally less than 5 cm deep; and 5 = site under water, entire sampling site in standing or flowing water over 5cm deep.
- Where canopy cover was between 0–40% usually comprising *Alnus glutinosa* and/or *Salix cinerea*.

Desmoulin's was still present at the wet end of the hydrosere behind the S4 *P. australis* which was floating on the open water (eg at Aqualate Mere), but only where the reed transitioned to the large sedges. Similarly it was present but in low numbers where the sedge dominated swamp or carr transitioned to wet grassland on the outer edge of the hydrosere (eg at Fenemere) and was even found on rushes (eg Quoisley Mere). Denser canopy resulting in sparser sedges, and also drier ground and different vegetation, meant fewer individuals of *V. moulinsiana*.

Other molluscs of the meres

Desmoulin's snail was commonly found with *Zonitoides nitidus*, *Vertigo antivertigo*, *Succinea putris*, *Euconulus alderi*, and *Oxyloma elegans* and more occasionally with *Vertigo pygmaea*, *Vitrina pellucida* and *Punctum pygmaeum* as the habitat became slightly drier. Continuing towards the drier end of the hydrosere where Desmoulin's was even less frequent a range of other species became more common such as *Cochlicopa lubrica*, *Vertigo substriata*, *Columella aspera*, *Lauria cylindracea* and *Carychium minimum*. At the wetter end of the habitat range for Desmoulin's, *Lymnaea fusca*, *Galba truncatula* and *Anisus vortex* were sometimes also picked up during survey for *V. moulinsiana*.

The aquatic molluscs themselves have recently been sampled at a number of the meres and a large number of species have been encountered. At Aqualate Mere NNR, a total of 78 species of mollusc (aquatic and terrestrial, including slugs) are listed on the National Biodiversity Network gateway and this does not yet include all of the recent finds. Here the aquatic molluscs include *Aplexa hypnorum*, *Viviparus viviparus*, *Anisus leucostoma*, *Radix auriculata* and *Gyraulus crista* and *G. laevis*. Of the bivalves, there are 7 species of *Psidium* recorded at Aqualate along with *Sphaerium*, *Musculium* and *Anodonta* species.

The picture is similar for other sites such as Fenemere for which the NBN gateway lists 57 mollusc species in total within or near the site but the records for this site and no doubt all the sites, need updating. The recent discovery of *Segmentina nitida* (the shining ram's-horn) (RDB 1) and *Vertigo geyeri* (Geyer's whorl snail) (RDB 1) in the Midland meres is another incentive to improve the survey and recording of molluscs in these wetlands. I hope to improve the state of recording molluscs in the Midlands Meres and would be very happy to welcome any conchologists to the meres. To this end I will be organising a field trip next year and I hope I have whetted your appetite to join in a recording visit to this area.

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Glass snails in the Dolomites

Peter Topley

The Dolomites are part of the southern limestone Alps in northeast Italy and form a mountainous area with dramatic peaks up to 3300 m consisting of both volcanic and carbonate sedimentary rocks. An autumn holiday based in the Fiscalina valley near Sesto provided an opportunity to look at the land snails of this region and I found myself focusing on the Vitrinidae, or glass snails. In the UK and Ireland, we have three species, one of which is very local (*Phenacolimax major*) and another probably introduced and confined to Ireland (*Semilimax pyrenaicus*) (Kerney, 1999) whereas there are at least 12 glass snail species recorded from Northern Italy (Cossignani and Cossignani, 1995).

Glass snails have small fragile and translucent shells into which (in the majority of species) they are unable to withdraw completely, the mantle edge extending over the shell to a greater or lesser extent; hence they represent a transition between snails and slugs. In the Dolomites, Vitrinids generally live in damp places beneath decaying vegetation and moss, often beside streams, many species preferring higher altitudes. Glass snails are commonly active in the autumn when the weather is cooler and more humid, so I happened to be in the Dolomites at the right time!

The most familiar of the vitrinids I saw, present at several of the sites I visited up to 1900 m, was the pellucid glass snail, *Vitrina pellucida* (figure 1). This species, the third and commonest glass snail in the UK and Ireland, has a narrow mantle shield and the mantle flap does not cover the shell tip, the animal being able to largely withdraw into its shell.



figure 1: *Vitrina pellucida*, Fiscalina valley (shell width 5.1 mm).

Taking the cable car up to Rotwand, above the Fiscalina valley near Moos (1915 m) (figure 2), the underneath of a discarded pallet in a field near the cable car station proved a good habitat! Here I found two species actively crawling. *Eucobrasia nivalis* (Dumont & Mortillet, 1854) (figure 3) has a more expanded shell than *V. pellucida* and the “mantle appendix” that protrudes from the edges of the mantle, does not cover the apex of the shell. Apparently this species has a

strong requirement for stones to shelter against desiccation (Welter-Schultes, 2012) so a wooden pallet was a good substitute. The second species here was *Semilimax kotulae* (Westerlund, 1863) (figure 4). In *Semilimax* the last whorl is much larger than the rest of the shell and the apex is small (Horsak *et al.*, 2013). *S. kotulae* is an alpine species in which the mantle flap covers the apex and the shell itself has a wide membrane at the lower edge of the shell, while the upper whorls are visible to the apex.



figure 2: High valley near Rotwand, Italian Dolomites, near the habitat of *Eucobrasia nivalis* and *Semilimax kotulae*.



figure 3: *Eucobrasia nivalis*, Rotwand (w. 4.8 mm).

Near the north Italian border with Austria by Lake d’Aruerselva near Stalle at a height of 1600 m, looking under birch logs and moss in a mixed wood, I found another *Eucobrasia*, the ear-shaped glass snail *E. diaphana* (Draparnaud, 1805) (figure 5). This species is widely distributed in central Europe including Switzerland (Boschi, 2011) in shady, humid habitats. The curved columella of *E. diaphana* reveals the preceding whorls and there is a broad apertural membrane.



figure 4: *Semilimax kotulae*, Rotwand (w. 5.4 mm).



figure 5: *Eucobrasia diaphana* by lake d'Aruerselva near Stalle (w. 3.9 mm).

The final species I found was amongst moss under boulders at 1450 m in the grounds of the hotel where I was staying in the Fiscalina valley. The wide-mouthed glass snail, *Semilimax semilimax* (Ferussac, 1802) (figure 6), has a greenish-hued shell that looks red striped with animal inside and as with *S. kotulae* the mantle flap covers the tip of the shell. This animal refused to crawl and so is shown in its resting position!

The European vitrinid land snails have been surveyed in a phylogenetic study (Guisti et al., 2011) based on morphological characters to determine relationships between taxa. In this study, species in the genus *Eucobrasia* (for example) were found to be more distantly related to *Vitrina* than others. Whatever the relationships within this

group, the species I saw were only a proportion of those that have been recorded in this region and well worth searching out if you are visiting the more mountainous parts of central Europe in the early autumn.



figure 6: *Semilimax semilimax* at rest, Fiscalina valley.

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Who am I ?

My pace is slow, my brain is small,
No thought is in my head at all.
I do not cry, I do not talk,
You hear me eat, not hear me walk.

I have a spire where no bells ring,
With coil on coil and yet no spring.
Two horns have I, yet make no sound,
Sans legs, my foot stays on the ground.

I glide, but fly not; up I climb,
On soil and rock I leave my slime.
Love has for me quite twice the thrill,
For in this case I'm Jack and Jill.

By now you should be on my trail
Can you guess it? I'm a SNAIL.
Dry, safe and warm in shell so snug,
I thank the gods I'm not a SLUG!

Robert Cameron

On the oldest hitherto known depiction of the marine gastropod

Aporrhais pespelecani

Georg Schifko¹

The Paul Getty Museum in California houses in its collections a Greek jasper seal from the Classical period, showing the shell of a marine gastropod (figure 1). The depicted shell has been misidentified as *Murex* sp. It is also evident that the nature of the finger-like structures connected to the putative *Murex* shell was not recognized, and therefore they were simply described as ‘chips’ (Spier 1992: 20). Although a pictorial representation of a *Murex* gastropod would be plausible due to the probability of their having already been used for the production of purple dye in Bronze Age Greece, it is definitely another gastropod shell that is depicted on this gem. Just as Sherlock Holmes explains in the novel *The Hound of the Baskervilles*: ‘...and the very point which appears to complicate a case is, when duly considered and scientifically handled, the one which is most likely to elucidate it’ (Doyle 2009: 161), of all things the strange finger-like structures reveal the true identity of the depicted shell. The so called ‘chips’ are in fact protrusions of the shell and therefore indicate that the gastropod depicted is *Aporrhais pespelecani* (figure 2), a very conspicuous mollusc which was even mentioned by Aristotle and was used by the The Conchological Society of Great Britain and Ireland in its previous logo.

It is noteworthy that contrary to the examples found in nature, the depicted *Aporrhais* shell on the gemstone is not a right-coiled (dextral), but a left-coiled (sinistral) specimen. The coiling direction of a gastropod shell can be determined by holding the shell with the spire pointing upward and the aperture facing the observer. If the aperture lies on the left side of the shell, the coiling is sinistral, if it is on the right side, then the coiling dextral (Robertson 1993: 104). If one could turn the shell on the gem around its own axis and look at the side not visible in the engraving, both the aperture and the protrusions would be situated on the wrong side when compared to a real *Aporrhais* shell.

However, on the seal impression, which is necessarily a mirror image of the engraving on the gemstone, the shell is correctly depicted. As it is very unlikely that the shell was engraved by accident laterally reversed, one can assume that the resulting seal impression was the desired representation, rather than the engraving on the gem itself. To conclude, it should also be pointed out that the gemstone discussed here shows the world's oldest known pictorial evidence of an *Aporrhais pespelecani*.

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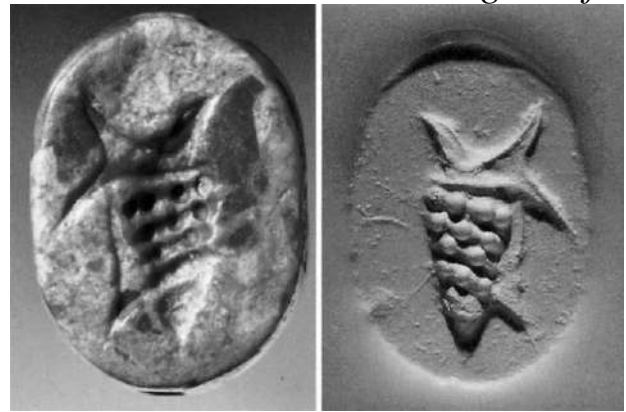


figure 1: A gemstone depicting a shell of *Aporrhais pespelecani* and a seal impression of this gemstone. (Spier (1992) p. 20)

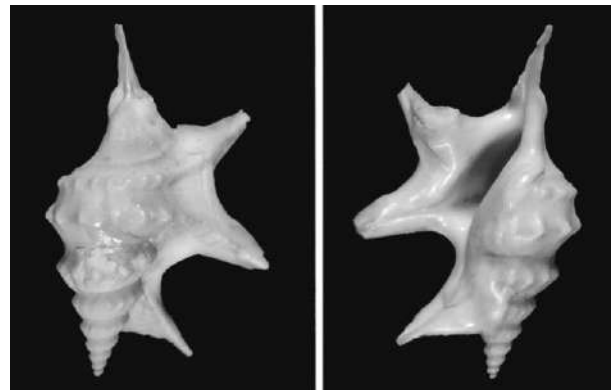


figure 2: A shell of *Aporrhais pespelecani* seen from above and from below. (photos: Herwig Steiner)

A Swiss ‘Muschelgrotte mit Marienbild’

Peter Topley

I spotted this unusual small wall-mounted ‘Shell Grotto with picture of the Virgin Mary’, dating from the 18th century in the Castle Museum in Zug, Switzerland, in August 2014 (below). Displayed in a dark corner, the grotto appeared to be decorated with many natural objects, such as seeds and stones, as well as shells. The grotto contains the model of a phoenix; a symbol of the risen Christ. Although the label did not specify whether the grotto originated in Switzerland, the shells seemed to come from the Mediterranean/N European sea areas. A curious item for a landlocked country!



The Thatcham Discovery Centre is a large area of reed bed wetland in worked-out gravel pits, adjacent to the River Kennett in Berkshire. It is also an important archaeological site, with evidence of settlement during the Mesolithic period, radiocarbon dated to 8500-6000 BC. From the molluscan point of view the site, managed by the Berks, Bucks & Oxon Wildlife Trust, is well known as one of the habitats of the whorl snail *Vertigo moulinsiana*. The Conchological Society last met here in October 1993, when 29 species of land molluscs and 17 species of freshwater molluscs were found; Rosemary Hill has located the list of those records and it is interesting that apparently only living species were recorded, with no 'shell only' specimens documented – whether this is really so or just a recording anomaly is not clear.

Nine members attended the meeting; the weather was favourable, being dry but overcast. Rain fell, but fortuitously only during lunchtime. During the course of the day a variety of habitats were visited: reed beds, flowing streams, stagnant streams, canal banks and dry scrub woodland.



figure 1: Area of reed beds at Thatcham. (photo: Peter Topley)

We started by walking to the Kennet & Avon Canal, stopping on the way at an area of reed beds; the reeds were about 1.50m tall, with a little varied vegetation at the base of the reeds (figure 1). Ten live wetland species were found, including *Succinea putris*, *Zonitoides nitidus*, *Euconulus fulvus* and *Pisidium personatum*, as well as some drier ground molluscs. The only slug was *Deroceras reticulatum*. We did not stop long while walking along the canal tow path; dipping was disappointing (figure 2), only revealing *Potamopyrgus antipodarum* and *Pisidium subtruncatum*.



figure 2: The author and others dipping in the Kennet and Avon Canal, Thatcham. (photo: Caren Topley)

We next crossed a large area of reed beds to reach a footbridge across Moor Ditch, the main drainage channel running through the reserve. It had a moderate water flow which was controlled by flood gates under the bridge. This area of reeds is low-lying and completely floods during many winters, which probably severely affects the mollusc populations that are able survive here. Only four species were found alive in the reed beds (*Succinea putris*, *Aegopinella pura*, *Euconulus fulvus* and *Cornu aspersum*) although dead shells of eight molluscs (including *Galba truncatula*) were collected (figure 3). The water of Moor Ditch (figure 4) did produce several freshwater species, including live *Physa fontinalis*, *Pisidium nitidum*, *P. personatum*, *P. subtruncatum* and *Sphaerium corneum*; dead shells of seven species were also recovered, but of course it is not possible to know whether these, as with the dead reed bed shells, were ever living in this area or were deposited here from upstream, especially during times of flood.



figure 3: Participants searching for molluscs near Moor Ditch. (photo: Peter Topley)



figure 4: Peter Topley searching for molluscs in Moor Ditch. (photo: Caren Topley)

On the way back to the Discovery Centre for lunch we stopped at another reed bed just south of the main London to Exeter railway line; this area may be a few cm higher than elsewhere and probably less prone to regular flooding and all members present were, at last, successful in finding live specimens of *Vertigo moulinsiana* in moderate numbers (figures 5 to 8); it is reassuring to know that it is still present at Thatcham. This was the only location where we found it on this visit, but other areas of reed bed will be well worth visiting on other occasions.



figure 5: Entering the reedbed site of *V. moulinsiana*.
(photo: Caren Topley)



figure 6: Reedbed habitat of *V. moulinsiana* at Thatcham.
(photo: Peter Topley)



figure 7: Adult and juvenile *V. moulinsiana* on reeds at Thatcham.
(photo: Peter Topley)

Several members had to leave at lunchtime, while those remaining has light refreshments in the cafe, sheltering from the only rain we experienced – well timed not to interfere

with shell-searching. After lunch we walked towards the west end of the reserve, where there are areas of scrub woodland at somewhat higher elevations than the reed beds. Here we found a moderate variety of shade species, including a variety of Oxychilids and Hygromids, some live but others as dead shells only. We dipped in the Moor Ditch further upstream and found, as expected, similar species to those obtained during the morning. A nearly stagnant stream nearby only yielded *Pisidium personatum*.

The day produced a total of 28 land and 15 freshwater species, almost identical to the numbers found in 1993. There were, however, some differences, as seen in the accompanying table. Of note is that *Vertigo moulinsiana*, was found this year but not previously. Overall there were ten land and eight freshwater species which were observed in 1993 but which we failed to find in 2015 (including *Bithynia leachii*, *B. tentaculata* and three Lymnaeids), while in 2015 we found nine land (including dead shells of *Vallonia excentrica* and *V. pulchella*) and seven freshwater species (including live *Valvata cristata*, *V. piscinalis*, *Physa fontinalis* and *Pisidium personatum*) which were not seen previously; whether this represents change in habitats or just sampling differences must remain a matter of speculation.

Thanks are due to Simon Barnett, warden of Thatcham Discovery Centre, for giving us permission to explore the reserve.



figure 8: *V. moulinsiana* from Thatcham. (photos: Tony Wardaugh)

Thatcham Nature Discovery Centre Conchological Society Field Meeting 20th June 2015	1993	2015	Reed beds north of Moor Stream	Bank, Kennet & Avon canal + in canal	Dipping from bridge across Moor Ditch	In reed beds north of Moor Ditch	In meadow on vegetat- ion or in leaf litter	In reed beds just south of railway	In scrub wood- land	In grass beside area of scrub	Dipping from bridge over Moor Ditch	Dipping in small stream; S
			SU5060 .6650	SU509 .663	SU5107 .6635	SU511 .663	SU5106 .6632	SU5052 .6662	SU5022 .6669	SU5020 .6669	SU4995 .6699	SU4986 .6678
			1	2	3	4	5	6	7	8	9	10
Land												
<i>Carychium minimum</i>		S	S				S					
<i>Carychium tridentatum</i>	L											
<i>Succinea putris</i>	L	L	L		L	L	L	L		L		
<i>Cochlicopa lubrica</i>	L	L	L			S						
<i>Cochlicopa lubricella</i>		L	L									
<i>Vertigo moulinsiana</i>		L						L				
<i>Vallonia excentrica</i>		S								S		
<i>Vallonia pulchella</i>		S	S									
<i>Punctum pygmaeum</i>	L											
<i>Discus rotundatus</i>	L	S				S			S			
<i>Arion ater</i> agg	L											
<i>Arion ater</i> seg		L			L							
<i>Arion circumscriptus</i> agg	L											
<i>Arion distinctus</i>	L											
<i>Vitrina pellucida</i>	L	S							S			
<i>Vitrea contracta</i>		S				S						
<i>Vitrea crystallina</i>	L											
<i>Aegopinella nitidula</i>	L	L	S			S			L			
<i>Aegopinella pura</i>		L				L						
<i>Oxychilus alliarius</i>	L	L							L			
<i>Oxychilus cellarius</i>	L	L							L			
<i>Oxychilus navarricus helveticus</i>	L											
<i>Zonitoides nitidus</i>	L	L	L					L				
<i>Deroceras laeve</i>	L											
<i>Deroceras reticulatum</i>	L	L	L				L		L			
<i>Euconulus alderi</i>	L	L	S				L					
<i>Euconulus fulvus</i>	L	L	L			L	S					
<i>Clausilia bidentata</i>	L	S							S			
<i>Ashfordia granulata</i>	L											
<i>Candidula gigaxii</i>	L											
<i>Candidula intersecta</i>		S							S			
<i>Cermea virgata</i>	L											
<i>Monacha cantiana</i>	L	L	L	L					L			
<i>Trochulus hispidus</i>	L	L	S			S	S		L			
<i>Trochulus striolatus</i>	L	L	L	L		S			L			
<i>Arianta arbustorum</i>	L	L	L	L		S	L	L	L			
<i>Cepaea hortensis</i>	L	L		L			S	L	S			
<i>Cepaea nemoralis</i>		S							S			
<i>Cornu aspersum</i>	L	L		S		L			S			
Freshwater												
<i>Valvata cristata</i>		S			S							
<i>Valvata piscinalis</i>	L	S			S							
<i>Potamopyrgus antipodarum</i>	L	L		L	S						L	
<i>Bithynia leachii</i>	L											
<i>Bithynia tentaculata</i>	L											
<i>Galba truncatula</i>		S				S						
<i>Lymnaea palustris</i>	L											
<i>Lymnaea stagnalis</i>	L											
<i>Radix balthica</i>	L											
<i>Physa cf. acuta</i>		S			S							
<i>Physa fontinalis</i>		L			L						L	
<i>Anisus vortex</i>	L	S			S						S	
<i>Bathyomphalus contortus</i>	L											
<i>Gyraulus albus</i>	L	S								S		
<i>Planorbis planorbis</i>	L											
<i>Ancylus fluviatilis</i>		S			S							
<i>Acroloxus lacustris</i>	L	S			S							
<i>Pisidium henslowanum</i>	L											
<i>Pisidium hibernicum</i>	?											
<i>Pisidium nitidum</i>	?	L			L						L	
<i>Pisidium personatum</i>		L	L		L		L					L
<i>Pisidium pulchellum</i>		S			S							
<i>Pisidium subtruncatum</i>	L	L		L	L						L	
<i>Sphaerium corneum</i>	L	L			L						L	



figure 1: Wigmore Park, a site bordering Luton Airport runway.

To the sound of nearby taxiing jet aircraft (the anticipation of which may have deterred other members of Conch. Soc. from attending!), three of us, Alan Outen of the Bedfordshire Invertebrate Group, Trevor Tween of Luton Borough Council (a past Conch. Soc. member) and myself, met on a very dry day at this site which borders the runway of Luton Airport (figures 1 and 2). Trevor had requested that we look here as it is an area that could potentially be under threat from airport expansion in the future. The site is already known to have an interesting invertebrate fauna including bombardier beetles (*Brachinus crepitans*) and consists of a mosaic of grasslands with scrub, wet areas and old woodland belts/hedgerows, one of which connects the site to the Winch Wood County Wildlife Site. A survey carried out by Mark Telfer (Telfer, 2012) in the adjacent area of the airport recorded a list of mollusc species including *Vertigo pygmaea* and *Cerneuella virgata*. It was disappointing that I could find neither of these species on the day; I was especially surprised that in the areas searched I could find no evidence of the latter species, which often makes its presence known by accumulations of dead shells.

There was also no sign of the more local and probably declining *Helicella itala* which has been recorded from other areas of the chalk in the county. As we toured the site Trevor explained that although the area supported a healthy flora, including common spotted, pyramidal and bee orchids, parts of the site were in the past used as landfill and at some stage re-landscaping had occurred relating to the airport. This past disturbance is probably a major contributor to the relatively poor mollusc fauna in this varied chalkland area; however, a repeated visit at a different season may well yield species not observed on the day.

Species list: *Aegopinella nitidula*, *Arion subfuscus*, *Candidula intersecta*, *Cochlicopa lubrica*, *Deroceras reticulatum*, *Monacha cantiana*, *Trochulus hispidus*, *Oxychilus alliarius*, *Vallonia excentrica*, *Cepaea nemoralis*, *Cornu aspersum*, *Trochulus striolatus*.

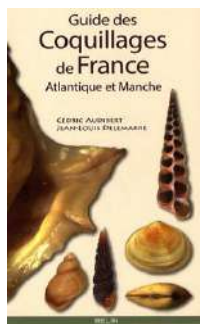


figure 2: Trevor Tween and Alan Outen searching for invertebrates at Wigmore Park.

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Telfer, M (2012) Invertebrate survey of Luton airport: final report. http://www.eplan.luton.gov.uk/plannet/documentstore%5CDC19512388-281-1_01_A.P

Book Review: *Guide des Coquillages de France Atlantique et Manche* by Cédric Audibert and Jean-Louis Deleamarre. Belin, France, 2009. 213pp. 19.20 Euros. ISBN 978-2-7011-4671-3



Serendipity can provide an exciting reward. Wherever I am I keep my eyes open for books, both new and second hand, on a wide range of issues. Much was my delight when I was visiting the fossil museum – Paleospace l’Odyssee in Villers sur Mer, Normandy, France when I discovered this ‘new-ish’ book on French seashells. The price appears somewhat expensive for a small book about marine molluscs but a look inside the book

will dispel any apprehensions.

The book is obviously designed for the novice collector or for someone who just wishes to put names on the shells they have found on the beach. Each page re-enforces some simple observations. The header space on each page of illustrations indicates that the animals covered on that page are ‘Coquille absente’, ‘Coquille spiralée’, ‘Coquille a 2 valves’ or ‘Coquille différente’. The right hand margin on pages dealing with ‘Coquille spiralée’ contains such discriminating characteristics as ‘Spire conique’, and ‘Spire fusiforme ou ovale canal

siphonal absent’. The footer of such a page has discriminants such as ‘Coquille courte ou globose’ and ‘Coquilleen fuseau’. Bivalves are segregated by such characteristics as the presence of a pallial sinus and dentition. This page format re-enforces initial observations of a particular shell in a novel and helpful approach.

The illustrations are high quality colour photographs. Each species included is described by such information as size, ornamentation, colour, habitat and the particularly helpful section, ‘*Risques de confusion*’.

It is always possible to criticise a book for the species included or for those omitted. It was a delight to see that some common species of *Alvania* and *Rissoa* were included as well as some of the small bivalves such as *Lasaea rubra* (Montagu, 1803) [now known as *Lasaea adansonii* (Gmelin, 1791) – Ed.]. Yes, the text is in French and my schoolboy French from 55 years ago was quite adequate. *Bon courage!*

Did I buy one? No! I bought two, one for myself and another copy for a close friend.

David Harfield

Obituary : **David Jack Lindley**, 12th January 1958 – 7th July 2015 *Adrian Norris*
died aged 57 years, leaving a wife Caroline, and daughters Emma Jade and Sophie Amber.



David Lindley, 2012. (photo: Caroline Lindley)

Born in Leeds, the son of a bus driver and the youngest of a family of three, with sisters Katherine and Pat eleven and eight years older respectively, David was educated at Becketts Park Infant and then Junior School, before moving on to Moor Grange School. He joined the Army at 16 and served in the Prince of Wales Mortar Platoon, starting with a two-year course at Folkstone for junior leaders. In the 1980s he was stationed in Berlin for a period of two years.

At the age of 23, David married Caroline Fawcett on the 9th April 1985 whilst on leave in Leeds. He was then posted to Northern Ireland and, with his new wife, was based at the Abercorn Barracks at Ballykinler on the coast in southern County Down not far from Downpatrick. For much of this period he was working away from Caroline, spending most of each week probably in Belfast. His first daughter Emma Jade was born whilst he was on leave in Leeds during this period. In his army career he advanced to the rank of sergeant and after Northern Ireland he was stationed at Catterick Barracks. Before leaving the army, he chose to take an advanced driving course as part of his pre-release training.

After leaving the army, David had a short spell in security at Leeds University before joining the West Yorkshire Police after the height regulations were relaxed, having been half an inch too short for the previous requirements. The Army, followed by the Police Force, helped him to develop a very good, almost photographic, memory. A spell in the Vice Squad, which he thoroughly enjoyed, was followed by a period in the Murder Squad. His military training, particularly in counter-terrorism, enabled his knowledge and experience to be utilised by the police, resulting in his joining the counter-terrorism unit within the police force. A regular uniformed police officer for two years, he soon moved into plain clothes, and rose to the rank of Detective

Sergeant. An enduringly modest person, he never told even his wife and close friends about his many commendations and citations. His instinct to help others took him to Bosnia as part of a West Yorkshire Police team who delivered a convoy to help the Bosnian people during the Balkan War in September 1993; David co-drove a large van with a Yorkshire Evening Post reporter.

His ability to compartmentalise his life helped him to cope with the serious demands of his job. The study of molluscs gave him the opportunity to shut off from his work and think of different, less traumatic, life forms. David joined the Conchological Society of Great Britain and Ireland in 1989, a year after joining the Yorkshire Conchological Society in 1988 of which he became the Honorary Secretary in 1991. He was elected to the executive of the Yorkshire Naturalists' Union as a representative of the Conchological section in 1990. I first met David at the age of 12, after the two Davids, David Lindley and David Dickinson, joined the Leeds Naturalists' Club and Scientific Association. Thereafter, the two Davids regularly joined me to travel to and from field trips. At the age of 14 he joined me on a trip to Shipley Glen, near Bradford to find *Vertigo* snails during which we found *Vertigo pygmaea* and *Vertigo substriata* in a marshy field. This group dominated his interests from then on and he became a national expert in the study of this group of molluscs. His delight in finding *Vertigo geyeri*, a species new to Yorkshire, in what are remarkable and unusual sites in North Yorkshire can be readily understood, and, owing to David's hard work they now have the protection which they deserve. His achievements will continue for some time as not all of his work has been published yet. David was probably best known for his enthusiastic involvement in the organisation of the many field meetings held within Yorkshire, both marine and land and freshwater meetings. He also left a legacy of £1000 to the Conchological Society of Great Britain and Ireland.



David (for a change working on the shore) at Filey Brigg during the Conchological Society's Yorkshire field meeting, September 2014. (photo: Peter Topley)

His family always came first: devoted to his wife and daughters he made certain that their wishes came before anything else. He loved good food and regularly had to leave field meetings promptly to get home to take his wife and family out. His love of life and the outdoors took them on regular holidays, often for walking. He also liked to

travel to exotic places as far flung as Antigua, Cuba, Mauritius and the Yucatan Peninsula in Central America, all of which were a real adventure for him and his wife. After several visits to Madeira and having failed to find any specimens of *Leiostylia*, David spent his last holiday on the nearby island of Porto Santo armed with a list of the species I had found in the hope of finding at least one of them. It is a great pity that he never lived to examine in detail or to fully label any specimens of the one species that he did find, *Leiostylia monticola*, in late June 2015. His collection has been bequeathed to the Leeds City Museum to go alongside other Yorkshire greats such as the co-founder of the Conchological Society, William Nelson and many other local worthies. His family are intending to fulfil his wish that his ashes are scattered on Ingleborough, one of his favourite places within the Yorkshire Dales National Park.

Still working on his main interest, the Vertiginidae, he left an unfinished paper on *Vertigo alpestris*, Alder 1838 and *Vertigo pusilla*, Muller 1774 in Watsonian Yorkshire which we hope will be published very shortly within the pages of the *Naturalist*.

David and I carried out a great deal of molluscan recording together across the county, particularly since he changed

more recently from full-time to part-time employment. He was an excellent companion and colleague – always enthusiastic, cheerful, positive and very well organised. His premature death, caused by the unforeseen consequences of treatment for a mild heart attack, was acutely felt by his many friends among the army, police and natural historians and, at his funeral, the large church was filled to overflowing. His legacy continues through one of his daughters who has followed his interests and has gained a degree in Environmental Studies.

Selected Bibliography David Lindley

Lindley, D. (1995) *Vertigo geyeri* (Lindholm 1925), a snail new to Yorkshire. *Naturalist* **120** (1012) 35-36.

Lindley, D. (2007) The re-discovery of *Segmentina nitida* (O.F. Muller, 1774) in Hornsea Mere Yorkshire. *Mollusc World* **15**:19.

Lindley, D (2008) *Malacolimax tenellus* (O.F. Muller) in Nidderdale. *Mollusc World* **18**:20-21.

Lindley, D (2011) The Slender Slug *Malacolimax tenellus* in Yorkshire. *Naturalist* **136** (1076) 45 Plate4b.

Lindley, D (2014) Field Meeting to Yorkshire 2014 – the terrestrial tale *Mollusc World*: **37** 3-5.

Meanwhile in Malham.....



Cartoon by Jonny Drew, boyfriend of David's daughter Sophie.

Non-Marine Recording – Activity and Highlights 2014

Adrian Norris

The summer of 2014 heralded the long-awaited publication of *Slugs of Britain and Ireland Identification, understanding and control*, by Ben Rowson, James Turner, Roy Anderson and Bill Symondson: an Aidgap publication in association with the National Museum of Wales. When this project was first proposed it was assumed that the number of species found in Britain would be reduced in number. However, all of the species were accepted as correct and a number of new species were added to the list. The summer also saw the first of a new proposed series of publications: *An illustrated guide to the land snails of the British Isles* by Fred Naggs, Richard Preece, Roy Anderson, Amritha Peiris, Harold Taylor & Tom S. White in association with the Malacological Society and the Natural History Museum and several other associated organisations. It is too early to assess the impact of this publication but the slug book has resulted in numerous queries and some interesting results.

As well as the new VC records listed below, a number of other records are worth noting. *Limax sp. cf dacampi* was found in Fyling Hall School near Robin Hoods Bay in North Yorkshire in small numbers on five occasions since its original find in

August 2012. *Arion cf fagophilus* was found on several occasions in or near Cardiff at Tyle Garw, West of Pontyclun at ST029813 on 20.04.2012 as well as in Bute Park, Cathays on 09.08.2012 at ST175772 by Ben Rowson in association with J. Glossop; *Arion (mesarion) iratii* was also located just south of Garwnant turnoff on 20.04.2012 at SO009126; *Ambigolimax nyctelius* was located by P.G. Oliver at Romilly Road, Canton, Cardiff (ST161769) on 01.06.2012. These records will make it rather complicated and much more difficult to identify some species, in particular the *Arions* and *Derocheras panormitanum* ss. The occurrence of *Candidula olisippensis*, as a species new to the British Isles, is reported in the *Journal of Conchology* **41**: 629 – 672, by David & Geraldine Holyoak from Kynance Cove, Cornwall (VC 1).

Since my last report we have come to an arrangement with iRecord and we have now downloaded 492 records from 2014 into our database. This has resulted in numerous new VC records, in particular, *Hygromia cinctella* and *Limacus maculatus*. We were also notified of the occurrence of *Dreissena rostriformis bugensis* in the London area of

Surrey. For those who may know of iRecord and have tried downloading the data they will find records of *Anisus vorticulus* and *D. r. bugensis* both of which are incorrect. I am trying to establish how to prevent this type of error in the future. We also acquired a fine series of 298 records from Adrian Chalkley, a county recorder for the Suffolk Naturalists' Freshwater Invertebrate Group who produced a very good series from a recorder previously unknown to ourselves.

Ever since I took over as recorder there has been a small problem with some records appearing to be new VC records based upon the current Conchological Society data base. It is possible that some of the records held on the recording cards stored at the Natural History Museum have not been fully uploaded into digital format. A few of the records in this report may not be on our data base, but are clearly present on either the M. Kerney's vice-committal review (*Journal of Conchology* (1982) **31**: 63–71) and/or on his 1999 *Atlas of Land & Freshwater Molluscs of Britain & Ireland*. These 'reconfirmed' VC records appear in this report marked with an asterisk thus*.

West Cornwall (VC 1): *Candidula olisippensis*, Kynance Cliff, David & Geraldine Holyoak 04.06.2011

East Cornwall (VC2): *Limacus maculatus*, Looe Bioblitz, (SX247537) Richard Comont 23.06.2013 Det. A. Norris

South Devon (VC3): *Testacella cf scutulium*, Polsloe Bridge (SX942934) J. Moore 23.03. 2009 Det. B. Rowson

South Somerset (VC5): *Ambigolimax valentianus*, Watchet (ST066421) William Webber 31.05.2014 Det. A. Norris

Isle of Wight (VC10): *Arion vulgaris*, Fishbourne (SZ556909) Chris Gleed-Owen, 14.10.2013; *Limacus maculatus*, Shanklin (SZ575816) 27.04.2014 Stephen Green Det. A. Norris; *Limax cinereoniger*, **Euconulus fulvus* seg., Briddlesford Copses (SZ5489 & SZ5490) Keith Alexander 08.2012

South Hampshire (VC11): *Sphaerium nucleus*, Cowards Marsh (SZ151949) Robert Aquilina 11.12.2013 Det. Gethin Thomas; *Limacus flavus*, Walkford, Christchurch: (SZ219945) Chris Gleed-Owen 21.06.2013; *Arion distinctus*, Southbourne (SZ131929) 27.03.2013 Chris Du Feu

North Hampshire (VC12): *Arion ater* seg. Basingstoke (SU622568) 19.04.2013 Chris Du Feu

West Sussex (VC13): *Limacus maculatus*, Midhurst (SU8837520319) 01.04.2014 Martin Willing Det. B. Rowson

East Sussex (14): *Ambigolimax valentianus*, *Limacus maculatus*, Haywards Heath (TQ329231) 17.04.2014 Justin G.D. Byrne Both Det. Dr T. Crawford; *Dreissena polymorpha*, Boonshill (TQ935237) 08.09.2009 Environment Agency Det.. A. Norris

East Kent (VC15): *Dreissena polymorpha*, Reading Sewer, near Appledore (TQ951285) 29.09.2009 Environment Agency Det. A. Norris; *Hygromia cinctella*, Maidstone (TQ754570) Ron Carr 24.12.2014; *Limacus maculatus*, Maidstone (TQ760563) 21.12.2014 Ron Carr

Surrey (VC17): **Euconulus fulvus* seg. Worplesdon (SU970548) 22.07.2013 Chris Gleed-Owen; *Arion rufus* seg. Lambeth, London (TQ311788) 08.05.2013 B. Rowson & J.A. Turner

South Essex (VC18): *Helix lucorum*, South Chingford (TQ378913) 09.06.2014 Simon Taylor Det. A. Norris; *Limacus maculatus*, Epping Forest (TQ40429539) Rosie Morris 18.01.2014 Det. A. Norris

Hertfordshire (VC20): *Hygromia cinctella*, Broxbourne (TL366074) Andrew Jewels 10.09.2014; *Limacus maculatus*, Cheshunt (TL36740254) Nigel Sawyer 01.11.2014, Det. A. Norris

Middlesex (VC21): *Dreissena rostriformis bugensis*, Wraysbury Reservoir near Egham, Surrey (TQ024743) 01.10.2009 Environment Agency Det. Dr David Aldridge; *Arion cf.*

empiricorum, Kensal Green, London (TQ233827) 08.05.2013 B. Rowson & J.A. Turner

Berkshire (VC22): *Hygromia limbata*, Bekynton House, Sutton Courtenay (SU50439410) 21.07.2012, *Balea sarsii*, 18.09.2014 Richard Comont, both Det. A. Norris; *Ambigolimax valentianus*, Three Mile Cross (SU714684) Chris du Feu 19.04.2013

Oxfordshire (VC 23): *Selenochlamys ysbryda*, High Street, Wallingford (SU608895) 23.05.2013 Jennie Bispham conf. B. Rowson

Buckinghamshire (VC24): *Arion rufus*, Victoria Road, Eton (SU9452578512) Gordon Collett, 17.05.2014

East Norfolk (VC27): *Physella acuta*, Buttle Marsh (TG36441808) C. Martin Drake 10.07.2012; *Arion flagellus*, Thorpe Saint Andrew (TG26200939) University of the Third Age Det. Chris du Feu

Bedfordshire (VC30) *Limacus maculatus*, 7 Fairfax Close, Clifton, Shefford (TL1618938937) Peter Topley 01.03.2014 Det. A. Norris

Huntingdonshire (VC31): *Hygromia cinctella*, Peterborough (TL20069609) Kerry Cole 02.06.2013 Det. A. Norris; *Arion owenii*, Hilton (TL291662) Chris du Feu 24.02.2013

Northamptonshire (VC32): *Arion distinctus*, Hulton (SP70185048) Richard Comont, Det. A. Norris

West Gloucestershire (VC34): *Balea sarsii*, Kings Weston, Bristol (ST542774) Richard Comont 04.05.2013 Conf A. Norris

Monmouthshire (VC35): *Limacus maculatus*, Bedwellty Church Grounds (SO1659700358) Christian Owen 07.01.2012; *Ambigolimax valentianus*, Pennar Lane (ST20079660) Christian Owen 27.11.2014 Det. A. Norris

Shropshire (VC40): *Arion ater* seg., Preston Montford (SJ4314) 20.04.2013; *Arion rufus*, Preston Montford (SJ432144) Chris du Feu 06.09.2014

Glamorgan (VC41): *Deroceras panormitanum ss*, The Hayes, Cardiff (ST183763) B. Rowson 24.08.2012 *Arion cf fagophilus*, (ST042816) B. Rowson 14.04.2012; *Arion iratii*, Coed Groes Faen, Caerphilly (SO142007) Coll. B. Rowson, J.A. Turner & C. Owen Det. B. Rowson; *Ambigolimax nycelius*, Canton, Cardiff (ST161769) P.G. Oliver Det.. B. Rowson,

Breconshire (VC42): *Arion iratii*, North of Llwyn-on village (SO009126) B. Rowson 20.04.2012

Anglesey (VC 52): *Arion silvaticus s.s.* Waun Rydd Bog (SO078143) Christian Owen 28.05. 2012

Caernarvonshire (VC49): *Hygromia cinctella*, Llanberis, Snowdonia (SH58086232) Gordon Collett Det.. A. Norris

Denbighshire (VC50): *Arion rufus*, Wrexham Ind. Estate (SJ38184909) Chris du Feu 05.09.2014

South Lincolnshire (VC53): *Arion ater* seg. Whisby Nature Park (SK911665) 17.05.2013 LWT Det. Chris du Feu: *Arion distinctus*, Spalding (TF246921187) 04.03.2013; *Arion flagellus* Boultham (SK961699) LWT. 17.05.2013; *Arion rufus*, Grantham (SK927346) 17.05.2013; *Limacus maculatus*, Lincoln (SK941701) 13.05.2014; *Tandonia sowerbyi*, Spalding (TF247218) 31.05.2000 All Det. Chris du Feu; *Testacella haliotideia*, Kismumul School, Swinderby (SK867632) J. Bonney 11.08.2009 Det. B. Rowson

North Lincolnshire (VC54): *Arion owenii*, Minting (TF1875) Wragby Gardeners 26.02.2013 Det. Chris du Feu

Leicestershire (VC55): *Lucilla singleyana*, Belgrave Hall glasshouse (SK593072) & Rotherby Nurseries (SK676167) Both 14.09.1985 Dr Adrian Rundle

Nottinghamshire (VC56): *Hygromia cinctella*, Attenborough NR (SK5224234584) 07.10.2014 Tim Sexton Det. A. Norris

Derbyshire (VC57): *Ambigolimax valentianus*, Allestree 10.10.2013 (SK354403) *Arion flagellus*, (SK263324) 05.10.2013, DNHS 10.10.2013 Det. Chris du Feu

West Lancashire (VC60): *Arion ater* seg Brockholes NR (SD5830) Sue Mason 22.06.2013 Det. Chris du Feu

South-east Yorkshire (VC61): *Arion cf vulgaris* Buttercrambe Woods (SE709567) J. Turner A. Norris Det. B. Rowson; *Hygromia cinctella*, Marlborough Ave., Hull (TA08053003) Africa Gomez 06.10.2014 Det. A. Norris

North-east Yorkshire (VC62): **Myosotella myosotis*, Maze Park Tees Barrage area (NZ461195) 24.09.2013 Tony Wardhaugh; *Limax cf dacampi*, Fyling Hall School near Robin Hoods Bay (NZ932045) 25.08.2012 Marie Jeanne Perry also found on 25.09.2012, Det. B. Rowson; *Hygromia cinctella* St Nicholas Fields, York (SE616519) 10.03.2014 Terry Crawford; *Eobania vermiculata*, Linthorpe Cemetery Middlesborough (NZ484185) Laura Henry Det. A. Norris

North Northumberland (VC68): **Oxychilus draparnaudi*, Tweedmouth (NT995525) 04.09.2014 A.T. Sumner

Cumberland (VC70): **Oxychilus navarricus*, Clints Quarry (NY1618435895) 15.02.2013 Chris Gleed-Owen

Lanarkshire (VC77): **Euconulus fulvus* seg., Cleghorn Glen SSSI (NS8945) 30.08.2012 Keith Alexander; *Arion rufus*, Bothwell Castle (NS689591) 15.08.2014 A.T. Sumner

Roxburghshire (VC80): *Boettgerilla pallens*, Floors Castle Estate (NT707347) 12.05.2014 A.T. Sumner

Berwickshire (VC81): *Arion flagellus*, The Hirsell (NT825411) 11.05.2014 A.T. Sumner

East Lothian (VC82): *Arion vulgaris*, *Tandonia sowerbyi*, East Linton (NT592772) 29.05.2014 A.T. Sumner

Midlothian (VC83): *Balea sarsii*, Temple Midlothian (NT314587) 10.06.2014 B.E.H. Sumner Det. A.T. Sumner

Fifeshire (VC85): **Oxychilus draparnaudi*, Tayport (NO457291) 04.04.2014 A.T. Sumner

West Perthshire (VC87): *Arion flagellus*, Dollar Glen, (NS962987); *Arion rufus*, Alva Glen (NS886975) both dated 26.08.2014 A.T. Sumner

Mid Perthshire (VC88): *Limacus maculatus*, Perth, (NO114231) 06.06.2014 A.T. Sumner

East Perthshire (89): *Leiostyla anglica*, Bridge of Tilt (NN874658) 01.10.2014 A.T. Sumner

Angus (VC90): *Arion flagellus*, Edzell (NO600689) 07.07.2013 A.T. Sumner

South Aberdeenshire (VC92): *Arion ater* seg. Dee Road near Braemar (NO0958689370) 29.06.2013; **Euconulus fulvus*, Crathie Wood (NO2686895495) 30.06.2013 Chris Gleed-Owen

East Inverness-shire (96): *Arion ater* seg., (NN8469392846); Cairngorms 07.07.2013 Chris Gleed-Owen

West Sutherland (VC108): *Planorbis planorbis*, Glacanurican Drumbeig (NC12353262); *Physa fontinalis*, Kinlochbervie (NC22845605) 24.03.2014 Both Ian M. Evans Det. A. Norris

Channel Islands (VC113): *Ambigolimax valentianus*, Auverne St Peter's (WV595530) 07.05.2014; *Arion distinctus*, St John's Road, St Peter's (WV6451); **Lehmannia marginata*, Holestead St Peter's (WV5953) 08.1986 All Chris du Feu

South-east Galway(H15): *Deroceras cf laeve* (Irish) Coole Park near Gort (M437048) 05.09.2011 Coll. Roy Anderson also found 17.03.2013 Det. B. Rowson

Antrim (H39): *Deroceras cf laeve* (Irish), Duncrue Street Tip, Portmore Lough (J121695) 29.11.2012 also found 09.12.2012, Coll. Roy Anderson Det. B. Rowson; *Tandonia cf cristata*, Duncrue Street Tip, (J345779) Roy Anderson 29.11.2012 Det. B. Rowson

Correction: To 2013 Non-marine Recording Report: Examination of material collected from VC 11 (South Hampshire) in 2012 leads to the retraction of the VC record of *Gyraulus laevis* from Purwell Meadows, River Stour reported in *Mollusc World* 36: p. 8.

'Loping' locomotion in *Cepaea hortensis* juveniles

Gordon Collett

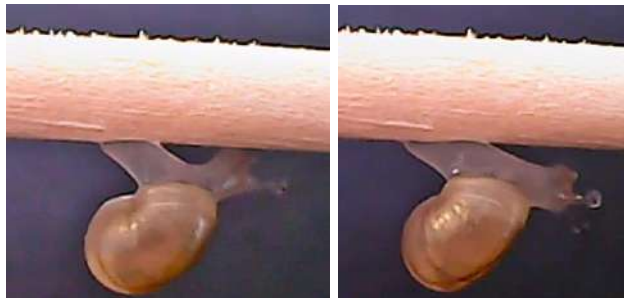


figure 1: Juvenile *C. hortensis* exhibiting 'loping' movement.

I am sharing a simple observation with you (the Society), thinking it is probably nothing new. I have been keeping some *Cepaea hortensis* from eggs just to watch them grow, in a small tank in my kitchen. They were about a month old, about 2.5–3 mm full body extension. What I saw was a sort of 'galloping' (figure 1). When under stress they travelled with only 30% of their foot in contact, the rest arching up and ahead with hydraulic extension. The contact area started at the head end and travelled backwards. By eye, they seemed to be going about 40% faster than whole foot contact travel (direct mode) rates, by comparison with their siblings travelling alongside in the same terrarium. The stretched-out 'arch' stays in the same place relative to the ground, so that the elongated area is moving backwards relative to the snail. I gather this is an example of retrograde monotaxic locomotion with a single elongation wave.

My drawings in figure 2 show an individual I observed walking along a wooden cocktail stick which I take to be an unpleasant (rough and dry) experience for it, so I presume the loping was to minimise contact and speed up the escape.

Illustration 5 is correct; for a brief moment they do stand on 'tip-toe' with about 30% of their foot in contact with the surface and reach out. This is the thing that first caught my eye. An image key: A and B are starting from rest, 1–6 in locomotion, with 6 going back to 1. Their eyestalks are proportionately very big at this age. Also they are colourless with transparent shells so it is all quite simplified.

My observation was forwarded to Dr Robert Cameron, who kindly came back with several comments. Firstly this locomotion is called 'loping', and several species show it (for example my patio is covered in dash-dash-dash broken 'footsteps': slime trails of *Cornu aspersum*), but Dr. Cameron has not seen this specifically in *Cepaea* juveniles. According to Tim Pearce (Pearce, T.A. (1989) Loping locomotion in terrestrial gastropods. *Walkerana* 3, 229–237), forwarded to me by Dr. Cameron, there are many claims that loping is faster than standard crawling, but Pearce's own experiments, including adult *C. nemoralis*, showed no difference, though he says that there are hypothetical arguments why loping might be faster. Old writers claimed that it did, but gave no evidence. Secondly, my observation is considered interesting in that in these very small snails there appears to be only one part of the foot out of contact with the ground at any one time, a single elongation wave; in larger snails (Tim Pearce has given Dr. Cameron images for the new book he is working on) there are several sections out of contact.

So what started as a bit of idle curiosity while I make a cup of tea, has given some possibly new insights into snail locomotion and set me planning ways to measure the speed difference!

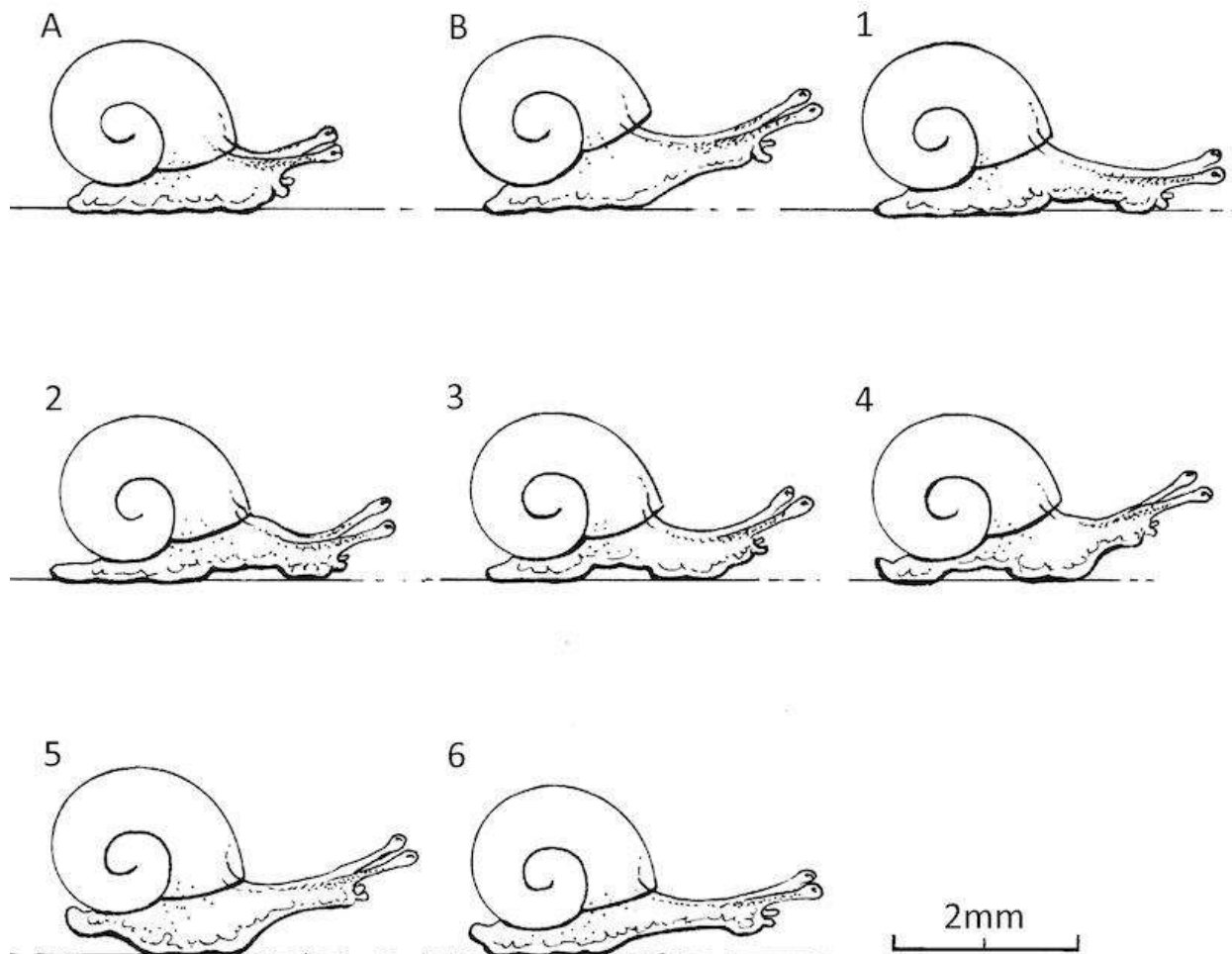


figure 2 (see previous page): 'Loping' locomotion in 30 day old *C. hortensis* juveniles. For key see text. (Drawing by the author)

ADVERTISEMENT

Shell collection for sale as a whole

Consisting of five trays of cowries (including *Arestoides argus*, *Chelycypraea testudinaria*, *Leporicypraea mappa geographicalis*, *Lyncina leviathon titan*, *Muracypraea mus*, *Pseudozonaria arabicula*, *Trona stercoraria*, *Umbilia hesitata* and many others) plus a small number of other tropical shells. The collection belonged to a former member of this Society. The majority of the shells have locality data and were collected c. 1960–70. All housed in a beautiful purpose-built chest and to include a copy of *The Living Cowries* by C.M. Burgess (1970).

£400 o.n.o. If interested please phone Pat on 01582 654202



Molluscs on BBC Radio 4

In December last year a paper in *Nature* reported the finding in Leiden museum by Josephine Joordens of ancient carvings on a freshwater mussel shell (*Pseudodon* sp.). The shell had been collected in the 1890s by the Dutch palaeontologist Eugène Dubois, at a site in eastern Java called Trinil where Dubois discovered the first *Homo erectus* fossil. The zig-zag shell markings have been confirmed as the world's oldest abstract signs ever discovered, made 500,000 years ago by *Homo erectus*. See: <http://www.nature.com/news/homo-erectus-made-world-s-oldest-doodle-500-000-years-ago-1.16477>.

Our member Paul Dansey pointed out to me that this and other shell related topics had been discussed in a programme in the series 'The Forum' on Radio 4 where 'Bridget Kendall presents an ideas discussion show in which some of the world's most eminent minds tackle the big questions of our age' (!). The particular episode called 'Shells: what shells can tell us about our past, present and future' aired on 5th September and at the time of writing is available to listen online at <http://www.bbc.co.uk/programmes/b0681sp5>. Apart from discussing the ancient shell carving mentioned above, other topics included the role of shell money in the African slave trade (subject of a forthcoming book by Toby Green called *A Fistful of Shells: West Africans and Their Kingdoms during the slave trade era*) and the problems posed on marine molluscs by sea acidification.

Spirals in Time: The Secret Life and Curious Afterlife of Seashells by Helen Scales, reviewed in the previous issue of this magazine, featured as 'Book of the Week' on radio 4 back in August. Did you catch it?

Hon. Editor

Swansea, Dylan Thomas's sea town, is well known for its local culinary fare of cockles and laverbread (made from seaweed or Dulse): this blackboard at the cafe outside Swansea railway station immediately announced two of the town's features (figure 1). The cockle industry is based on the muddy sands of the Lougher estuary between the north coast of Gower, West Glamorgan and Llanelli, Dyfed, the river being the divide between the counties. Cockles were, and still are, harvested both for sale (pickled or fresh) in local markets and outside the region. They featured as a ready source of free food in Welsh homes in this area when local people would collect for the pot and hence entered the local cuisine. One of the other features of Swansea is as the home of the Welsh poet Dylan Thomas, born and brought up in Swansea and who did nearly all of his creative writing in south Wales using local inspiration. On several occasions he lived a little further west in Laugharne, Dyfed, finally in the famous Boat House (now open to the public), another estuary where cockles abound. He married in his early twenties and he and his wife Caitlin were domestically disorganised and always short of money: about 1938 writing on his poverty at Laugharne he says 'The sun is shining on the mud, my wife is out cockling....'

Swansea land molluscs came into his early writings too, remembering Cwmdonkin Park of his childhood:

Who are his friends? The wind is his friend,
The glow-worm lights his darkness and
The snail tells of coming rain.

(Published in *Herald of Wales*, June 1935, written circa 1933)

Glow-worms eat snails and it would be interesting one day to visit Thomas's old haunt to see which snails inhabit Cwmdonkin Park and whether the glow-worm still shines there at night. It was certainly windy over my visit at New Year 2014 as exceptional gales and rough seas lashed Wales and the West Country.

Swansea then, and now, has a gritty side from its industrial past and varied economic levels of its inhabitants with unemployment part of the mix, but it would have been much murkier in Thomas's childhood from the coal mining industry and docking. In one of his last radio broadcasts *Quite Early One Morning* (published 1954) he refers to 'the

blackened monuments of civic pride and the museum, which should have been in a museum....'. In spite of this disparaging remark, the Swansea Museum is hosting a new exhibition on Dylan Thomas for the centenary of his birth in 2014 while another newer museum, the Dylan Thomas Centre, has opened nearby, together with a bronze statue of Swansea's most famous son looking out to sea from Swansea's Waterfront heritage area.

The muddy sands of Swansea Bay are good for collecting marine shells, and a number of Conchological Society field meetings were held on Gower in the 1970s, reported in back

issues of *The Conchologist's Newsletter*.



figure 1 (left): Welsh breakfast, however the spelling error 'lavabread' (from volcanoes) should be corrected for the intended seaweed form 'laver' for easier eating!

British Shell Collectors' Club

Saturday 30th April 2016
Shell Convention

Saturday 29th October 2016
Shell Show

Both events at: Theydon Bois Community Centre, Coppice Row, Theydon Bois, CM16 7ER. Open from 9am to 5pm, admission free.

Dates of both events are to be confirmed; please check web site for further information: www.britishshellclub.org

Membership update

The following members have joined the Conchological Society recently or have not previously been included in either this column of *Mollusc World* or in the latest edition of the *Members' Guide* (2014). Please note that to be included here members must sign a data protection consent form. If you have not been included and now wish to be please contact Carolyn Postgate at CIRCA subscriptions (details on page 31).

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

- A – Applied conchology (shell artefacts/money, cooking, art etc);
- B – Conchological books; C – Conservation;
- D – Diving;
- E – Ecology and pollution; F – Fossils
- G – General malacology including genetics/physiology;
- Mb – British marine; Mf – Foreign marine;
- Nb – British non-marine; Nf – Foreign non-

marine; P – Photography;

W – Conchological poetry and prose; Z – Captive breeding of molluscs

Change of Address

(names and addresses removed)

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 and subscribers worldwide. Members receive two publications: Journal of Conchology which specialises in Molluscan Biogeography, Taxonomy and Conservation and this magazine. New members are always welcome to attend field meetings and indoor meetings before joining.

Some key contacts (see web site [<http://www.conchsoc.org/pages/contacts.php>] and 2014 membership list for additional contact details)

HON. PRESIDENT: Peter Topley
(for address see opposite) Email: president@conchsoc.org

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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 • Under 18 (receiving Mollusc World only) £5 • Student membership £15 • 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, CIRCA Subscriptions, 13-17 Sturton Street, Cambridge, CB1 2SN, (shellmember@gmail.com). 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. All originals will be treated with care and returned by post if requested. 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 March 2016 issue is 25th January 2016 but it would be helpful to the Editor to send articles by the second week of January in order to keep to publishing deadlines; inclusion in a particular issue is at the Hon. Editor's discretion and depends upon the 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 magazine Editor for further details.



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 shorter notice.

Saturday 21st November 2015: REGIONAL INDOOR MEETING: Haslemere Museum, Surrey.

Organiser: June Chatfield (01420 82214; collections@haslemeremuseum.co.uk).

A day of talks, exhibits, discussion and a public shell roadshow. E.W. Swanton, past President of the Society, was curator at this Museum, which houses his and other shell and fossil collections including the collection and archives of Sir Archibald Geikie of the British Geological Survey.

The museum is less than a mile from Haslemere railway station; there is a public car park nearby. Full details will be posted on the website.

Saturday 28th November 2015: WORKSHOP MEETING

10:00 – 17:00: by kind invitation of Judith Nelson at Hilbre House, Pembroke Road, Woking, Surrey GU22 7ED. The annual Woking workshop offers members the opportunity to receive tuition on identifying difficult groups. This year's workshop will examine shell sand from Mull, led by Adrian Rundle.

Those who wish to come should ring Judith (01483 761210) in advance for more details and to reserve a place. A fee of £5 will be charged to cover expenses. Please note that Hilbre House is a non-smoking property.

Saturday 12th December 2015: INDOOR MEETING: A Christmas miscellany

14:00 – 17:30: Angela Marmont Centre, Natural History Museum, Cromwell Rd., London SW7 5BD.

As usual, a meeting made up of a series of short presentations (5-20 minutes) by members: these can be anything mollusc-related, with or without exhibits. This will be followed by a glass of Christmas wine (free!); and then by supper at a nearby restaurant (pay your share...). If you would like to make a presentation, or want a place at the restaurant, please get in touch with Bas (contact details below).

(Council members please note that there will be a Council meeting before this meeting.)

Saturday 23rd January 2016: INDOOR MEETING: Demonstrations, exhibits and lecture.

Guest Speaker: Brian Eversham, - 'Climate change and habitat management for invertebrates, with special reference to molluscs'.

14:00 – 17:00: Angela Marmont Centre, Natural History Museum, Cromwell Rd., London SW7 5BD.

(Council members please note that there will be a Council meeting before this meeting.)

Saturday 27th February 2016: FULL DAY INDOOR MEETING: Demonstrations, discussion, exhibits and lecture.

Guest Speaker: Simon Taylor, - 'The marine gastropod family Haliotidae'.

11:00 – 17:00: Angela Marmont Centre, Natural History Museum, Cromwell Rd., London SW7 5BD.

The lecture will start shortly after 14:00.

(Council members please note that there will be no Council meeting before this meeting.)

Saturday 16th April 2016: ANNUAL GENERAL MEETING AND PRESIDENTIAL ADDRESS

Speaker: The President, Peter Topley, - 'Martin Lister – pioneer conchologist'.

14:00 – 17:30: Angela Marmont Centre, Natural History Museum, Cromwell Rd., London SW7 5BD.

(Council members please note that there will be a Council meeting before this meeting.)

Please note the following dates in 2016 for your diary:

Saturday 22 October 2016 * NB: CHANGED DATE***: INDOOR MEETING 14:00 (preceded by Council meeting).**

Saturday 19 November 2016: REGIONAL MEETING (venue tba).

Saturday 10 December 2016: INDOOR MEETING 14:00 (preceded by 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.** A group of us usually go out for a drink and a meal at a local restaurant after indoor meetings, with the speaker if his or her travel arrangements permit; please let Bas (contact details below) know if you would like to join us, if possible by the preceding Wednesday so that a large enough table can be booked.

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.